

Prilozi

Prilog - P1 Stručni prilozi (detaljna analiza navedenih referenci)

Knapp, R. T. (Nov. 1937): *Complete Characteristics of Centrifugal Pumps and their Use in the Prediction of Transient Behavior.* Trans. A. S. M. E, pp. 683-689.

Kompletne karakteristike centrifugalnih pumpi i njihova upotreba u predviđanjima ponašanja tranzijentnih pojava. Ovaj rad opisuje tehniku određivanja kompletne radne karakteristike hidraulične mašine kao što su centrifugalne pumpe ili turbine, zajedno na jednom dijagramu ukoliko je metoda za predstavljanje ovih karakteristika pogodna za ovaj način. Karakteristike modernih pumpi, visokog pada i visoke efikasnosti su analizirane i predstavljene na predloženi način. Upotreba ovih kompletnih karakteristika za predviđanje ponašanja mašine tokom tranzijentnog procesa se raspravlja i analitička pozadina je prikazana. Pretpostavke koje su uključene istražene su i nude se eksperimentalne provjere njihovog važenja. Međusobni odnosi između hidrauličnih karakteristika mašine i linije cjevovoda su označene.

Ako se uporede mogući uslovi rada hidraulične-turbine i instalacije centrifugalne pumpe, ubrzo je postalo jasno da su pumpe podložnije mnogo širim i više uključenim varijacijama nego turbine, posebno tokom prelaznih stanja startovanja, zaustavljanja ili hitnih operacija. U turbinama smjer protoka i smjer rotacije su uvijek isti, čak i u slučaju kvara na samoj mašini ili problema u cjevovodu i pratećoj opremi. Tako da performanse mašina uvijek leži u kvadrantu normalnog rada turbine, i pošto su njihove hidraulične karakteristike veoma dobro poznate u ovom kvadrantu, to je relativno jednostavan zadatak da se predvide kompletna dešavanja tokom eventualnog tranzijentnog stanja. S druge strane, pod sličnim uslovima sa instalacijom pumpe, protok može potpuno da promijeni smjer, kao što je rotacija. Mašina u ovom slučaju prestaje da bude pumpa, a nakon prolaska kroz zonu rasipanja, postaje turbina u pobjegu. Ovako velike varijacije u performansama izazivaju mnoga pitanja, kao što su brzina pobjega mašine kao turbine, vrijeme preokreta, magnitude sila ubrzanja, efekat ciklusa prenapona u linije protoka, maksimalna i obrnuta stopa protoka, i tako dalje. Na žalost na ova pitanja je veoma teško odgovoriti, iako su hidraulične performanse mašine dobro poznate dok djeluje kao pumpa, relativno malo studija je ikada napravljeno da se predstave ove performanse kao energetski disipator ili kao turbine.

Cilj ove studije je, stoga, da istraži ove malo poznate regione performansi i da pokuša da koristi prikupljene informacije da odgovori na neka od ovih važnih pitanja.

Prethodna ispitivanja

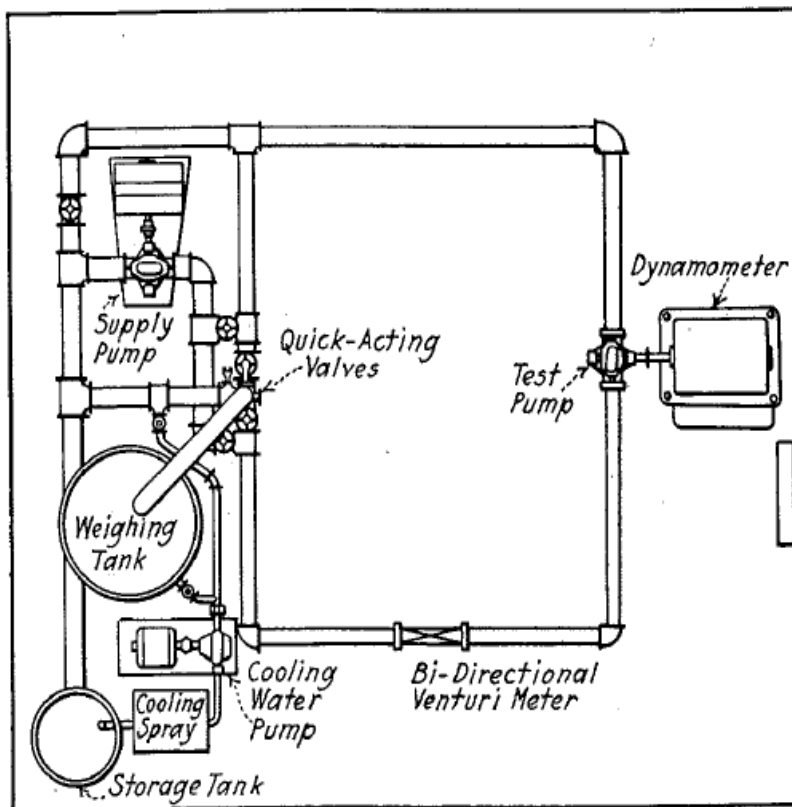
U 1931.godini, Kittredge i Thoma objavili su članak "Rad Centrifugalnih Pumpi pod nenormalnim uslovima". Ovaj rad je opisao eksperimente sprovedene sa malom pumpom radi dobijanja performansi karakteristika iz kojih se ponašanje pumpe tokom naglih promjena radnih uslova mogu predvidjeti. U ovim eksperimentima pumpa je radila pod uslovima negativnog pada, protoka i brzine, kao dodatak normalnom opsegu performansi. Kao izdanak rada serije istraživanja sprovedenih u hidrauličnim laboratorijama California Institute of Technology, pod rukovodstvom autora ovoga rada.

U jesen 1931.godine, Boothe i Lewis pokrenuli su preliminarnu istragu na 11/2 x 10-in. jedno usisnu pumpu. Iako su rezultati bili veoma interesantni, osjetilo se da je pumpa bila suviše mala i efikasnost suviše niska da bude potpuno tipično za moderne instalacije.

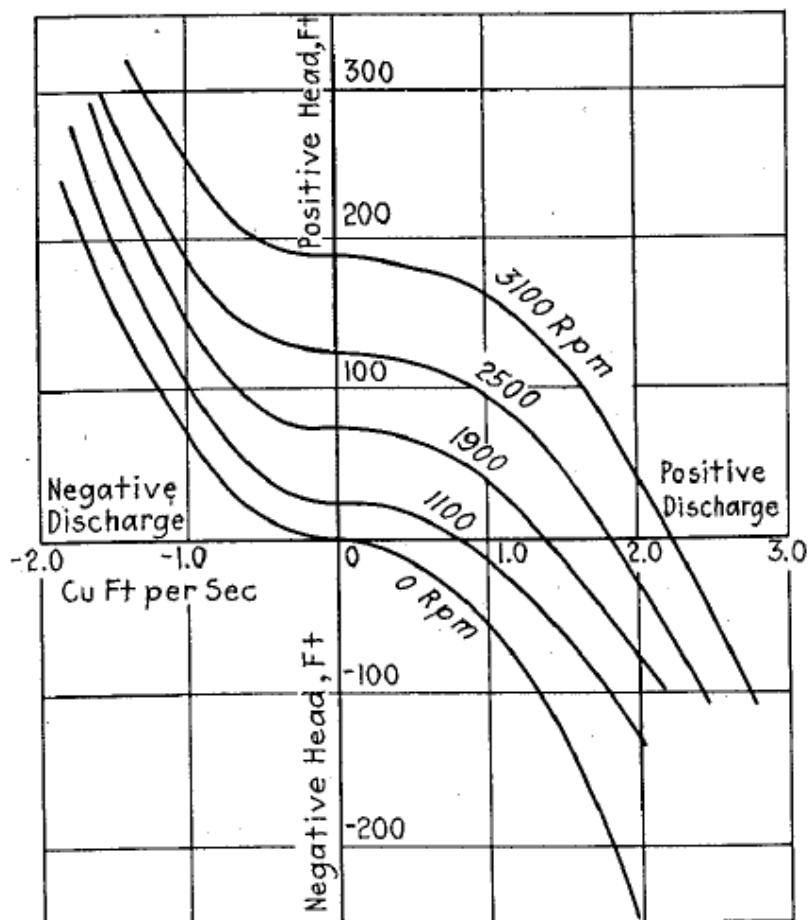
U proljeće 1932.godine, dvije 4-in. pumpe visokog-pada i visoke efikasnosti su bile dostupne posredstvom velikodušnosti kompanije Byron-Jackson. Ove pumpe su instalisane u ljeto 1932.godine, i rad je nastavljen sa njima u naredne dvije godine. Prve rezultate su naveli Haynes i Sauermann u 1933.godini i u 1934.godini potpunija prezentacija je napravljena na osnovu ovih autora. Studija takođe snadbijeva većinu pozadine ovog članka.

Utvrđivanje kompletnih karakteristika

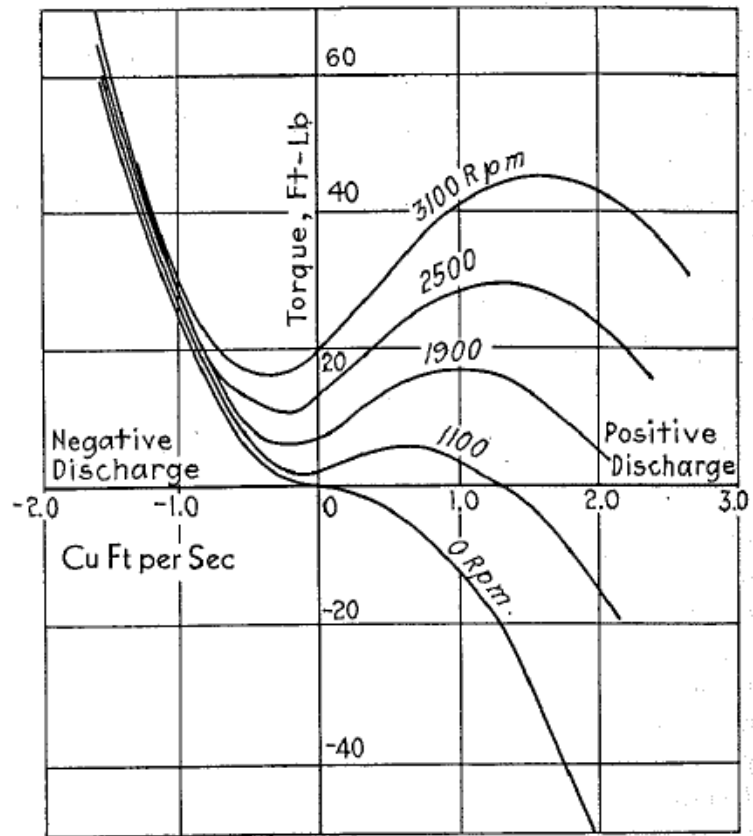
(A) *Laboratorijska oprema.* Ciljevi programa ispitivanja zahtijevali su da pumpa bude tako instalisana da tokom ispitivanja može da radi pod svim mogućim uslovima protoka, pada, brzine, kao pumpa i kao turbina. Zbog toga, od dvije dostupne pumpe, ona sa najmanjim padom i kapacitetom izabrana je kao test pumpa, dok je druga pumpa bila označena kao servisna ili pumpa za napajanje i bila je povezana tako da može da obezbijedi bilo liniju usisavanje ili pražnjenja test pumpe. Test pumpa je povezana sa Sprague električnim dinamometrom koji je bio sposoban da radi bilo kao motor ili generator pri bilo kojoj brzini do 3500 rpm u oba smjera rotacije. On je imao kapacitet od 100 hp-ks ili oko dva maksimuma zahtjeva bilo kojeg radnog stanja pumpe. Na Sl.1, prikazan je dijagram kompletne opreme. Može se primijetiti da su obezbijedeni rezervoar sa raspršivačem i pomoćna pumpa za hlađenje sistema. Ovo je bilo neophodno jer je ukupna ulazna snaga ispitne i servisne pumpe reda veličine kao 150 ks-hp, i pošto je sistem bio zatvoren sa relativno malim zapreminskim kapacitetom, takva ulazna snaga bi izazvala nagli rast temperature ali je podešeno da se rasipa.



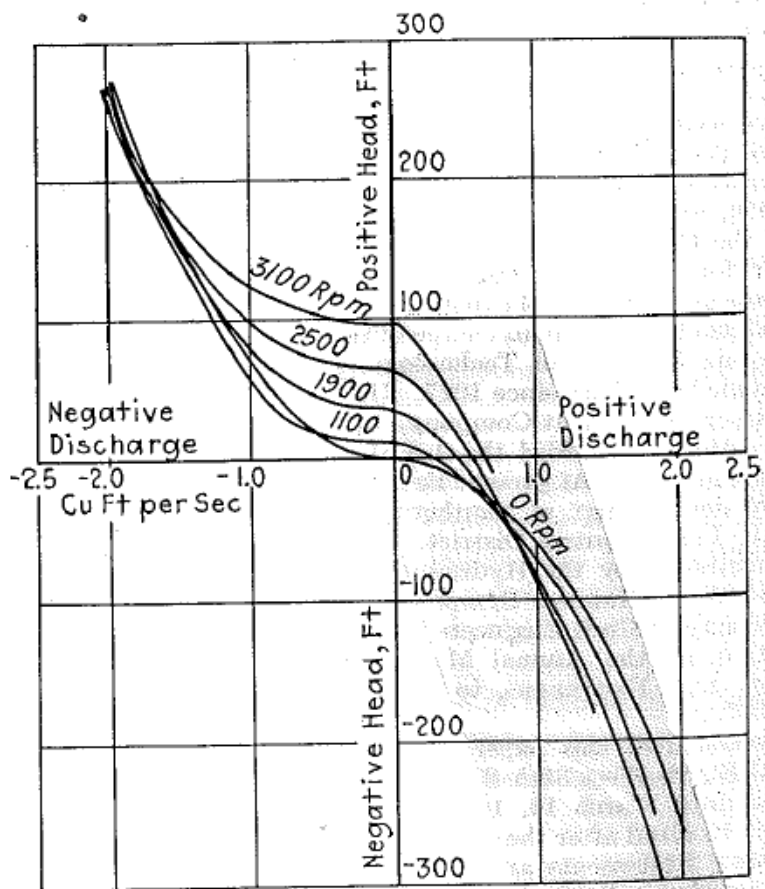
Slika 1. Raspored cijevi za instalaciju ispitne pumpe



Slika 2. Pozitivne krive – rotacija – pad - protok



Slika 3. Pozitivne krive – rotacija – moment - protok



Slika 4. Negativne krive - rotacija – pad - protok

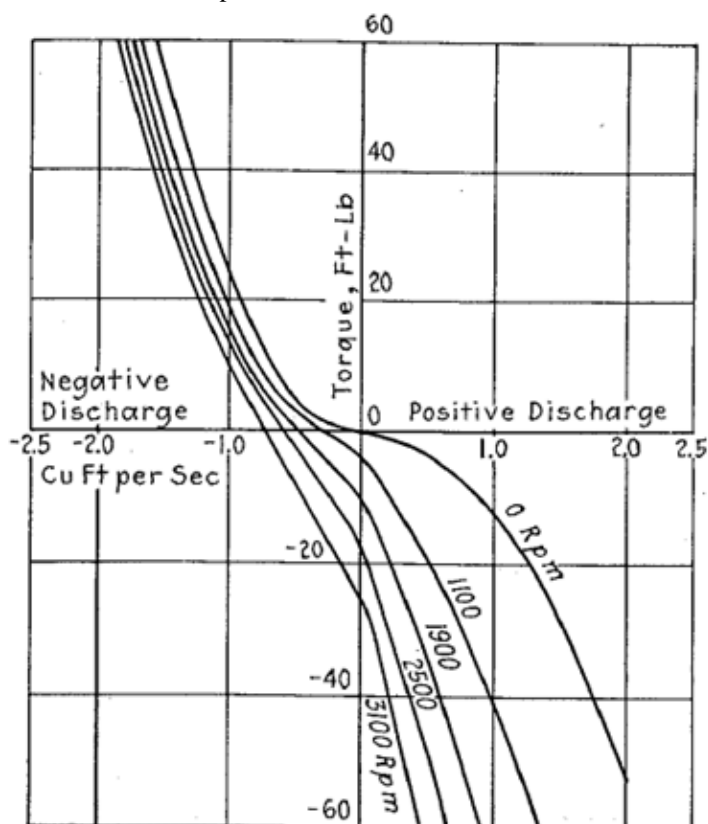
(B) *Instrumenti.* Osnovni metod mjerenja stope protoka je pomoću mjernog rezervoara i sinhronizovanog hronografa. Radni sekundarni standard je dvosmjerna venturi cijev, kalibrisana u mjestu. Ova cijev je konstruisana u laboratoriji, i sastoji se od dva simetrična duga zašiljena konusa sa pjezometarskim prstenovima u centru i na svakom kraju. Brzina je mjerena sa magnetnim-kvačilo brojačem rezolucija ili kontaktom koji se obrće i koji bilježi svaku desetu rezoluciju na bubnju hronografa. Niski pritisci su mjereni pomoću živinog manometra od šest stopa, sa posebna težinskim-klipom, vage za očitavanje pritiska su tačnosti do 1/10 lb po kvadratnom in. su konstruisane za mjerenje visokog pritiska. Obrtni moment je mjereno direktno sa vagom u ležištu dinamometra. Na svim mjestima pažnja je posvećena da se osigura tačnost operacije mjerenja.

(C) *Eksperimenti.* Raspored ispitivanja se sastojao od niza pokretanja sa konstantnom brzinom, kako u normalnom tako i u obrnutom smjeru. Za svaku brzinu ispuštanje je variralo od maksimalno negativne do maksimalno pozitivne vrijednosti. Negativno ispuštanje podrazumjeva da je protok bio od ispuštanja u ulazu pumpe. Opseg ispuštanja je bio otprilike isti za sve brzine, u rasponu od oko -200 do + 150 posto normalne brzine za pumpu kada radi na 3100 rpm. Treba napomenuti da je jedna od konstantnih brzina pokretanja u nizu i nulta brzina. Za ovaj niz pokretanja na radnom kolu i vratilu očitavan je obrtni moment direktno kako je protok varirao u običajenom rasponu.

(D) *Krive konstantne brzine.* Rezultati ovih pokretanja su prvo nacrtani u nizu krivih konstantne brzine prikazanih na Sl.2 do 5 zaključno. Sa Sl.2 i 4 na kojima su krive pad - protok za pozitivne i negativne rotacije, dok Sl.3 i 5 pokazuju odnose obrtnog momenta i protoka. Ako ispitujemo ove krive, moramo imati u vidu nekoliko zanimljivih stvari: na primjer, (a) postoje prekidi čak i na mjestima gdje pad, protok ili obrtni moment poništavaju znak, (b) kriva nula brzina je glatka i ima karakterističan oblik ostalih krivih u nizu.

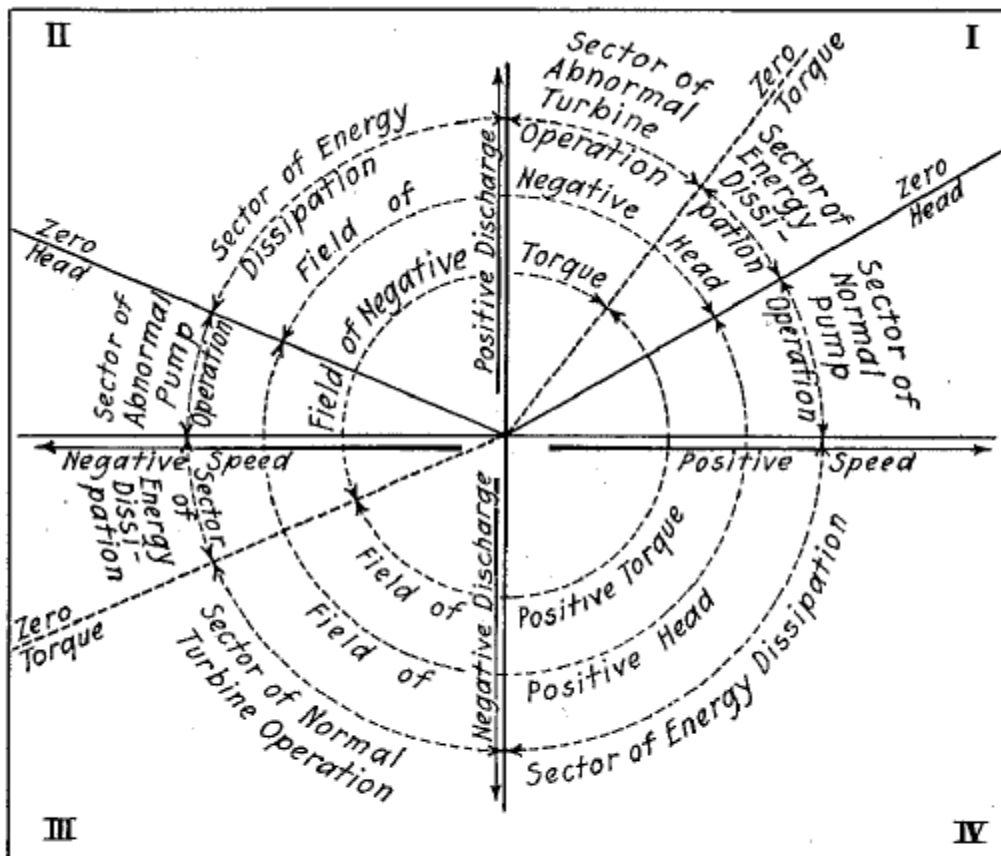
(E) *Dijagram kompletnih karakteristika.* U radovima Kittredge i Thoma, ranije su predstavljene konačni rezultati u dvije serije krivih. Prvi set pokazuje varijacije u padu i snazi nacrtanim u odnosu na protok, dok je brzina održana sa konstantnom pozitivnom ili negativnom vrijednosti. Drugi set je nacrtan sa istim varijablama u odnosu na brzinu, dok je protok održan u datim konstantnim vrijednostima. Prvi set je naravno, analogan Sl.2 do 5 iz ovog članka.

Konačnu prezentaciju rezultata tekućeg ispitivanja, predložio je Prof. Th. sa Kármán Instituta da bi dobili sveobuhvatnu i korisnu sliku kompletnih performansi mašine i svi rezultati su predstavljeni na jednom od četiri kvadranta dijagrama koji ima kao koordinate protok i brzinu.



Slika 5. Negativne krive – rotacija – moment - protok

Zasluge ovog konkretnog dijagrama su da se lakše vidi kratko proučavanje ovih karakteristika prije nego što se koriste. Na Sl.6, prikazan je grafikon objašnjenja za takav dijagram, i pokazuje način na koji su odvojene različite zone rada. Vidi se da postoje dvije zone rada pumpe, zona normalnog rada u prvom kvadrantu i zona abnormalnog rada ili obrnute rotacije u drugom kvadrantu. Isto tako postoje dvije zone rada turbine, zona normalnog rada u trećem kvadrantu, i zona abnormalnog rada ili jedan odjeljak izvan protoka u prvom kvadrantu. Svaka od ovih zona je zona mogućeg korisnog rada, i odvojene su od ostalih zona rasipanja u kojima se ne obavlja koristan rad bilo na fluid ili od fluida. Na primjer, cijeli četvrti kvadrant je takva zona, i odvaja zonu normalnog rada pumpe od zone normalnog rada turbine. Pošto su svi mogući uslovi rada predstavljeni na ovom grafikonu može se zvati "dijagram potpunih karakteristika" testirane hidraulične mašine. To je naravno jednako primjenljivo bilo sa pumpom ili turbinom.



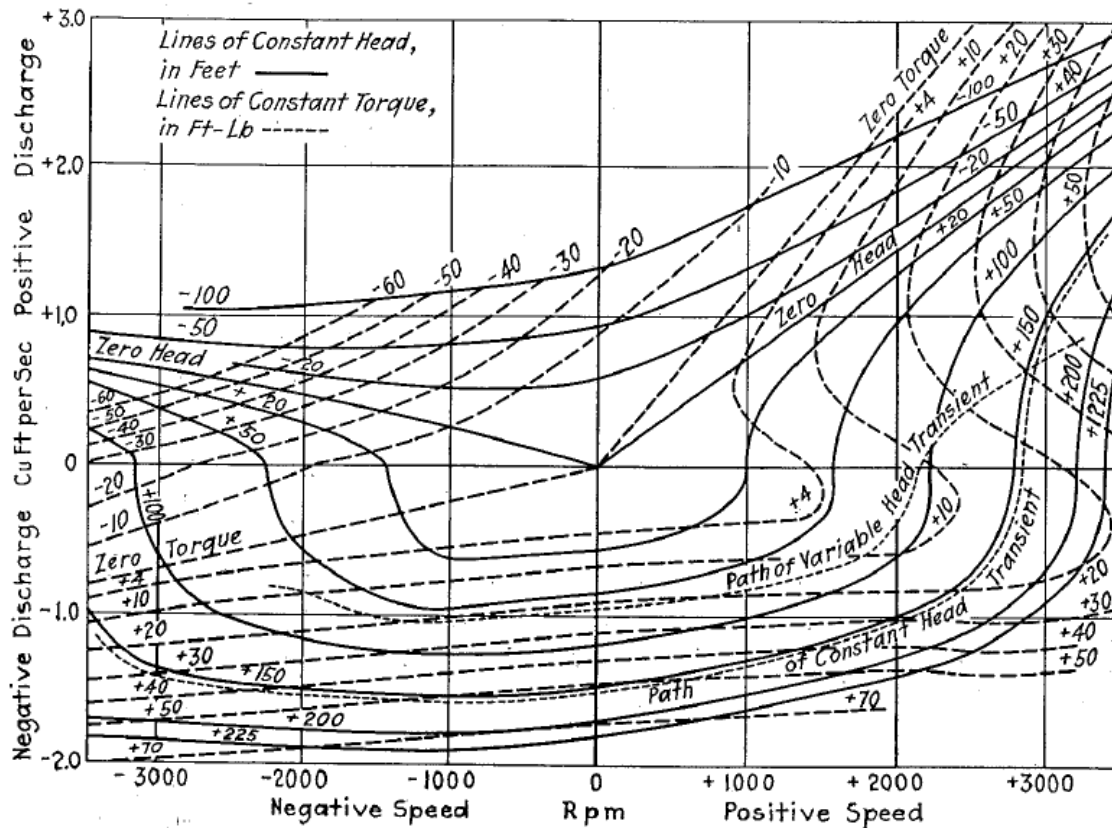
Slika 6. Objašnjenje dijagrama sa grafikonom kompletnih karakteristika

Na Sl.7 prikazan je dijagram sa kompletnim karakteristikama za testiranu 4 - in. Dvostruko - usisnu pumpu. Podaci su prikazani kao niz kontura krivih linija stalnih vrijednosti pada i obrtnog momenta, pune linije su linije konstantnog pada a isprekidane linije su linije konstantnog obrtnog momenta. Zanimljivo je primijetiti da su oba para linija nula-pada i nula-obrtno momenta praktično ravne linije. One, naravno, formiraju asimptote za odgovarajuće porodice konturnih krivih. Svaka porodica pokazuje razuman dogovor sa zakonima sličnosti, to jest, cijela porodica može da se približno izračunati iz bilo koje pojedinačne krive. Međutim postoje neka odstupanja, u zonama nenormalnog ponašanja i rasipanja. Ova odstupanja su vjerovatno izazvana uglavnom od početne ili razvijene kavitacije u nekom dijelu mašine. Stoga, ove zone dijagrama su donekle osjetljive na vrijednosti izabrane za bazni pritisak za određeno stanje protoka koji se ispituje. Sa ove tačke gledišta, čini se preporučljivo da se standardizuju na postojećem normalnom pritisku na ulazu u pumpu pod uslovima predložene instalacije, ako dijagram treba da se koristi za izračunavanje tranzijentnog stanja.

Za neke svrhe poželjno je dodati i treći set kontura na ovom dijagramu, tj linije konstantne efikasnosti. One bi postojale samo u četiri zone korisnog rada, jer je efikasnost jednaka nuli tokom sve četiri zone rasipanja. U zonama nenormalnog rada pumpe i turbine sve efikasnosti su veoma niske, ali visoke efikasnosti istog reda veličine su pronađene u zonama normalnog rada pumpe i turbine.

Mnoge kritične radne tačke mogu se pročitati direktno iz dijagrama. Na primjer, za jedan dati pad koji predvodi brzinu kojom pumpanje prestaje i protok se poništava daje raskrnicu linije konstantnog pada u skladu sa osom brzine, koja je linija nultog protoka; negativni protok na kojem mašina preokreće svoj pravac određuje raskrnicu linije istog konstantnog-pada u skladu sa osom protoka, koja je linija nulte brzine; odgovarajuća brzina pobjega turbine nalazi se po prelasku linije nula – obrtni moment od te iste konture konstanta-pada. Maksimalni obrnuti protok i odgovarajuća brzina određuju tačke tangenti horizontalne linije sa ovom konturom pada.

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Slika 7. Dijagram kompletnih karakteristika za 4 - in. Dvostruko - usisnu pumpu

Predviđanje ponašanja tranzijentih procesa

(A) *Osnovni principi.* Kao što je ranije rečeno, dijagram kompletnih karakteristika, Sl.7, pokriva sve moguće uslove rada mašine u okviru prikazanih opsega brzine i protoka. Prema tome, ako postoji promjena u radnim uslovima mora postojati mogućnost da se nacrti put ove promjene na dijagramu. Razmotrimo jednostavan primjer: pretpostavimo da ispitna pumpa radi pri 3200 rpm i ispuštaju vodu u rezervoar na 150 ft iznad usisa, preko potopljenog izlaznog cjevovoda toliko velikog da bi se gubici trenja i mogući prenaponi mogli smatrati zanemarljivim. Onda, bez obzira koja je pumpa i pad će ostati konstantan. Tako da radna tačka uvijek ostaje na linija pada 150-ft na dijagramu. Ako bi se snaga pokretanja uklonila, radna tačka bi se kretala niz liniju iz prvog kvadranta, kroz četvrti kvadrant i u trećem kvadrantu dok ne presiječe liniju nula obrtnog momenta pri negativnoj brzini od približno 3600 rpm (pobjeg turbine) koja će biti nova tačka ravnoteže. Istovremeno vrijednosti protoka, brzine i obrtnog momenta se mogu pročitati iz dijagrama za svaku tačku duž linije konstantnog pada. Pošto je pokretački moment uklonjen, vrijednosti obrtnog momenta naznačene na dijagramu moraju biti dostavljene od strane usporavanja rotirajuće mase sistema. Ako je poznat polarni moment inercije ovog rotirajućeg sistema, moguće je izračunati postojeći odnos vremena i brzine tokom promjene. Ako bi pratili bilo koji drugi put brzina-pada, slični proračuni mogu biti napravljeni.

Korisnost ove metode je u tome što nudi način izračunavanja vremenskih karakteristika takvih događaja kao što su normalno pokretanje i zaustavljanje pumpnog postrojenja, nenormalno isključenje zbog nestanka struje, ponašanje pumpe u slučaju loma vratila, ili druga stanja vanrednih situacija nastalih u radu postrojenja. Naravno, to samo po sebi ne daje cijelu sliku, za prenaponske pritiske u odvodnoj liniji normalne instalacije tokom tranzijenata koji su od velikog značaja. Međutim, sa dijagrama sa kompletnim karakteristikama mašine mogu se preuzeti informacije potrebne za izračunavanje porasta pritiska, podaci o porastu pritiska su neophodni kako bi nacrtali putanju brzina - pad na dijagramu. Ovo očigledno pokazuje da je proračun korak - po - korak neophodan za kompletno određivanje performansi. Rezultat bi trebalo da bude vrijedan truda, sa informacijama koje bi dobio, projektant bi bio u položaju, na primjer, da utvrdi sa sigurnošću da li ili ne rasterećenje ili brzo zatvaranje ventila bi bilo neophodno za funkcionisanje sistema, i ako je tako da utvrdi njihove kompletne vremenske karakteristike.

Korišćenje grafičke metode za probleme hidrauličkog udara opisali su Schnyder, Bergeron, i Angus, ovo rješenje korak - po - korak može biti znatno pojednostavljeno kada se izučavaju uslovi porasata talasa pritiska u liniji pumpanje – pražnjenje.

(B) *Uključene pretpostavke.* Jednostavno korišćenje predloženih kompletnih karakteristika sa dijagram podrazumjeva da glavne pretpostavke moraju biti temeljno razumijene i imati ih na umu tokom primjene. Glavna pretpostavka na osnovu koje većina ostalih zavisi, je da trenutne performanse mašine za bilo koji set trenutnih uslova koji se javlja tokom tranzijentnih procesa su identične sa performansama stacionarnog stanja za iste uslove rada. U ovoj pretpostavci dvije druge su implicirane, (a) da dva ili više vrsta protoka ne mogu da postoje u mašini za jedan dati set uslova rada, čak i na trenutak, i (b) da trenutna ubrzanja sile koja djeluje na tečnost unutar mašine tokom tranzijentnog stanja su mala u poređenju sa silama koje su potrebne za normalan stabilan rad u tom stanju. Ako ove pretpostavke ne važe u granicama željene tačnosti za proračune ili ako korekcije ne možemo lako primijeniti da ih dovedemo u okviru ovih ograničenja onda metod nije primjenljiv. To je, dakle, odlučilo da se pokuša da se izvrši eksperimentalna test metoda i pretpostavke za nekoliko jednostavnih slučajeva tranzijentnih stanja koja bi mogla biti ispitivana u okviru ograničenja laboratorijske opreme. Međutim, prije nego što su ovi eksperimenti opisani, biće više riječi o analitičkoj pozadini predviđanja tranzijentnog stanja.

(C) *Analitička pozadina.* Jednačina kretanja rotirajućeg sistema je,

$$M = I \frac{d\omega}{dt} \quad (1)$$

gdje je

M = neuravnoteženi moment primijenjen na sistem

I = moment inercije sistema oko ose rotacije

ω = ugaona brzina

t = vrijeme

ako ω zamijenimo sa ekvivalentnim izrazom $\frac{2\pi N}{60}$ onda postaje

$$M = \frac{\pi}{30} I \frac{dN}{dt} \quad (2)$$

gde je N = obrtaja u minuti.

Ovo može biti integraljeno da se dobije

$$t_2 - t_1 = \frac{\pi}{30} I \int_{N_1}^{N_2} \frac{1}{M} dN \quad (3)$$

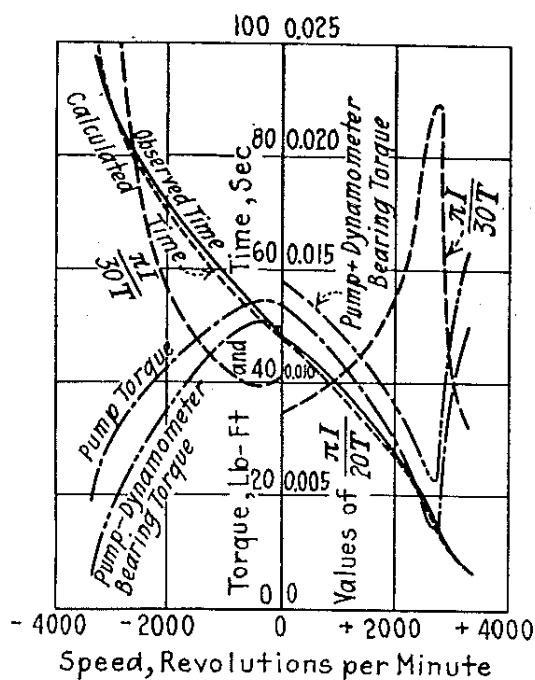
Ako je moment poznat kao matematička funkcija brzine moguće je ovo analitički integrisati, ali ako je odnos poznat samo empirijski uvijek je moguće da se integral grafički procijeni. Ovo posljednje je više uobičajen slučaj. Postupak je jednostavan za crtanje $\frac{\pi I}{30M}$ kao funkcije od N . Površina ispod krive između bilo koje dvije vrijednosti brzine, N_1 i N_2 , je jednaka vremenu potrebnom da se brzina promijeni od N_1 do N_2 . Ako se nacrtaju cijela kriva integrala daće brzinu kao funkciju vremena.

Upravo je opisan i preciziran metod korišćen za predviđanje odnosa vremena - brzina tokom tranzijentnog procesa na pumpi iz poznatih odnosa brzina - pad iz dijagrama kompletnih karakteristika. Naravno, kako je navedeno u odjeljku (A) ovog dijela pasusa, odnos brzina - pad je često implicitna funkcija karakteristika linije pražnjenja i karakteristikama mašine. U tom slučaju vjerovatno će biti potrebno nacrtati i integrisanu diferencijalnu krivu korak po korak. Nakon što je iscrtana integralna kriva, dajući odnos brzine - vremena, može se dobiti još jedan podatak. Vrijednosti brzina ove krive su identične sa onima na dijagramu kompletnih karakteristika, prateći liniju poznatog odnosa brzina - pad. Ali duž ove linije, svaka brzina odgovara određenoj vrijednosti protoka. Shodno tome vrijednosti iz dva dijagrama mogu se kombinovati dajući krive protok - vrijeme za tranzijentne promjene.

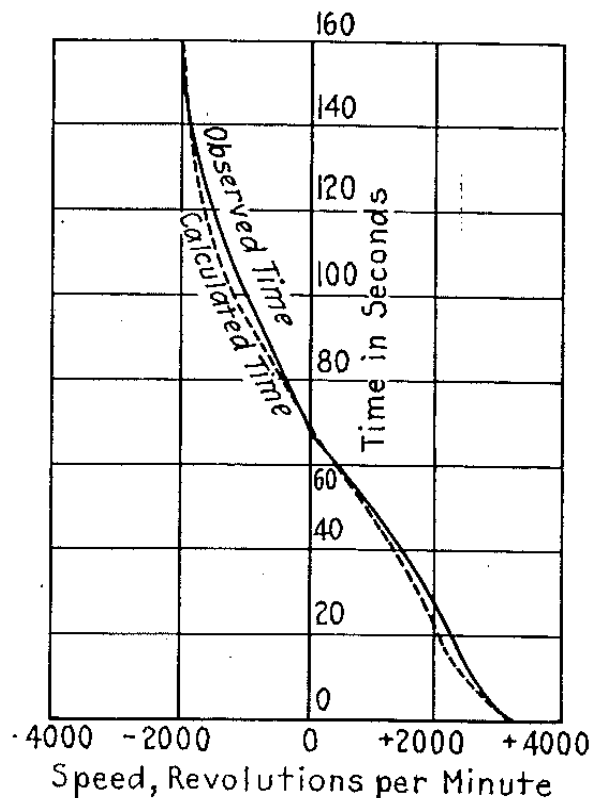
(D) *Eksperimentalna verifikacija predviđanja tranzijentnih procesa.* Proučavanjem metode za analizu tranzijentnih procesa jednostavno je predstavljena i predložena najdirektnija vrsta eksperimentalne provjere. Ovo će da vodi pumpu kroz poznate promjene radnih uslova, eksperimentalno određivanje stvarnog odnosa brzine - vremena i upoređivanje sa predviđenim izračunavanjima prema opisanoj metodi iz posmatranog odnosa brzina - pad. Ako je ovo dvoje dogovoreno, to bi bio direktan dokaz o validnosti pretpostavki metode.

Najjednostavniji način obavljanja ovih eksperimenata je da se počne sa ispitnom i servisnom pumpom za obje operacije i ispuštanja u zajedničku liniju. Ako je odsječeno napajanje ispitne pumpe onda bi pumpa obezbijedila pritisak neophodan da se održi pad. Ispitna pumpa će usporiti, preokrenuti, i doći do brzine kao što je pobjeg turbine.

Regularni instrumenti dozvoljavaju takve eksperimente. Primarna očitavanja su potrebna za brzinu i vrijeme. Oni su automatski evidentirani na hronograf zapisniku vremena vs. ukupnom broju obrtaja. Trenutna brzina je određena tačnim mjerenjem broja obrtaja snimljenih u malom intervalu vremena. Napravljena su dva kanala protoka mjernih podataka. Kontrolisanjem ispusnog ventila na servisnoj pumpi pad na ispitnoj pumpi je zadržan konstantnim nezavisno od brzine ispitne pumpe. Kod drugog metoda, podešavanje na ispusnom ventilu nije promijenjeno, dok je ispitna pumpa usporenija, izlazni pritisak je pao dok se ne postigne uslov ravnoteže gdje se ispitna pumpa vodi kao pobjeg turbine na isporučenoj vodi od servisne pumpe. Za ovaj slučaj podaci brzina - pad su istovremeno zabilježeni od strane osmatrača.



Slika 8. Odnos brzine - vremena tranzijenta pobjeg (konstantan - pad)

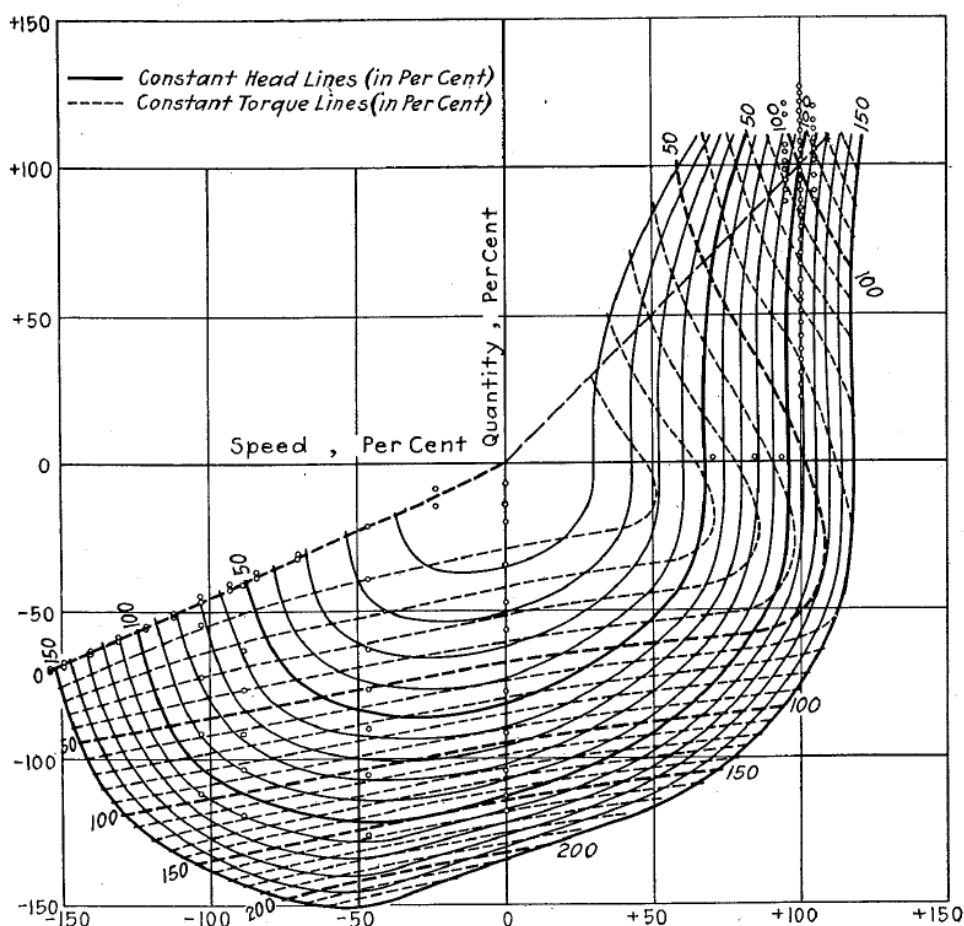


Slika 9. Odnos brzine – vremena tranzijenta pobjeg (promjenljiv - pad)

Metod predviđanja odnosa tokom prelaznog procesa je bio isti za oba testa. Prvo put je prikazana putanja pad - brzina na dijagramu kompletnih karakteristika direktno preuzetih iz očitavanja tokom eksperimenta. Iz ove putanje odnos moment - brzina je nacrtan. Tokom stvarnog pobjega dodatni obrtni momenat je djelovao na rotirajući sistem. Ovo je bio dinamometar za mjerenje trenja na ležaju, čija vrijednost je prethodno pažljivo određena. Ovo trenje je uvijek suprotno pravcu kretanja. Djelovanje vode je suprotno kretanju radnog kola dok ne dovede do zastoja, zatim proizvede ubrzanje dok se ne postigne brzina pobjega. Nastali obrtni moment na sistemu je tako bio zbir dva momenta od početne tačke do tačke nula brzina, a razlike od njih je iz te tačke do tačke ravnoteže stanja pobjega.

Na Sl.8, se pokazuje tranzijent pobjeg pri konstantnom – padu. Putanja brzina-pad može se vidjeti u svijetlim isprekidanim linijama na Sl.7. Kriva na Sl.8, označava moment pumpe i pokazuje očitane vrijednosti brzine - momenta iz Sl.7. Kriva označene pumpe i dinamometar obrtnog momenta pokazuje dodatak od trenja ležaja dinamometra. Obrnuto proporcionalno toj krivi, pomnoži se sa konstantom $\frac{\pi}{30} I$, i zatim je nacrtano. Kriva integrala od ovoga je isprekidana kriva brzina – vrijeme. Puna kriva brzina - vrijeme prikazuje stvarne eksperimentalne vrijednosti.

Sl.9, pokazuje predviđene i uočene krive brzina - vrijeme za slučaj gdje pad varira tokom tranzijentnog procesa. Putanja ovog pobjega se može takođe vidjeti u svijetlim isprekidanim linijama na Sl.7. Ove krive su karakteristične za grupe kontrolnih prolaza koji su napravljeni. U svim slučajevima saglasnost između predviđenih odnosa i posmatranih vrijednosti je bolje nego što se razumno može očekivati.



Slika 10. Kompletne karakteristike pumpe (Jedno - usisni model; specifična brzina 1700 rpm.)

U jednom smislu, ova provjera pobjega u potpunosti ne zadovoljava sva pitanja. Zbog velikog momenta inercije armature dinamometra, svi tranzijentni pobjezi koje je bilo moguće uraditi imaju relativno niske brzine. U jednom brzem tranzijentu prikazanom na, Sl.8, vidi se da je bilo potrebno oko 48 sec do tačke preokreta rotacije, a oko 100 sek do približne ravnoteže brzine pobjega. To je znatno duže nego što bi to bio slučaj sa prosječnom instalacijom. S druge strane, saglasnost je ovdje toliko dobra da bi značajna dodatna greška bila podnošljiva prije nego što bi korisnost rezultata postala oštećena.

Nastavak istraživanja

Tokom proljeća 1934.godine, dok poslednji od ovih testova su bili završeni, nova laboratorija za hidraulične - mašine je projektovana i gradila se na Kalifornijskom Institutu za Tehnologiju, u saradnji sa Metropolitan Water District u Južnoj Kaliforniji. Puštena je u rad u avgustu te godine i od tada se intenzivno izvodi program proučavanja problema visoko - pritisknog pumpnog postrojenja rijeke Kolorado. Opis ove laboratorije od strane autora ovoga rada može se naći u Transactions. Jedan dio ovog rada bio je utvrđivanje kompletnih karakteristika nekoliko modela pumpi testiranih u laboratoriji. Sl.10 prikazuje jedan primjer ovih dijagrama koji su objavljeni kroz ljubaznost Byron-Jackson Kompanije i Metropolitan Water District. Pumpa, čije su karakteristike prikazane, je mnogo veća od one koja se koristi u prethodnom radu, i koja zahtijeva oko 300 ks-hp kada radi na tački sa najboljom efikasnosti i protivno padu od 300 ft. Ona predstavlja najbolju postojeću praktičnu pumpu, pošto je na modelu prikazana ispitana efikasnost od preko 92 procenta. Očekuje se da će u bliskoj budućnosti biti dobijeno više kompletnih testova od ovog i ostalih modela velikih razmjera sa različitim specifičnim brzinama, takođe da se i za ostale tranzijente kontroliše pobjeg na višim ubrzanjima i da se omogući detaljnije testiranje validnosti ove metode izračunavanja tranzijenata.

Donsky, B. (1961). *Complete pump characteristics and the effects of specific speeds on hydraulic transients.* J Basic Eng, Trans ASME, pp.685-699.

U ovom radu su predstavljene kompletne karakteristike pumpi određenih specifičnih brzina 1800, 7600, i 13,500 (u gpm jedinicama) u $v - hp$ (protok - pad) koordinatnom sistemu. Opisan je metod za izradu kompletnih karakteristika pumpe od podataka dobijenih na modelskim ispitivanjima. Upoređena su tri kompleta karakteristika pumpi, pikazani su efekti određenih specifičnih brzina na hidraulične prelazne procese uslijed odvajanja pumpe od mreže ili zaustavljanja pumpe.

Kompletne radne karakteristike pumpi sa različitim specifičnim brzinama nijesu uvijek dostupne. U principu, proizvođači pumpi dostave pad, snagu i efikasnost iscrtane na dijagramima u odnosu na protok za normalnu brzinu rada pumpe. Iz ovih podataka mogu se odrediti karakteristike normalnog rada pumpe. Neophodno je imati kompletne karakteristike pumpe da se odredi rad pumpe za sva moguća stacionarna stanja, ili da se odrede prelazni uslovi za normalni ili abnormalni rad pumpe. Kompletne karakteristike pumpe sastoje se od zone rada pumpe, rada turbine, i energetske disipacije. Ove se zone mogu crtati kao familije krivih brzine i obrtnog momenta u $v - hp$ (protok - pad) koordinatnom sistemu. U ovom obliku zgodno je utvrditi efekte tranzijenta hidrauličkog udara grafičkim postupkom. Osim toga, moguće je utvrditi ispitivanjem postojeće uslove stacionarnog stanja pri različitim padovima ili brzina pod normalnim i nenormalnim uslovima rada. Osim toga, primjeri efekata tranzijenata koje se mogu utvrditi korišćenjem ovih karakteristika uključuju hidraulički udar u usisnoj i ispusnoj liniji za normalna ili abnormalna pokretanja i zaustavljanja pumpi, brzine pumpe, protoka kroz pumpe, i efekata zatvaranja ventila, trenja u cijevima, i slično.

Da bi se izvršilo proučavanje prethodno navedenog sa dovoljnom tačnošću potrebno je imati kompletne karakteristike pumpe približno iste specifične brzine i kako da se vrši proučavanje. U većini slučajeva to nije dostupno, i često je bilo pokrenuto pitanje kako sa greškom koja je bila uvedena u proučavanje tranzijenata upotrebom neodgovarajućih karakteristika pumpe. Ovaj rad predstavlja tri kompleta karakteristika pumpi koje pokrivaju širok spektar specifičnih brzina. Te tri karakteristike su upoređene, i prikazani su uticaji specifičnih brzina na hidraulične prelazne procese.

Profesor Hollander na California Institute of Technology obezbijedio je osnovne podatke sa ispitivanja za tri pumpe specifičnih brzina 1800, 7600, i 13.500 (gpm jedinice). Podaci dobijeni na ispitivanjima su prikazani u formi Karman - Knapp kružnih dijagrama. Podaci dobijeni na ispitivanjima prikazani su krivima od plus i minus 100 procenata pada i obrtnog momenta i nula pada i obrtnog momenta u koordinatnom sistemu brzina - protok.

Krive koje prikazuju pad nula i obrtni moment nula su obično prave linije. Izuzetak je karakteristika specifične brzine 1800 gde je linija pad nula u regionu negativne brzine i nije ravna. U Karman - Knapp dijagramu krive koje prolaze kroz tjeme su asimptote za odgovarajuću familiju krivih. Karakteristika specifične brzine 7600 pokazuje da postoji nestabilno stanje u zoni normalnog rada pumpe.

Svi podaci dobijeni na ispitivanjima su predstavljeni u procentima od vrijednosti pada, protoka, obrtnog momenta i brzine u tački sa najboljom efikasnosti. Zbog toga razvijene karakteristike važe za sve pumpe koje imaju približno iste specifične brzine.

Upotrebom homolognih zakona, za pumpe podaci dobijeni na ispitivanjima su produženi u familije krivih pada i obrtnog momenta na sledeći način: prave linije se provedu kroz tjeme Karman - Knapp dijagrama da sijeku krive od pada ili obrtnog momenta. Zatim, druge krive pada i obrtnog momenta su proizvedene koristeći zakone za datu pumpu, pad koji isporučuje pumpa i ulazni moment variraju sa kvadratom brzine rotacije. Crtanjem proširenih Karman - Knapp dijagrama sa $v-hp$ koordinatama, dobijene su karakteristike pumpe sa familijom krivih obrtnog momenta i brzine. Ravne linije povučene na Karman - Knapp dijagramu postaju parabole kroz tjeme $v-hp$ koordinatnog sistema. Konačno, kompleti karakteristika su proizvedeni uz korišćenje parabola i homolognih zakona, za datu pumpu, pad koji isporučuje pumpa direktno varira sa ulaznim obrtnim momentom i kvadratom brzine, a protok varira direktno sa brzinom.

Zakrivljenost krive pad nula od karakteristika specifične brzine 1800 ukazuje na usku oblast u kojoj homologni zakoni nijesu održivi. Ovo je region abnormalnog rada pumpe u kojima je protok pozitivan, a rotacija negativna. Pumpa bi trebalo da bude primorana da radi u ovom regionu po laboratorijskim procedurama. Krive obrtnog momenta i brzine za ovaj region izvučene su interpolacijom i ublažavanjem krivih se postiže da one mogu da prate homologne zakone. Nestabilno stanje (Region **J**) postoji na karakteristikama specifične brzine 7600. Ovaj uslov je reprodukovano samo na 100 procenata krivim obrtnog momenta i brzine u $v-hp$ koordinatnom sistemu, jer ova nestabilnost ne može da postoji kod ostalih pumpi iste specifične brzine, ili ne može biti u istoj lokaciji karakteristika. Predstavljene krive su u prosjeku izvučene za 100 procenata odnosa obrtnog momenta i brzine kroz nestabilni region, i ove krive su korišćene za određivanje drugih vrijednosti obrtnog momenta i brzine. Ovo je razmatrano da proizvede više reprezentativne karakteristike pumpe specifične brzine 7600.

Kompletne karakteristike pumpe prikazane u ovom radu obuhvataju niz specifičnih brzina od 1800 do 13.500. Prikazane su karakteristike za pumpu specifične brzine 1800. Pumpe sa specifičnim brzinama oko ovog obima su označene kao pumpe radijalnog protoka i razvijaju svoj pad od centrifugalne sile. Pumpe radijalnog protoka se obično koriste za veće padove. Prikazane su karakteristike za pumpu specifične brzine 13.500. Pumpe sa specifičnom brzinom približnom ovoj veličini su označene kao pumpe aksijalnog protoka i razvijaju svoj pad sa propelerom ili podizanjem dejstva lopatica na tečnost. Pumpe aksijalnog protoka se obično koriste za niže padove.

Prikazane su kompletne karakteristike za pumpe specifične brzine 7600. Pumpe sa specifičnim brzinama oko ovog obima su označene kao pumpe mješovitog protoka u kojima je pad djelimično razvijen od centrifugalne sile, a dijelom od podizanja dejstva lopatica na tečnost. Pumpe mješovitog protoka se koriste za srednje padove.

Poređenje kompletnih karakteristika pumpi, karakteristike pumpe su prikazane u bezdimenzionim odnosima brzine α , obrtnog momenta β , pada hp , i protoka v . Ovo omogućava upotrebu karakteristika za pumpe za bilo koje početno radno stanje pod pretpostavkom da su specifične brzine otprilike iste. Nominalna tačka ili tačka sa najboljom efikasnosti rada je tačka u kojoj su svi odnosi obično jednaki jedinici. Sve kompletne karakteristike uključuju zone rada pumpe, rad turbine, i energetske rasipanja.

Zone energetske rasipanja su zone u kojima su odnosi efikasnosti negativni i ne koristi se energija isporučena u vodi od radnog kola ili na radno kolo od vode.

Prilikom pregleda ovih karakteristika se vidi da nema prekida u tačkama preokreta znaka, a da su α i β krive koje imaju karakterističan oblik njihovih familija. Krive sa nula brzinom i nula obrtnim momentom su parabole koje prolaze kroz tjeme. Pozitivan protok raste sa smanjenjem pada pri konstantnoj brzini. Ovaj procenat povećanja protoka je veći za pumpe sa radijalnim protokom, a manji za pumpe sa aksijalnim protokom. Pri nula padu i 100 procentnoj brzini pozitivan protok je 84 procenta veći nego nominalni protok za pumpe sa radijalnim protokom, 42 procenta je veći nego nominalni protok za pumpe sa aksijalnim protokom, i 55 procenta veći nego nominalni protok za pumpe sa mješovitim protokom. Negativni protok kod svih ovih pumpi raste sa povećanjem pada.

Pumpa radijalnog protoka ima relativno nizak pad pri isključivanju od oko 129 procenata nominalnog pada, a odnosi obrtnog momenta su relativno niski tokom normalnog pokretanja pumpe. Zbog toga, ovaj tip pumpe može da dostigne punu brzinu veoma brzo sa malim povećanjem pada. To može da proizvede pozitivan protok sa pozitivnim padom kada se propeler okreće u suprotnom smjeru. Kada rotira na 100 procenata negativne brzine pad se isključuje na 63 procenta nominalnog pada. Bez trenja u liniji stacionarnog stanja reverzibilan protok za $\beta = 0$ je oko 66 odsto nominalnog protoka za pumpe radijalnog protoka. To je mnogo manje nego reverzibilan protok za slučaj nepokretnog kola (nula brzina). Maksimalan reverzibilni protok je definisan parabolom $v = \phi \sqrt{h_p}$, gdje je $\phi = -1.26$. Ova parabola je takođe naborana linija za presavijeni region, u kojem negativni protok opada, a negativna brzina se povećava. Presavijeni region takođe postoji u zoni pozitivnog protoka, a negativnog pada. Ovo je nehomologna oblast u blizini nula pada, i dolazi do preklapanja duž omotnica krivih od $\alpha = 0, -0.1, -0.2, -0.3$. Zato ne može da postoji protok na lijevoj strani ove omotnice.

Pumpa aksijalnog protoka ima vrlo visok pad isključenja od oko 274 procenta nominalnog pada, a odnosi obrtnog momenta su relativno visoki tokom pokretanje pumpi. Zbog toga, ovaj tip pumpe ne može da dostigne punu brzinu tako brzo, pa se mora uzeti radijalni tip protoka i zaštititi prilikom pokretanja. Ovaj tip pumpe ne može proizvesti pozitivan protok sa pozitivnim padom kad rotira u suprotnom smjeru. Bez trenja u liniji stacionarnog stanja reverzibilni protok za $\beta = 0$ je oko 189 procenata nominalnog protoka. Ovo je mnogo veći protok nego u slučaju stacionarnog impelera (nula brzina). U negativnoj zoni protoka postoji region dvostrukog isključenja, nabori postoje duž parabole, gde je $\phi = -1.17$ i $\phi = -1.12$. Unutar ovog uskog regiona zagušenja protok se smanjuje kako se povećava brzina do određene postignute brzine u zavisnosti od odnosa pada. Nakon toga, negativan potok se povećava sa povećanjem negativne brzine. Takođe postoji dvostruko isključenje u regionu pozitivnog protoka, zona negativnog pada definisana je parabolama, gde je $\phi = 1.00$ i $\phi = 1.06$. Ove parabole, međutim, nijesu ograničavajuće granice za protok, a kao i u slučaju pumpe radijalnog protoka, i protok se može pojaviti u svim zonama.

Pumpe mješovitog protoka u cjelini pokazuju karakteristike slične karakteristikama pumpe aksijalnog protoka. Međutim, nemaju presavijeni region. Pad isključivanja je oko 196 procenata nominalnog pada, i pri stacionarnom stanju reverzibilni protok za $\beta = 0$ je oko 161 procenat nominalnog protoka za stanje bez trenja.

Uticaj specifične brzine na hidraulične tranzijente – fenomen vodeni čekić zavisi od karakteristika pumpe, fenomena talasa u cjevovodu, i kinetičke energije rotacionih djelova. Da se utvrdi uticaj karakteristika pumpe od različitih specifičnih brzina na hidraulične prelazne procese koji nastaju uslijed prekida snage na pumpi, napravljena su istraživanja za različite kombinacije $2p$ i $K2L/a$. Ova istraživanja su napravljena, pod pretpostavkom da se ne odvaja vodeni stub, sa karakteristikama pumpi koje su predstavljene u ovom radu i sa opisanom grafičkom metodom.

Utvrđeno je, pod uslovom da je minimalni pad pozitivan, da pumpe radijalnog protoka izazovu najveći procenat nizvodnog talasa pri nestanku električne energije. S druge strane, pumpe aksijalnog protoka imaju najniži procenat nizvodnog talasa.

Ako je minimalni pad negativan, maksimalni procenat nizvodnog talasa za sve pumpe će se dogoditi kod pumpe koja ima najoštriju $\beta = 0$ krivu. Maksimalan procenat mogućeg nizvodnog talasa je određen od raskrsnice linije $2p$ sa krivom $\beta = 0$. U slučaju pumpi aksijalnog protoka maksimalni nizvodni talas će se desiti u manje talasa vremena putovanja (L/a) nego kod pumpi radijalnog protoka. Za konzervativno određivanje nizvodnog talasa najniže specifične brzine (pumpe radijalnog protoka) karakteristike treba generalno da se koriste.

Pumpe radijalnog protoka će proizvesti najveći procenat porasta pada pri nestanku električne energije, pod pretpostavkom da ne postoje smetnje u reverzibilnom protoku od ventila. Neće biti porasta pada u slučaju

pumpe mješovitog protoka, a veoma mali procenat porasta pada (manje od 5 procenata) će biti sa pumpom aksijalnog protoka. U svim slučajevima će doći do rasta pada u presavijenim regionima karakteristika pumpi. Pumpa mješovitog protoka nema presavijeni region u njenim karakteristikama, pumpa aksijalnog protoka ima mali presavijeni region, a pumpa radijalnog protoka ima veliki presavijeni region. U presavijenom regionu reverzibilni protok se smanjuje kako se reverzibilna brzina povećava, slično kao što se ventil zatvara. U slučaju pumpi radijalnog protoka ovaj proces nastavlja da se odvija preko velikog opsega brzina. U slučaju pumpi aksijalnog protoka ovaj proces se odvija preko uskog opsega brzina. U principu, porast pritiska ne može da se javi pri nestanku električne energije za pumpe koji nemaju presavijeni region u svojim karakteristikama, osim ako postoji zatvaranje ventila. Biće potrebno još vremena putovanja talasa za pumpe radijalnog protoka da se dostigne maksimalni procenat porasta pada nego kod pumpi aksijalnog protoka. Opet, treba generalno da se koriste karakteristike sa najnižom specifičnom brzinom (pumpa radijalnog protoka) za konzervativno određivanje uzvodnog talasa. U slučaju svih pumpi, trenje u linije protoka će dovesti do toga da nizvodni talas bude veći i da uzvodni talas bude manji nego da nema linije trenja.

Kada se koristi nepovratni ventil na pumpi, procenat porasta pada (pod pretpostavkom da nema trenja u liniji) će biti približno jednaka procentu nizvodnog talasa koji je nastao na pumpi u vrijeme nula protoka. Najveći procenat će biti za pumpe radijalnog protoka. Rast pada koji se javlja tokom zatvaranja ventila će zavistiti više od stope zatvaranja i vremena u kojem ventil preuzima kontrolu protoka nego od karakteristika pumpe. Osim toga, zbog velikog procenta reverzibilnog protoka mogućeg sa pumpom mješovitog protoka i pumpom aksijalnog protoka, ventil za zatvaranje može dovesti do visokog porasta procenta pada. U slučaju pumpe mješovitog protoka i pumpe aksijalnog protoka, ovaj veliki reverzibilni protok je postignut tokom nestanka električne energije i nakon višeg vremena putovanja talasa nego u slučaju pumpe radijalnog protoka. Moguće je da veliki padovi mogu biti proizvedeni zbog zatvaranja ventila tokom ovog reverzibilnog protoka. Takođe, vrlo veliki padovi mogu biti proizvedeni u slučaju pokretanja pumpe mješovitog protoka i pumpe aksijalnog protoka pod uslovima velikog reverzibilnog protoka.

Tokom normalnog nestanka električne energije bez zatvaranja ventila najveći procenat reverzibilne brzine se postiže sa pumpom aksijalnog protoka, a najniži sa pumpom radijalnog protoka. Pumpe radijalnog protoka će dostići svoju maksimalnu reverzibilnu brzinu za manja vremena putovanja talasa od pumpi aksijalnog protoka. Sve pumpe će usporiti brzinu na nulu u vezi sa istim brojem vremena putovanja talasa. Mora se voditi računa da bi se spriječilo oštećenje motora kod pumpi sa većim specifičnim brzinama zbog velikog procenta moguće reverzibilne brzine.

Zaključci – u većini slučajeva kompletne karakteristike pumpe nijesu dostupne. Nepotpune karakteristike pumpe mogu da se produže homoložnim zakonima pumpi. Prezentovane kompletne karakteristike pumpi će na adekvatan način pokrivati čitav niz specifičnih brzina. Ako je specifična brzina pumpe koja se proučava otprilike ista kao dostupne karakteristike pumpi, rezultati hidrauličkog udara će biti zadovoljavajući za većinu inženjerskih svrha. U svakom slučaju, rezultati hidrauličkog udara određeni od karakteristika pumpi najnižih specifičnih brzina su obično najkonzervativniji za nestanak struje ili gašenja pumpi. U radu je izražena posebna zahvalnost Prof. Aladar Hollander–u koji obezbijedio osnovne podatke bez kojih ne bi bilo moguće proizvesti kompletne karakteristike predstavljenih pumpi.

Diskusija – John Parmakin je naveo paragraf pod naslovom "Efekti određene specifične brzine na hidraulične tranzijente," gospodin Donski ukazuje na neke relativne vrijednosti graničnih uslova hidrauličnih prelaznih procesa za tri opsega specifičnih brzina pumpi. Ovi rezultati njegovih istraživanja više bi bili korisni za one koji žele da dobiju određene vrijednosti za ove prelazne procese.

Ignacy Swiecicki je naveo da gospodin Donski u ovom radu je bio invalid u velikoj mjeri zbog oskudice podataka za pumpe za normalno ponašanje, testovi profesora Hollander su jedini izvor znanja o čudnim pojavama u pojedinim sektorima Karman - Knapp kružnih dijagrama. Gospodin Donski je uradio veoma zaslužan posao vjerodostojnog pretvaranja tri dijagrama u oblik pogodan za proračune hidrauličkog udara, jer svaki od ovih konvertovanih dijagrama treba da se koristi za razne komercijalne pumpe slične specifične brzine. Pitanje koje se može postaviti je koliko će dobro svaki od predstavljenih dijagrama predstavljati prosječnu grupu pumpi. Na primjer, ako je autor imao više podataka sa ispitivanja za pumpe sa $N_s = 7600$, on je vjerovatno trebao da uvidi da talasanje krivih nije slučajno, i da je povezano sa posebnim osobinama te pumpe i sa podacima profesora Hollandera, i da će i druge pumpe imati različite nepravilnosti, tako da se prosječna pumpa najbolje predstavlja sa setom glatkih krivih.

Karman - Knapp dijagram, pokazuje neke specifičnosti, najupečatljivija je promjena $H = 0$ krive od prave linije za smjer obrtanja pumpe u lijevo. Proučavanjem nepravilnosti i specifičnosti kompletnih karakteristika pumpe daje benefite na osnovu kojih se dobijaju dodatni dijagrami Karman - Knapp dijagramima. Vjerovatno, najkorisnije su relacije za bezdimenzione koeficijente $D^4 H_P / Q^2$ i $DM / \rho Q^2$, i svaki je predstavljen kao funkcija bezdimenzione nezavisne promjenljive $D^3 N / Q$, gdje je D prečnik pumpe, ρ gustina i drugii simboli. Ovaj izbor se zasniva na činjenici da primjenom jednodimenzionalne teorije za turbine na srednjoj usmjernoj liniji mašine, predstavljaju se karakteristike za normalan smjer toka turbine. Poređenjem oblika krivih dobijenih na ispitivanjima sa oblikom krivih označenih jednodimenzionalnom teorijom dobija se dobra ideja kako da se interpoliraju, ekstrapoliraju, ili da se uglade krivih dobijene na ispitivanjima ako je to potrebno.

Autorov zaključak – autor želi da se zahvali gospodi Parmakian i Swiecicki za njihove pisane diskusije. Gospodin Parmakian je predložio da se rezultati ovih istraživanja stave u obliku krivih iz kojih mogu da se odrede specifične vrijednosti za hidraulične prelazne procese koji slijede nakon prekida napajanja električnom energijom. Takve krive su predstavljene za nizvodni talas na pumpi i srednjoj dužini, za pumpe specifičnih brzina 7.600 i 13.500. Nema uzvodnog talasa za opseg $2ps$ dat u krivima za ove pumpe. Uzvodni talas (upsurge) i nizvodni talas (downsurge) na pumpi i srednjoj dužini za pumpe specifične brzine 1.800 će otprilike biti isti kao što je dato na krivima u referenci. Poređenje nizvodnog talasa (downsurge) pomoću ovih krivih pokazuju da najveći procenat nizvodnog talasa (downsurge) na pumpi se javlja u slučaju pumpi radijalnog protoka kada je minimalni pad pozitivan.

U ovom radu, gospodin Swiecicki's je ponovo iscrtao krive (ponovo izvršio unos grafičkih podataka) na dijagramima pomoću jednodimenzionalne teorije i homolognih zakona i pokazao da podaci dobijeni na ispitivanjima vrlo dobro prate homologne zakone osim regiona nenormalnog rada. Autor, međutim, smatra da apscisa a/v treba da bude umjesto a/v^2 da bi bilo ispravno ponovno crtanje krivih (unos grafičkih podataka). Upotreba takvog crtanja (unosa grafičkih podataka), kao što je sugerisano od strane pisca, može biti od pomoći u interpolacijama i ekstrapolacijama na krivim dobijenim na ispitivanjima.

Cinjenica je, međutim, da neki od podataka dobijeni na ispitivanjima se ne uklapaju u krive dobijene homolognim zakonima i to ne znači da podaci dobijeni na ispitivanjima su netačni. To samo znači da pumpa tokom ispitivanja nije pratila homologne zakone u pojedinim regionima nenormalnog rada.

U slučaju pumpe radijalnog protoka, nehomolagna regija postoji u blizini pad nula za reverzibilnu rotaciju - broj obrtaja, a linija pad - nula je zakrivljena. Ostale karakteristike pumpe od prilike istih specifičnih brzina takođe pokazuju zakrivljene linije pad nula u ovom regionu.

Objašnjenja razloga zbog kojih postoji razlika između stvarnog rada pumpe i teorije su predstavljani. Ove reference ukazuju da, zbog određenih gubitaka, naročito za nenormalni rad na niskim padovima i malim protocima (niska efikasnost) rada pumpe ne može zapravo slijediti homologne zakone.

Predstavljene kompletne karakteristike pumpi nemaju za cilj da predstavljaju prosjek grupe pumpi oko iste specifične brzine. Oni imaju za cilj da predstavljaju podatke sa ispitivanja u $v-hp$ koordinatnom sistemu kao potpune i moguće na osnovu homolognih odnosa. Samo uz više podataka sa ispitivanja možemo doći do prosječne karakteristike pumpi. Međutim, predstavljene su kompletne karakteristike pumpe koje se mogu očekivati kod pumpi oko iste specifične brzine. Poznato je, da je predstavljanje dobro, jer druge karakteristike pumpe oko iste specifične brzine pokazuju iste osobine. Takođe, hidraulični tranzijenti utvrđeni ispitivanjima upoređeni su veoma dobro sa izračunatim tranzijentima, iako je specifična brzina pumpe bila nešto drugačija od one za koju su bile dostupne kompletne karakteristike.

Autor se slaže sa gospodinom Swiecicki da talasanje krivih može biti zbog konkretnih ispitivanja pumpe. Međutim, autor je ubjeđen da je više preporučljivo da se dostave podaci sa ispitivanja u $v-hp$ koordinatnom sistemu u potpunosti ako je moguće na osnovu homolognih zakona, a ne proizvoljno uglatiti krive. U slučaju nestabilnog regiona J , bilo je moguće izvući prosjek (ali ne proizvoljno) krive koja je više reprezentativan, a to je urađeno kao što je objašnjeno u radu.

Chaudhry, M.H. (1979). *Applied hydraulic transients.* Van Nostrand Reinhold Company, New York, USA.

Tranzijenti izazvani centrifugalnim pumpama, startovanje ili zaustavljanje pumpi izaziva tranzijente u pumpnim instalacijama. Za analizu ovih tranzijenata, možemo koristiti metodu karakteristika. Budući da visina pumpanja i protok zavise od brzine pumpe, promjena brzine tranzijentnog stanja mora se uzeti u obzir u analizi. Za tu svrhu, moraju se razviti posebni granični uslovi za kraj pumpe i cjevovoda. U ovoj knjizi, analiza tranzijenata izazvanih raznim operacijama pumpi je prikazana. Postupak za skladištenje karakteristika pumpe u digitalnom računaru je naveden, razvijeni su granični uslovi za kraj pumpe, a tipičan problem je riješen. Kriterijumi dizajna za projektovanje cjevovoda su zatim predstavljani, a poglavlje s završava prezentacijom studije slučaja.

Tranzijentna stanja izazvana raznim operacijama pumpe, tokom startovanja pumpe, ispusni ventil je obično zatvoren kako bi se smanjilo električno opterećenje na motoru pumpe, i pošto brzina pumpe dostigne potrebnu brzinu, ventil se postepeno otvara. Obično, u normalnom postupku procedura zaustavljanja pumpe je, ispusni ventil se prvo zatvori polako, a onda se isključuje napajanje motora pumpe. Tranzijenti izazvani sa obadrije ove operacije mogu da se analiziraju pomoću razvijenih graničnih uslova, pošto brzina pumpe ostaje gotovo konstantna tokom tranzijenata u cjevovodu. Međutim, ako pumpe nijesu startovane ili zaustavljene kao što je prethodno navedeno, onda procedure navedene u ovom poglavlju treba da se koriste za analizu tranzijenata.

Tranzijenti izazvani brzim zaustavljenem pumpe (npr, iznenadni nestanak struje) su obično veoma ozbiljni, a cjevovod bi trebalo da bude napravljen da izdrži pozitivne i negativne pritiske izazvane ovim operacijama. Nakon nestanka struje, brzina pumpe je smanjena pošto inercija pumpe je obično mala u poređenju sa težnošću u odvodnoj liniji. Jer protok i visina pumpanja na pumpi su smanjeni, talasi negativnog pritiska prostiru se nizvodno u protočnoj liniji, a talasi pozitivnog pritiska prostiru se uzvodno u usisnoj liniji. Protok u ispusnoj liniji se brzo smanjuje na nulu i onda se poništava kroz pumpu iako on može dalje biti rotiran u normalnom smjeru. U ovakvom stanju (na primjer, kada je obrnut protok kroz pumpu dok se radno kolo pumpe rotira u normalnom smjeru), se kaže da pumpa radi u zoni rasipanja energije. Zbog obrnutog toka, pumpa usporava rapidno, zaustavlja

se u trenutku, a onda poništava, tj pumpa sada radi kao turbina. Pumpa povećava brzinu u obrnutom smjeru sve dok ne dostigne brzinu pobjega. Sa povećanjem obrnute brzine, obrnuti protok kroz pumpu je smanjen zbog zagušenja, a pozitivni i negativni talasi pritiska se proizvode u odvodnoj i usisnoj linije, respektivno.

Ako je profil cjevovoda takav da linija stepena hidrauličkog tranzijentog stanja padne ispod ose cjevovoda u bilo kojoj tački, može doći do pojave vakumskog pritiska, i u tom trenutku može se razdvojiti vodeni stub u toj tački u cjevovodu. Prekomjerni pritisak će biti proizveden kada se dvije kolone kasnije spoje. Tokom faze projektovanja, mogućnost razdvajanja vodenog stuba treba ispitati, i ako je neophodno uzeti u obzir neophodne korektivne mjere.

Matematičko predstavljanje pumpe - odnosi između protoka Q i pada H na granicama moraju biti poznati u cilju razvoja graničnih uslova. Protok centrifugalne pumpe zavisi od rotacione brzine N i visina pumpanja H , a brzina promjene tranzijentnog - stanja zavisi od momenta M i kombinovanog momenta inercije pumpe, motora i tečnosti zahvaćene u radnom kolu pumpe. Tako, četiri varijable Q , H , N i M moraju biti navedene za matematičku predstavljanje pumpe. Krive koje pokazuju odnose između ovih varijabli nazivaju se karakteristike pumpe. Razni autori su iznijeli ove krive u različitim grafičkim oblicima pogodnim za grafičke ili kompjuterske analize. Od svih metoda predloženih za skladištenje karakteristika pumpi u digitalnom računaru, metod koji je koristio Marchal je najpogodniji i ovdje se koristi.

Iako su podaci karakteristika pumpi u pumpnoj zoni obično dostupni, malo podataka, osim onih koji su predstavljeni u radovima, su dostupni bilo za zonu rasipanja ili zonu turbinskog rada. Ako podaci kompletnih karakteristika nijesu dostupni, onda karakteristike pumpi koja imaju otprilike iste specifične brzine mogu se koristiti kao aproksimacija.

Podaci za karakteristike prototipa pumpi su dobijeni iz rezultata ispitivanja modela pomoću homolognih relacija. Dvije pumpe (ili turbine) se smatraju homologne ako su geometrijski slične i obrazac strujanje kroz njih je takođe sličan. Za homologne pumpe, sledeći odnosi važe, $H/N^2D^2=constant$ i $N/QD^3=constant$, u kojima je D = prečnik radnog kola. Pošto je D konstanta za određenu jedinicu, on može biti uključen u konstantu prethodnih odnosa, i dobijaju se sledeći odnosi, $H/N^2=constant$ i $N/Q=constant$. Prethodni odnosi mogu biti bezdimenzionalni korišćenjem vrijednosti za nominalno stanje kao referentne vrijednosti. Bezdimenzionalne varijable definišu se na sledeći način, $v=Q/Q_R$; $h=H/H_R$; $\alpha=N/N_R$; $\beta=M/M_R$.

U prethodnim izrazima, M = obrtni moment i indeks R označava vrijednost varijable za nominalno stanje. Na osnovu prethodnih izraza može se napisati $h/\alpha^2=constant$ i $\alpha/v=constant$. Pošto α postaje nula, dok se analizira tranzijentno stanje za sve četiri zone rada, h/α^2 postaje beskonačno. Da bi se to izbjeglo, može se koristiti parametar $h/(\alpha^2 + v^2)$ umjesto h/α^2 . Indeksi v i α zavise od zone rada. Pored potrebe da se definišu različite krive karakteristika za svaku zonu rada, α/v postaje beskonačno za $v = 0$. Da bi se to izbjeglo, nova promjenljiva θ može biti definisana kao $\theta = \tan^{-1}(\alpha/v)$, onda krive karakteristika mogu biti crtane između θ i $h/(\alpha^2 + v^2)$. Po definiciji, θ je uvijek konačno, a njena vrijednost varira između 0° i 360° za četiri zone rada. Slično krivima pada, krive karakteristika obrtnog momenta možemo crtati između $\beta/(\alpha^2 + v^2)$ i θ . Koristeći podatke prikazane u Thomas, krive karakteristika za pumpe koje imaju specifičnu brzinu od 25, 147, i 261 (SI jedinice), odn. 1276, 7600, i 13.500 (gpm jedinice) su prikazane u ovom radu.

Granični uslovi za ispad pumpe – u ovom radu jednačine za karakteristike (jednačine ako cjevovod ima granice na obje strane gornjem i donjem dijelu) i uslovi koje postavljaju granice se rješavaju istovremeno da odrede granične uslove. Za kraj pumpe, karakteristike pumpe definišu uslove koje nameću granice, a diferencijalna jednačina definiše varijacije brzine pumpe sa vremenom nakon nestanka struje. Tako, moramo da istovremeno rješavamo ove jednačine za razvoj graničnih uslova za kraj pumpe.

Marchal sugerišu da $sgn(h)\sqrt{h/(\alpha^2 + v^2)}$ se koristi da poveća preciznost za manje vrijednosti ovog parametra (sgn označava znak od h). Međutim, $h/(\alpha^2 + v^2)$ je ovdje upotrebljen, jer pojednostavljuje izvođenje graničnih uslova za kraj pumpe. Specifična brzina = $N_R\sqrt{Q_R/H_R^{3/2}}$. U SI jedinicama, N_R je u rpm, Q_R je u m³/s, a H_R je u m ; u gpm jedinicama, N_R je u rpm, Q_R je u gpm i H_R je u ft . Za dvostruko usisnu pumpu, Q_R je podijeljeno sa 2 dok se izračunava specifična brzina.

Neki autori pogrešno koriste specifičnu brzinu od 35 SI jedinica za ovu pumpu. Kako pumpa ima dvostruko usisavanje, optimalni protok treba podijeliti na dva pri izračunavanju specifične brzine.

Da bi se olakšalo razumijevanje izvođenja, prvo se razmatra jednostavan sistem koji ima samo jednu pumpu i veoma kratak usisni vod. U ovoj knjizi su razvijeni granični uslove za složenije slučajeve.

Jednačine uslova koje nameće pumpa, karakteristike pumpe mogu biti matematički predstavljene krivima između θ i $h/(\alpha^2 + v^2)$, i između θ i $\beta/(\alpha^2 + v^2)$, u kojoj je $\theta = \tan^{-1}(\alpha/v)$. Da bi se mogle koristili ove krive u matematičkom modelu, diskretne tačke sa ovih krivih u jednakim intervalima od θ , između raspona $\theta = 0$ i $\theta = 360^\circ$, čuvaju se u računaru. Svaki od segmenata ovih krivih između tačaka koje se nalaze u računaru može biti aproksimirani pravim linijama. Ako se skladišti dovoljan broj tačaka onda je uvedena greška izazvana aproksimacijom krive sa pravom linijom za svaki od segmenata zanemarljiva. Za svaku vrijednost α i v (osim kada su α i v istovremeno nule), vrijednost za $\theta = \tan^{-1}(\alpha/v)$ može se odrediti pomoću IBM funkcije $ATAN2$. Međutim, ova funkcija izračunava vrijednosti za θ između 0 i π , i između 0 i $-\pi$, a naš opseg interesovanja je između 0 i 2π . Ovo ograničenje može se izbjeći dodavanjem 2π da se kompjuterski izračunavaju vrijednosti od θ ako je $\theta < 0$, ako

je θ dato ovom funkcijom – 30° , onda će vrijednosti za teta od $360 - 30 = 330$ biti korištene za određivanja tačaka na krivima karakteristika pumpe.

Wylie, E.B. & Streeter, V.L. (1993). *Fluid Transients in Systems*, Prentice Hall, Englewood Cliffs, NJ 07632

U ovoj knjizi navedeno je da, promjene radnog stanja na turbomašini su rezultat nestacionarno tečenje u hidrauličkom sistemu. To radno stanje može da bude izazvano pokretanjem ili zaustavljanje centrifugalne pumpe, ili može da bude izazvano prilagođavanjem opterećenja na generatoru što izaziva promjene koje u tom momentu nastaju na hidrauličnoj turbini. Ako postoji promjena rotacione brzine, rotacionu inerciju pokretnih djelova u turbomašini generalno treba uzeti u obzir prilikom simulacije ovog ponašanja. U ovoj knjizi prvo je razmatrano dinamičko ponašanje pumpi, a zatim reakcije na turbinama.

Pumpe i pumpni sistemi – mnoge važne analize situacija prelaznih procesa koje proizilaze iz hidrauličkog dizajna su uključeni u pokretanju, zaustavljanju ili kontroli rada pumpe, i otvaranja i zatvaranja ventila u vezi sa njom. Iznenadni zastoj se često naziva otkaz pumpe i znači nenamjerno zaustavljanje pumpe, bez mogućnosti za prethodnu korekciju ventila, kao kada se napajanje prekine ili sigurnosni uređaji na pumpi ili motoru se aktiviraju usled prekomjernog grijanja, vibracija i tako dalje. Jedna greška operatera u aktiviranju dugmeta stop pumpe može izazvati isti slijed događaja.

Pumpne stanice često uvaćavaju kapacitete nakon godina upotrebe, tako da je montaža pumpi u seriji i paralelno, sa različitim karakteristikama, treba da se analizira istovremeno. Metod koji je analiziran i opisan u ovoj knjizi može da pokrije i takve složene situacije. Prvo su opisani događaji koji nastaju nakon ispada pumpe, tretirano je rukovanje karakteristikama turbomašine, a zatim se razvijeni granični uslovi za jednu pumpu, pumpe u seriji i paralelno, i složene stanice, praćeni startovanjem pumpi.

Redosled događaja tokom nestanka napajanja – motor pumpe, vršeci obrtni moment na rotirajućoj osovini, prenosi energiju na radno kolo da izazove protok kroz pumpu i da se razvije porast ukupnog dinamičkog pada od usisne prirubnice do ispusne prirubnice. Ukupni dinamički pad H je povećanje energije po jedinici težine pumpane tečnosti, ili gdje se z_a i z_s odnose na nadmorske visine centralne linije protoka i usisne prirubnice, respektivno. Istog trenutka kada je napajanje izgubljeno, reaktivni obrtni moment od tečnosti na radnom kolu izaziva smanjenje broja obrtaja, što zauzvrat smanjuje H i izaziva razređivanje talasa pritiska, koji se prenosi nizvodno i talasa pritiska koji se prenosi uzvodno kroz povezani cjevovod.

Ako sistem razvija svoj pad prvenstveno podizanjem tečnosti na više uzvišenje, protok na pumpi će se preokrenuti za nekoliko sekundi, a zatim kasnije za kratko vrijeme rotacija pumpe se preokrene i počinje pobjeg unazad.

Kako se pumpa vrti do visoke vrijednosti obrnute brzine, ona izaziva visoku otpornost na protok, što razvija visok pad na pumpi koji se mora predvidjeti u dizajnu. Takođe, postoji mogućnost da se tokom praznjenja cjevovoda, zbog njegovog profila, mogu trpjeti niski pritisci, i može se izazvati da vazduh izađe iz rastvora i formira se parna kavitacija. Kolapsi u šupljinama pare i kompresije vazdušnih džepova mogu uzrokovati razvijanje opasno visokih pritisaka.

Ako sistem za pumpanje deluje protiv pada uslijed trenja, kao i u slučaju dugačkih linija, nema neželjenih sila da izazovu preokret toka. Protok na pumpi nema brzo smanjenje kada je napajanje na pumpi odsječeno, međutim, ovo može da izazove natpritisak na usisnoj liniji tako da je pumpa dizajnirana da ih izdrži. Na izlaznoj strani sistema usporavanje protoka na pumpi izaziva sukcesiju razređenost talasa da se kreće nizvodno, izazivajući izdvajanje vazduha i drugih gasova iz rastvora i tečnog u odvojenim kolonama. U zavisnosti od profila linije ovi džepovi gasa i pare mogu da izazovu visok pritisak tokom zatvaranja. Takođe, početni talasi niskog pritiska mogu da sruše cjevovod osim ako je projektovan da izdrži pod atmosferski pritisak.

Kao i kod ostalih elemenata rukuje sa metodom karakteristika, C^+ i C^- jednačine kompatibilnosti iz susjednih djelova cjevovoda prenose sve odgovore sistem na granična stanja i dozvoljavaju da se eksplicitno riješe. Bezdimezione homologne karakteristike turbopumpi, kako se uslovi za turbine mogu opisati na isti način kao i uslovi za pumpe (čak mogu biti iste jedinice), ova se diskusija odnosi podjednako i na turbine i na pumpe. Međutim, sa podacima turbine, skup karakteristika može biti potreban za svaki od mnogih otvora lopatica sprovednog aparata.

Četiri veličine su uključene u karakteristike, ukupni dinamički pad H_t , protok Q , moment na vratilu M , i rotaciona brzina N . Dvije od ovih veličina mogu se smatrati nezavisnim, tj. za dato Q i N (uključujući znak) H i M su određeni iz karakteristika. Dvije osnovne pretpostavke: karakteristike stanja ravnoteže se drže za situaciju nestabilnog stanja, iako se Q i N mijenjaju sa vremenom, njihove vrijednosti u trenutku određuju H i M , važe homologni odnosi.

Homologni odnosi – za date geometrijski slične serije turbomašina, sa D nekih reprezentativnih linearnih dimenzija, homologne jednačine mogu biti predstavljene, gde indeksi 1 i 2 se odnose na dvije različite - veličine jedinica homolognih serija. Homologne teorije pretpostavljaju da se efikasnost ne mijenja sa veličinom jedinice, pogodan je rad sa bezdimenzionim karakteristikama h , β , v , i α , gdje indeks R označava optimalnu količinu (tj vrijednosti za H , M , Q i N u tački sa najboljom efikasnosti). Bezdimezioni – homologni odnosi sada mogu biti izraženi kao h/α^2 vs. v/α ; β/α^2 vs. v/α ; h/v^2 vs. α/v ; β/v^2 vs. α/v .

Ako grafički prikazemo h/α^2 kao ordinatu u odnosu na v/α kao apscisu od podataka sa ispitivanja za dati agregat, a zatim, u skladu sa homolognom teorijom, ovo je odnos pada i protoka za svaku brzinu α te jedinice, i slično je za β/α^2 vs. v/α za odnose obrtnog momenta.

Sa matematičkog stanovišta ovi odnosi su teški za rukovanje, jer. h , β , v i α svi mogu mijenjati znak i proći kroz nulu tokom prelaznog procesa. Marchal je prevazišao ovaj problem pomoću, $h/(\alpha^2 + v^2)$ vs. $\tan^{-1}(v/\alpha)$; $\beta/(\alpha^2 + v^2)$ vs. $\tan^{-1}(v/\alpha)$.

Primijećeno je da za dati v/α može da se razvije $h/(\alpha^2 + v^2)$ od kojih se grafički prikazuju h/α^2 vs. v/α , tako da homologni odnosi ostaju sačuvani u jednačinama. Ako imamo potpune podatke pumpi za sve zone rada, polarni dijagrami $\theta = \tan^{-1} v/\alpha$ vs. $r = h/(\alpha^2 + v^2)$ i vs. $r = \beta/(\alpha^2 + v^2)$ bi predstavljali dvije zatvorene krive kompletnih karakteristika pumpe. Ugao $x = \pi + \tan^{-1}(v/\alpha)$ može takođe biti ucrtan kao apscisa prema $W_h(x)$ ili $W_m(x)$, gdje se sa $W_h(x) = h/(\alpha^2 + v^2)$; $W_m(x) = \beta/(\alpha^2 + v^2)$; $x = \pi + \tan^{-1}(v/\alpha)$ dobijaju pravougaone koordinate.

U FORTRAN-u, ATAN2 (v , α) daje $\tan^{-1}(v/\alpha)$ kao ugao između $-\pi$ and $+\pi$. To važi za sve realne vrijednosti v i α osim $v = 0$ i $\alpha = 0$ u isto vrijeme. Parametar x zatim varira od 0 do 2π , i različite zone su označene grafikonom. Proizvođači pumpi i turbina predstavljaju njihove karakteristike u različitim oblicima, ali uvijek možete utvrditi setove vrijednosti H , Q , M i N , ili H , Q , N i efikasnosti η za razne operativne tačke u cijeloj zoni.

Pošto $M\omega = QH\gamma/\eta$ za pumpe, i $M\omega = QH\gamma\eta$ za turbine, M se može odrediti ako nije jasno dato. Ove četiri vrijednosti h , v , β , i α bi se dobile kada su optimalne vrijednosti date, tako da se x , W_h , i W_m mogu odrediti za svaku radnu tačku. Dovoljan broj tačaka treba izračunati da bi krive bile dobro definisane. Vrijednosti za W_h i W_m su potom očitane za jednake korake Δx i čuvaju se kao matrice za upotrebu u računaru. $\Delta x = \pi/44$, daje 89 vrijednosti za W_h i W_m , i obezbjeđuje razuman broj tačaka.

Za turbinske podatke, W_h i W_m su sa dvostrukim indeksima, drugi indeks ukazuje na relativni položaj lopatica sprovednog aparata, a posebne krive W_h i W_m su potrebne za svaki izabrani položaj otvora lopatica sprovednog aparata.

U mnogim projektantskim situacijama kompletne karakteristike pumpe nijesu dostupne od proizvođača, pa se moraju popuniti W_h i W_m matrice iz drugih raspoloživih podataka sa testiranja pumpi. Krive imaju tendenciju da imaju slične oblike za iste specifične brzine $N\sqrt{QH^{3/4}}$. Ako takvi podaci nijesu dostupni, krive moraju biti produžene u poređenju sa podacima za druge specifične brzine. Ovo je nesigurna procedura, a rezultati studija prelaznih procesa koje koriste te podatke moraju da se gledaju sa skepsom.

U ovom radu prikazan je fajl sa podacima za, tri specifične brzine. Prvih 89 vrijednosti čitaju se za W_h za specifičnu brzinu $N_s = 1270$ (gpm units) ili $N_s = 25$ (SI); drugih 89 vrijednosti su za W_h za $N_s = 7600$ (gpm units) ili $N_s = 147$ (SI); i treće grupa vrijednosti su za W_h za $N_s = 13,500$ (gpm units) ili $N_s = 261$ (SI). Za engleske jedinice rpm, gpm i feet-stopa se koriste; za SI rpm, m³/s i metar se koriste. Drugi set od 267 vrijednosti su za odgovarajuće W_m podatke. Kako su prikazane vrijednosti bezdimenzionalne, oni su iste u svakom konzistentom skup jedinica. Ovi podaci su razvijeni od Hollander-ovih eksperimenata.

Pored toga što imamo odgovarajuće podatke za karakteristike pumpe, potrebne su informacije za moment inercije radnog kola pumpe i zahvaćene tečnosti, plus moment inercije od motora rotora, vratila i spojnice. Ove informacije treba da budu dobijene od proizvođača. Za preliminarne studije, neke informacije su na raspolaganju u literaturi i prikazuje informacije o Britanskim pumpama i motorima koji pokrivaju širok opseg veličina. Thorley predstavio je grafikon sa I (kg m²) za predviđanje inercije radnog kola pumpe, uključujući zahvaćenu vodu i vratilo vs. koeficijent snage (P/N^3) u kome je P snaga na vratilu u kilovatima koja je isporučena pumpi u uslovima korišćenja, i N je brzina rotacije u rpm. Linearnom regresijom analiza logaritamskih vrijednosti podataka od 284 tačke od pet proizvođača pumpi daje jednačinu, $I_p = 1.5(10)^7(P/N^3)^{0.9556}$. Slična studija, od Thorley od podataka 272 tačke za rotacione inercije motora daje jednačinu $I_m = 118(P/N)^{1.48}$. Ova druga jednačina predviđa vrijednosti za inercije motora nešto manje od jednačine koje je dao Donski. Ukupna rotaciona inercija je pogodna za upotrebu kao preliminarna procjena zbira ova dva, $I = I_p + I_m$.

Thorley, R.D. & Chaudry, A. (1996). *Pump characteristics for transient flow analysis*, Department of Mechanical Engineering & Aeronautics City University, London EC1V0HB.

Analiza promenljivog tečenja i brzih prelaznih procesa u sistemima ispunjenim tečnosti zahtijeva da se ključni granični uslovi što je moguće tačnije modeliraju. Jedan od graničnih uslova od posebnog interesa je hidraulična mašina, uključujući pumpu i turbinu. Modeliranje ovih mašina mora da obezbijedi promjenu u brzini i protoku, uključujući poništavanje oboje, i brzo mijenjanje pritiska između uzvodne i nizvodne strane. Relevantne jednačine takođe moraju da obuhvate efekte inercije.

Od mnogih metoda koje su razvijene i rafinirane za modeliranje pumpi, postupak koju su osmislili Suter [Marcel, et al (1965)] i Suter (1966)] postao je najviše favorizovan kod inženjera. Međutim, pati od nedostataka adekvatnog izvora u obliku podataka za krive pada i obrtnog momenta koje obuhvataju sve četiri glavne zone rada, odnosno promjenu u brzini i promjenu u protoku. Samo četiri standardna seta su u opštoj literaturi. Ovaj rad daje još 10 setova takvih podataka koji pokrivaju širok opseg specifičnih brzina.

Postala je uobičajena praksa, kao dio normalnog procesa projektovanja, za cjevovode u uljnoj industriji, petro - hemijskoj industriji, termo i hidro industriji, da budu podvrgnute sigurnosnim revizijama koji uključuju procjenu kako će sistem da reaguje na promjene uslova protoka. Ovo uključuje analizu tranzijentnog tečenja kao i

kontrolu događaja, kao što su normalno startovanje pumpi i isključivanje, kao i nekontrolisani događaji kao što su nestanak struje i kvara sistema [Thorley (1991)] .

Da pomogne takve studije, koristi se jedan ili više različitih kompjuterskih kodova koji rješavaju nelinearne jednačine koje opisuju tranzijentno tečenje. Tipično, ove jednačine se rješavaju u dvije faze, a standardne procedure su dobro dokumentovane, [npr . Chaudhry (1987), Swaffield & Boldy (1993) i Wylie & Streeter (1993)]. Jedna stavka u postupku se bavi svim "unutrašnjim tačkama" u sistemu, nakon čega se rješavaju različite "granični uslovi". Granični uslovi obuhvataju bilo koju komponentu koja se završava na dužini od jedinstvenog cjevovoda, i variraju od jednostavnih spojeva i rezervoara do složenijih kao što su ventili i pumpe. Vrlo često na pumpi varira brzina ili otvorenost i zatvaranje ventila koji generišu značajne tranzijentne efekte i čije ponašanje je dinamično. Od ovih graničnih uslova, pumpe su generalno mnogo složenije i one su predmet ovog rada.

Pumpa kao granični uslov – osnovna strategija u rješavanju jednačina za nestacionarno tečenje u cijevnim sistemima za transport tečnosti je da se organizuje istovremeno rješavanje para jednačina od kojih svaka sadrži nepoznate pad H i protok Q na mjestu i u vremenu interesovanja. Ako pumpa nastavlja da radi na konstantnoj brzini obično će ostati u zoni normalnog rada, a jedan zajednički pristup je da se karakteristika pada - protoka predstavi u obliku $H = a + bQ + cQ^2$, gdje su a , b i c konstante krive $H - Q$ određenog oblika.

Ova jednačina je riješena u saradnji sa jednačinama cjevovoda da odrede nove padove i protoke. Međutim, češći i složeniji je scenario kada se brzina pumpe mijenja. Ne samo da jednačina iznad ne izdrži, već pumpa može biti primorana da radi van svoje normalne zone, za koju podaci često nijesu dostupni. Stoga je u interesu generalizacije da se obezbijedi praktično predstavljanje takvih podataka koji će biti dostupni u bezdimenzionalnoj formi. Nekoliko šema su razvijene za upotrebu sa kompjuterskim tehnikama [npr. Donsky (1961); Streeter & Wylie (1967); Watters (1979)], ali najčešće prihvaćeni pristupak koji je trenutno u upotrebi je onaj koji je pripisan Suter-u [Marchel et al (1965); Suter (1966)].

Dimenzionalna analiza rotirajućih-dinamičkih pumpi daje nam bezdimenzionalne koeficijente protoka, pada i snage, u obliku: $Q/ND^3 = \text{constant}$, $gH/N^2D^2 = \text{constant}$ i $P/\rho N^3D^5 = \text{constant}$.

Dodatni uslovi su prečnik radnog kola D i rotaciona brzina N , snaga P , ubrzanje uslijed gravitacije g i gustina tečnosti ρ . Ove bezdimenzione grupe, poznate i pod nazivom homologni zakoni, mogu biti redukovani do afinitetnih zakona izostavljanjem prečnika radnog kola, gravitacionog ubrzanja i gustine tečnosti kao što slijedi, $Q/N = \text{constant}$, $H/N^2 = \text{constant}$, $P/N^3 = \text{constant}$. U ovom obliku, odnosi više nijesu bezdimenzionalni, ali to se prevaziđe tako što se dijele svi relevantni parametri sa njihovim odgovarajućim vrijednostima pri optimalnim uslovima i uvođenjem obrtnog momenta M , $h = H/H_R$, $q = Q/Q_R$, $\alpha = N/N_R$, $\beta = M/M_R$. Iznad navedeni afinitetni zakoni sada mogu biti napisani u obliku, $q/\alpha = \text{constant}$, $h/\alpha^2 = \text{constant}$ i $\beta/\alpha^2 = \text{constant}$.

Postoji, međutim, jedna razlika da je snaga P zamijenjena sa proizvodom obrtnog momenta M i brzine rotacije N . Ovo je mnogo korisnije u rješavanju kompletnog seta jednačina za granične uslove pumpe jer sadrže jednačinu kretanja za pumpe koja se odnosi na usporavanje radnog kola pumpe svojom inercijom i od primijenjenog obrtnog momenta.

U nekim ranijim kompjuterskim kodovima bilo je pokušaja da se koriste bezdimenzionalni grafički podaci od nekih afinitetnih zakona sa direktnim crtanjem h/α^2 vs. q/α i β/α^2 vs. q/α .

Ovo su bili korisni napredci sa prethodnim metodama, ali imaju veliku manu da na mjestima od interesa za analizu tranzijentnog tečenja, kada protok i brzina prolaze kroz nulu i njihovi pravci su preokrenuti – reverzibilni, bezdimenzioni parametri sadrže diskontinuitete. Ključni napredak koji je napravio Suter [Marchel et al (1965), Suter (1966)] je da je iskoristio činjenicu da protok i brzina se obično ne ponište istovremeno. Sa inkorporacijom oboje i bezdimenzionalnog protoka i brzine, u imeniocima jednačina pada i obrtnog momenta bio je u stanju da izbjegne dijeljenje sa nulom, i predložio modifikaciju bezdimenzionalnih uslova kao što slijedi, $W(h) = \text{sign of } h \sqrt{(|h| / \alpha^2 + q^2)}$; $W(m) = \text{sign of } \beta \sqrt{(|\beta| / \alpha^2 + q^2)}$.

$W(h)$ i $W(m)$ su revidovani bezdimenzionalni pad i protok, oboje su iscertani u odnosu na θ , gdje je θ definisana sa $\theta = \tan^{-1}(\alpha/q)$.

Prednost ove formulacije je da karakteristike pada i obrtnog momenta za sve zone rada rotirajućih - dinamičkih pumpi mogu biti predstavljene bez rizika od stvaranja beskonačnih vrijednosti. U ovom obliku predstavljanje četiri kvadranta predstavljaju se četiri kombinacije naprijed i nazad brzine i protoka pumpe.

Kvadratni korjeni su predloženi kako bi se obezbijedila veća preciznost pri niskim brojevima. Trebalo bi, međutim, imati na umu da neki tekstovi [npr. Chaudhry (1987), Svaffield & Boldy (1993), Wylie & Streeter (1993)] ustvari ne prate ovu strategiju i izostavljaju kvadratni korjen, jer to čini malo lakše uključivanje ove procedure u analizu prelaznih procesa protoka. Takođe je potrebno napomenuti da neke analize definišu θ kao $\theta = \tan^{-1}(q/\alpha)$.

Međutim, u ovom radu, koristi se originalna definicija Sutura, kao što su navedeni prethodni izrazi za $W(h)$, $W(m)$ i θ .

Specifični broj obrtaja – prije nego što se pređe na prezentiranje podataka, izavršice se pregled relevantnih definicija, relevantno je sjetiti se parametra koji karakteriše različite vrste rotirajućih - dinamičkih pumpi, odnosno K_n – Specifični broj obrtaja. U svom preferiranom bezdimenzionalnom obliku može biti napisan kao $K_n = \omega Q^{1/2}/(gH)^{3/4}$.

Jedini novi termin ovde je ω , ugaona brzina radnog kola pumpe izražena u rad/s. Neki autori i proizvođači pumpi koriste pojednostavljeni oblik jednačine, odbacivanjem ubrzanja zbog gravitacije g i koristeći brzinu rotacije N u obrtajima/min da se dobije specifična brzina - Ns iz $Ns = NQ^{1/2}/H^{3/4}$.

Ovaj parametar nije bezdimenzionalan i njegova numerička vrijednost zavisi u velikoj mjeri od jedinica koje se koriste, ne samo za brzinu rotacije nego i za brzinu protoka i pad. U ovom radu su različiti skupovi podataka upućeni više uopšteno, bezdimenzionalni, specifični broj obrtaja K_n - za koji niske vrijednosti se odnose na čisto mašine radijalnog protoka, dok visoke vrijednosti se odnose na mašine koje teže ka aksijalnom protoku kroz radno kolo pumpe.

Podaci o pumpi, dobre podatke za realne pumpe je izuzetno teško dobiti zbog troškova i gubitka vremena potrebnog da se prikupe i srede. Međutim, kompletni setovi podataka su akumulirani za sve zone rada za 14 pumpi u rasponu specifični broj obrtaja - K_n od 0.46 do 4.94. Radi lakšeg korišćenja od strane čitalaca podaci su prikazani i u tabelarnoj i grafičkoj formi. U obliku tabele podaci su predstavljeni za intervale od 5° na potpunom opsegu od $0-360^\circ$.

U grafičkom formatu, 14 kompleta karakteristika pada i obrtnog momenta su raspoređeni u tri grafikona koji sadrže 6 skupova podataka. Ovo je potrebno uskladiti za dobijanje jasnih dijagrama sa ciljem kontinuiteta tokom čitavog opsega. Pa bi bilo očigledno nadati se boljoj korelaciji između opšteg pomjeranja krivih i specifični broj obrtaja - K_n . Iako je veoma dobar u zoni normalnog rada manje je izvan ove zone i dalji rad je poželjan. Ipak, korisnici ovih podataka trebaju da koriste ovaj resurs i imaju opciju da koriste set podataka najbližeg specifični broj obrtaja - K_n onom za koji imaju interesovanje, ili interpolacijom između njih sa obje strane.

Pregled zaključaka – predstavljeno je 14 setova podataka za kompletne karakteristike pada i obrtnog momenta u širokom spektru rotirajućih - dinamičkih pumpi koje obuhvataju mašine centrifugalnog, mješovitog i aksijalnog protoka za aplikacije pumpanja tečnosti i kanalizacije. To predstavlja poboljšanje u odnosu na trenutno dostupne baze podataka i znanja u opštoj literaturi.

Dobra korelacija sa specifičnim brojem obrtaja - K_n je evidentna u zoni normalnog rada, ali određena diskrecija je potrebna kada se koriste podaci u drugim zonama. Kompletne karakteristike pumpi, od kojih su neke bile prvobitno - originalne u polarnom obliku, a od kojih su podaci navedeni ovdje reprodukovani na dosljedan oblik, su akumulirani iz većeg broja izvora. Posebno, autori ističu zainteresovanost i podršku od Weir Pumps, ITT-Flygt, ENEL u Italiji i Dr A. P. Boldy sa Univerziteta Warwick, čiji su doprinosi dužni dubokog poštovanja.

Dörfler, P. K. (2010). *Improved Suter Transform for Pump-Turbine Characteristics*, R&D Department, Andritz Hydro Ltd. P.O. Box 2602, 8021 Zurich, Switzerland.

Standardni bezdimenzionalni parametri ne mogu istovremeno predstavljati sve radne režime jedne pumpe – turbine. Oni ili imaju singularnosti na $E=0$ i višestruke vrijednosti u "nestabilnoj" oblasti, ili pak dobijene singularnosti na $n=0$. P.Suter (1966) uveo je alternativni skup varijabli koje izbjegavaju singularitet i uvijek ostaje jedinstvena vrijednost. Ovo funkcioniše za neregulirane pumpe, ali ne tako dobro za regulisane mašine. Modifikacija od C.S.Martin izbjegavaju narušavanje - distorzije pri niskom opterećenju. Ovaj rad opisuje dalja poboljšanja za predstavljanje obrtnog momenta, i za zatvorene lopatice sprovodnog aparata - zatvarač (gdje Suterov koncept ne radi). Mogućnost da se interpolira kroz sve režime rada je takođe korisno za predstavljanje ostalih mehaničkih parametara mašine. Praktična primjena za upotrebu podataka obrtnog momenta lopatica sprovodnog aparata i pulsiranja pritisak prikazana je na primjerima.

Standardne četvoro kvadrantne karakteristike – radne karakteristike turbomašina su obično opisane nizom bezdimenzionalnih parametara, to podrazumjeva dijeljenje neke fizičke promenljive od strane drugih, kako bi dimenzije poništili. Najčešće "referentni" parametri su ili energija E (radni pad H) ili brzina n (brzina rotacije). Primjeri su n_{ED} (ili K_u , ili n_{11} , ili ...) = $c_1 D n E^{-0.5}$ ili E_{nD} (ili ψ ...) = $c_2 D^{-2} E n^{-2}$ ili Q_{nD} (ili ϕ ...) = $c_3 D^{-3} Q n^{-3}$. Nažalost, ne postoje jedinstvene radne promenljive (E, n, Q, a ...) koje nikada ne bi dostigle nultu vrijednost, stoga svaki od uobičajenih parametara postaje singularan (nula ili beskonačan) bar u nekom stanju. Posebno beskonačni (asimptotski) uslovi izazivaju probleme, inhibira interpolacija u njihovoj blizini. Naprimjer, najpopularniji vid karakteristike protoka $Q_{11} = f(a, n_{11})$ ili $K_{cm} = f(a, K_u)$, ima asimptotsko ponašanje gdje E postane nula. Čak i ako E nikada ne postane nula u većini aplikacija, dijeljenje sa \sqrt{E} je izvor ozbiljne distorzije u karakteristikama.

Parametri bazirani na E – karakteristike protoka pumpne turbine se obično daju kao skup krivih $Q_{ED} = f(n_{ED})$, svaka od krivih predstavlja konstantnu vrijednost otvora lopatica sprovodnog aparata. Kod tipične krive, svaka od 2 varijable je izražena u odnosu na referentne vrijednosti, na taj način izbjegava se mogućnost izbora između mnogih mogućih kombinacija referentnih prečnika i drugih definicija. Različiti načini rada mogu biti prepoznati na četvorokvadrantnoj krivi. U stanju mirovanja, mašina može da radi samo blizu radne tačke pumpnog režima ili turbinskog režima.

Drugi nedostatak ovog predstavljanja pokazuje i jedan detalj u dijelu karakteristike, koji se obično naziva i "S-region", zadatu vrijednost promenljive brzina/pad n_{ED} , postoje 3 različite vrijednosti faktora protoka Q_{ED} . Ovo zahtijeva posebne aranžmane kada se koristi ova vrsta predstavljanja. Ako, na primjer, neko želi da simulira takozvani pobjeg slučaj koji nastaje nakon ispada pumpe, radna tačka tranzijenta će početi u blizini radne tačke pumpnog režima i pratiti krivu sve do neke tačke nešto ispod pobjega, a potom oscilira i tako ostaje u zoni višestruke vrijednosti.

Parametri bazirani na n – drugi način predstavljanja, često se koristi za aplikacije pumpe. Ovdje je potrebno imati u vidu da se nezavisna varijabla promijenila iz ulaza pad/brzina prema ulazu protok (koeficijent protoka φ). Ova verzija stoga izbjegava prethodno navedene nejasnoće. U zamjenu, mi se sada suočavamo sa još više iritirajućim problemom. Koristeći ovu definiciju, tranzijent pumpe – pobjeg, počinje blizu radne tačke u pumpnom režimu, i nastavlja i prolazi kroz beskonačnosti, jer je brzina n , koja služi kao referenca mora da prođe kroz nulu kao smisao promjene rotacije od pumpe do turbine.

Suterovo lukavstvo – gore opisana dilema može se izbjeći izborom više odgovarajuće referentne promjenljive. Takvu definiciju je izmislio je P. Suter, za izračunavanje hidrauličkog udara sa neregulisanim pumpama. Suterova ideja polazi od $\psi(\varphi)$ zastupljenosti pada pumpe i zamjene imenioca kvadrata brzine n^2 sa nekom vrstom mješovite brzine ($n^2 + Q^2$), koji nikada ne postaje nula, jer je najmanje jedna od varijabli n i Q uvijek drugačija od nule. Stoga, na osnovu ψ se dobija nova promjenljiva za pad koji je proporcionalna $H/(n^2 + Q^2)$. Ova nova promenljiva može postati nula zajedno sa padom H , ali uvijek ostaje ograničena. Suter je zatim uveo drugo lukavstvo kako bi se dobio bolji način da zastupa protok Q . On je uzeo u obzir činjenicu da je, u četvoro-kvadrantnom dijagramu $Q_{II}(n_{II})$ ili $Kc_m(Ku)$, koeficijent protoka φ je u osnovi tangenta radijusu koji povezuje (0,0) do radne tačke (Ku, Kc_m), odnos Kc_m/Ku biće jednak sa φ , otuda $\arctan(\varphi) = \arctan(Kc_m/Ku)$ je pogodna mjera za protok, jer čak i na asimptoti $H=0$, gdje Kc_m i Ku postaju beskonačne, one imaju konačnu vrijednost. Promjenljiva obrtni moment radnog kola M , ranije predstavljena sa M_{II} ili λ , je tretirana na sličan način kao što je pad H , tako da karakteristike obrtnog momenta naspram karakteristika protoka takođe postaju da se dobro ponašaju i za $n=0$ i $H=0$.

Da biste eliminisali problem različitih dimenzija od H, n, Q, M , originalna transformacija je već zamijenjena njihovim "po jedinici" varijablama $H/H_{ref}, Q/Q_{ref}$, itd, predlažući optimalnu tačku za referencu. Njihov set varijabli zatim postaje $\theta = \arctan(\varphi/\varphi_{opt})$ za protok, $(H/H_{opt})/((n/n_{opt})^2 + (Q/Q_{opt})^2)$ za pad, i $(M/M_{opt})/((n/n_{opt})^2 + (Q/Q_{opt})^2)$ za moment.

Do sada korišćeni koncept Paul Suteri Sulzer Brothers, koji je objavljen 1966. godine, za obične (pojedinačno-regulisane) pumpe-turbine, zahtijeva neka prilagođavanja. Nepoželjne distorzije Suterovih krivih rezultiraju iz činjenice da protok Q – koji se koristi u referentnoj brzini ($n^2 + Q^2$) – je podložan značajnim varijacijama izazvanim sa otvorom lopatica sprovednog aparata α . Suter već pokušao da poboljša ovo i zamijeni svoje varijable sa njihovim kvadratnim korjenima, $W_h = \text{sign}(H) \sqrt{(H/H_{opt})/((n/n_{opt})^2 + (Q/Q_{opt})^2)}$ za pad, $W_m = \text{sign}(M) \sqrt{(M/M_{opt})/((n/n_{opt})^2 + (Q/Q_{opt})^2)}$ za moment. U ovom predstavljanju, svi uslovi rada su predstavljeni unutar jedne neprekidne krive. Neophodnost za rad sa odvojenim dijagramima za različite režime je eliminisana. Interpolacija je omogućena u svakom trenutku rada, a nema singulariteta da izazivaju probleme. Neke modifikacije su, međutim, moguće, pa čak i neophodne, da prilagode način za aplikaciju sa regulisanim mašinama. Da bi učinili sledeće objašnjenja više transparentnim, koristiće se "suvinjava" verzija seta četvoro-kvadrantnih krivih za model pumpa-turbina sa veoma visokom specifičnom brzinom.

Prvo poboljšanje, definicija referentnog protoka, Suterov je rad sa neregulisanom pumpom. Neki autori koji se bave pojedinačno regulisanim pumpnim - turbinama primijenili su jedan konstantan referentni protok Q_{ref} za sve karakteristične krive, odnosno za sve vrijednosti otvora lopatica sprovednog aparata. Ovo nije srećan izbor jer u slučaju malog otvora lopatica sprovednog aparata, uticaj Kc_m je praktično izgubljen, rezultirajući u ozbiljnim iskrivljenjima na Suterovoj krivi. Postaje sasvim jasno da se koriste refence manjih Kc_m za male otvore lopatica sprovednog aparata. I dalje ostaje pitanje, koja je mogućnost najpogodnija. Martin 1982 je već prijavio praktično rješenje skaliranje relativnog protoka tako što će se dijeliti kroz relativni otvor lopatica sprovednog aparata. Sličan koncept je predstavljen i u ovom radu.

Definicija zavisnih promenljivih W_h i W_m , kvadratni korjen je uvedena u cilju smanjenja veličine varijacije promenljivih pada i obrtnog momenta. Ova definicija međutim, ima neki nedostatak. Ako prelaz nula od krive $H(Q)$ na približno konstantnoj brzini nije singularan, onda prelaz nula od krive $W_h(\theta)$ ima beskonačan nagib, koji nije pogodan za interpolaciju. Ako je kvadratni korjen prema prethodno navedenim izrazima pao u korist ranije navedenih izraza, onda je konačan nagib krivih na $H=0$ sačuvan i moguće je koristiti krive kroz prelaz nula i u rasponu od negativnog pada. U ovom radu, će se koristiti ova izmijenjena definicija, a ipak se odnosi na "Suterove krive".

Transformacija 'Modifikovani Suter' sa dodatnim poboljšanjima, kompenzacija curenja lopatica sprovednog aparata, s obzirom na curenja kroz neizbježne zatore koja nijesu u svakom slučaju skalirani, smanjenje $Kc_m(\alpha)$ pri konstantnom Ku ne prolazi kroz (0,0). Ali iz metodičkih razloga, poželjno je da se proizvede karakteristika koje ispunjava takvog stanja. Ovo će se postići sa nezatnom promjenom numeričke vrijednosti otvaranja lopatica sprovednog aparata (zamjenom sa $\alpha' = \alpha + \Delta\alpha$) na takav način da funkcija $Kc_m(\alpha')$ može se aproksimirati blizu (0,0) sa snagom od α' . Ova korekcija će uticati samo pri veoma malim vrijednostima α , ona dolazi do izražaja, na primjer, kada se mjeri $\alpha = 0,3^\circ$. U našem primjeru, korekcija za najmanji testirani ugao lopatica sprovednog aparata $\alpha = 0,3^\circ$ je $\Delta\alpha = 0,27^\circ$ (tj, $\alpha' = 0,57^\circ$). Za ugao lopatica sprovednog aparata 2° i veći nije potrebna korekcija na sve.

U našem primjeru korekcija α rezultira za KM^* na $Ku=0$ bi bila samo oko $\Delta\alpha = 0,13^\circ$, ili samo polovina odstupanja rezultata za Kc_m^* . Međutim, zbog njegovog korišćenja za proračun hidrauličkog udara, pravilno modeliranje Kc_m^* ima veći prioritet, i ista ispravka može se koristiti za obje promenljive.

Određivanje kočionog obrtnog momenta u pumpnom i turbinskom smislu, koeficijent obrtnog momenta za zatvorene lopatice sprovednog aparata i nula protok daju parametar za parabolu kočenja $\lambda_0 = \mathbf{KM}(\alpha' \rightarrow 0)/\mathbf{Ku}^2$, za oba smisla rotacije ($\lambda_{0,P}$ za $\mathbf{Ku} < 0$ i $\lambda_{0,T}$ za $\mathbf{Ku} > 0$). U našem primjeru, važe sledeće vrijednosti, smisao pumpe $\lambda_{0,P} = -0.020$, turbinska rotacija $\lambda_{0,T} = 0.026$.

Oduzimanje kočionog momenta od izmjerenih vrijednosti obrtnog momenta, $\mathbf{KM}' = \mathbf{KM} - \lambda_{0,P} \cdot \mathbf{Ku}^2$ za $\mathbf{Ku} < 0$ i $\mathbf{KM}' = \mathbf{KM} - \lambda_{0,T} \cdot \mathbf{Ku}^2$ za $\mathbf{Ku} > 0$. Ova promjena je neophodna, ili u suprotnom, skaliranje uticaja obrtnog momenta za otvaranje nije moguće. Razlog je da će parabola kočionog momenta stvoriti velike poremećaje povećavajući se sa kvadratom \mathbf{XI} , ako nije kompenzovan. Ispravka izražena sa prethodnim izrazima dozvoljava nam da se nosimo sa promjenjivom obrtnog momenta na isti način kao i sa promjenjivom protoka.

Određivanje referentnih vrijednosti za \mathbf{Kc}_m , \mathbf{Ku} , \mathbf{KM}' , α' , kako se transformacija koristi u oba radna režima (pumpni i turbinski), predloženo je da se koriste sledeće referentne vrijednosti: $\mathbf{Ku}_{ref} = \sqrt{-\mathbf{Ku}_{opt,P} \cdot \mathbf{Ku}_{opt,T}}$, $\mathbf{Kc}_{mref} = \sqrt{-\mathbf{Kc}_{m\ opt,P} \cdot \mathbf{Kc}_{m\ opt,T}}$, $\mathbf{KM}'_{ref} = \sqrt{\mathbf{KM}'_{opt,P} \cdot \mathbf{KM}'_{opt,T}}$, $\alpha'_{ref} = \sqrt{\alpha'_{opt,P} \cdot \alpha'_{opt,T}}$. Odstupanje definicije u određenoj mjeri ipak neće spriječiti uspješnu primjenu.

Skaliranje razmjera karakterističnih krivih (ili ispitnih tačaka) za efekat otvaranja α' , cilj je da se dobiju više ili manje identične krive $\mathbf{Kc}_m^*(\mathbf{Ku}^*)$ kao i $\mathbf{KM}^*(\mathbf{Ku}^*)$ za svaku vrijednost argumenta otvorenosti α' . Optimalna tačka će biti blizu (-1,-1) za pumpni režim i blizu (1,1) za turbinski režim. Korekcija podrazumjeva neku analitičku pretpostavku o uticaju α' . Neke očigledne mogućnosti bi bile, $\mathbf{Kc}_m^*(\alpha') \sim \alpha'$, $\mathbf{Kc}_m^*(\alpha') \sim \sin(\alpha')$, $\mathbf{Kc}_m^*(\alpha') \sim (\alpha')^x$ sa $0 < x < 1$.

Procjena eksperimentalnih podataka pokazuje da, za pumpne-turbine, ova druga formula sa $x \cong 2/3$ je razumna aproksimacija za \mathbf{Kc}_m , kao i za \mathbf{KM}' . U skladu sa tim, dobijamo $\mathbf{XI} = \mathbf{Ku}^* = \mathbf{Ku}/\mathbf{Ku}_{ref}$ ($= n_{11}/n_{11ref} = n_{ED}/n_{EDref}$), $\mathbf{YI} = \mathbf{Kc}_m^* = (\mathbf{Kc}_m/\mathbf{Kc}_{m\ ref}) / (\alpha'/\alpha'_{ref})^{2/3}$, $\mathbf{ZI} = \mathbf{KM}^* = \mathbf{KM}'/\mathbf{KM}'_{ref} / (\alpha'/\alpha'_{ref})^{2/3}$. Nakon ove procedure skaliranja, dobijamo dijagram obrtnog momenta koji izgleda slično kao dijagram protoka jer efekat narušavanja zapornog momenta je uklonjen.

Izvršavanje transformacije “modifikovani Suter” – izračunavanje promjenjive protok $\mathbf{X2} = \arctan(\mathbf{Ku}^*/\mathbf{Kc}_m^*) / \pi = \arctan(\mathbf{XI}/\mathbf{YI}) / \pi$, izračunavanje promjenjive pad $\mathbf{Y2} = 1 / (\mathbf{Ku}^{*2} + \mathbf{Kc}_m^{*2}) = 1 / (\mathbf{XI}^2 + \mathbf{YI}^2)$, izračunavanje promjenjive moment $\mathbf{Z2} = \mathbf{Y2} \cdot \mathbf{KM}^* = \mathbf{Y2} \cdot \mathbf{ZI} = \mathbf{ZI} / (\mathbf{XI}^2 + \mathbf{YI}^2)$. Prikaz $\mathbf{Y2} = f(\mathbf{X2})$ može se nazvati “dijagram pada”, dok sličan drugi prikaz $\mathbf{Z2} = g(\mathbf{X2})$ je “dijagram obrtnog momenta”, stanje pobjega u dijagramu obrtnog momenta takođe se ne nalazi na $\mathbf{Z2} = 0$ jer je obrtni moment korigovan obrtnim momentom kočenja.

Treba imati na umu da, u Suterovoj karakteristici, argument α je protok. Za $\alpha' \rightarrow 0$ ovo predstavljanje postaje besmisleno. U slučaju limita zatvorene lopatice sprovednog aparata, iz fizičkih razloga (uzročnosti) za pad ulaz neophodan je protok ulaz. Za veoma male vrijednosti α' (recimo, $\alpha' < 0,5^\circ$), Suterov model mora biti zamijenjen sa modelom “otvor” sa ulazom pad i izlazom protok.

Upravljanje stanjem zatvorenih lopatica sprovednog aparata, u slučaju zatvorenih lopatica sprovednog aparata, ne može da se koristi predstavljeni modifikovani Suter (transformisani original Suter, takođe postaje beskoristan). Struktura Suterovog modela ne radi u ovom slučaju jer je zasnovana na protoku - ulaz, a pad - izlaz. Međutim, sa zatvorenim lopaticama sprovednog aparata, protok je uvijek nula dok je pad definisan sa okolinom (akumulacija, itd), a ne sa hidrauličnom mašinom. Drugim riječima, blizu nule otvorenosti jedina razumna vrsta strukture modela je sa pad - ulaz i protok - izlaz.

Kod četvoro - kvadrantnog modela “otvor” može se izraziti na sledeći način (za definisane varijable kao što je navedeno u prethodnom tekstu) pumpni kvadrant $\mathbf{Kc}_m^* = c_1 \sqrt{(c_2(\alpha') \cdot \mathbf{Ku}^*)^2 - 1}$, kvadrant pumpnog kočenja $\mathbf{Kc}_m^* = c_3 \sqrt{1 - (c_2(\alpha') \cdot \mathbf{Ku}^*)^2}$, turbinski kvadrant $\mathbf{Kc}_m^* = c_3 \sqrt{1 - (c_4(\alpha') \cdot \mathbf{Ku}^*)^2}$, reverzibilni pumpni kvadrant $\mathbf{Kc}_m^* = c_5 \sqrt{(c_4(\alpha') \cdot \mathbf{Ku}^*)^2 - 1}$. Funkcije $c_2(\alpha')$ i $c_4(\alpha')$ mogu biti linearizovane za male vrijednosti α u jednačini. Vrijednosti $(1/c_2)$ i $(1/c_4)$ su jednake vrijednosti \mathbf{Ku}^* gdje \mathbf{Kc}_m^* postaje nula u slučaju da je smisao rotacija pumpe i turbine respektivan.

Jednostavna analitička struktura modela “otvor” omogućava izračunavanje Suterove krive $\mathbf{Y2} = f(\mathbf{X2}, \alpha' = 0)$. Ako je potrebno povezivanje između dva modela (Suter i otvor), npr. za simulaciju hidrauličkog udara, tada sintetička Suterova kriva od gore navedenih jednačina može da se ubaci kao niža α' margina od Suterovog modela, čime se obezbeđuje bumpless prelaz između 2 modela. Izvšeno je poređenje između izmjerene i analitičke (tip – model “otvor”) krive protoka za veoma mali otvor lopatica sprovednog aparata. Nije neophodno da se nosimo sa obrtnim momentom na isti način jer ionako \mathbf{KM} približava se paraboli kočenja za $\alpha' \rightarrow 0$.

Novo aplikacije za unapređenje metode, kompanija u kojoj radi autor ovoga rada koristi modifikovani transformisani Suter već dugi niz godina za rukovanje i transformaciju karakteristika svih vrsta hidrauličnih reakcionih mašina: pumpne-turbine, Francis, pa čak i Kaplan turbine. To omogućava veoma dobar način da se modelira takozvana “nestabilna zona” pumpe turbine, koja može izazvati poteškoće u konvencionalnom predstavljanju. Benefiti ove metoda mogu isto tako da se koriste za sve vrste zavisnosti gde su neke promjenljive podijeljena sa \mathbf{H} (ili \mathbf{E}) da ih učini bezdimenzionim. Mnogi primjeri takvih parametara mogu se naći u IEC standardu za ispitivanje modela. Za demonstraciju, u ovom radu su diskutovane aplikacije sa stabilnim stanjem obrtnog moment lopatica sprovednog aparata i sa amplitudom pulsiranja pritiska.

Obrtni moment lopatice sprovednog aparata - bilo koja bezdimenziona promenljiva $\mathbf{u} = \mathbf{U}/\mathbf{H}$ množi se sa $\mathbf{Y2} \sim \mathbf{H}/(\mathbf{n}^2 + \mathbf{Q}^2)$ i predstavljena je kao funkcija promenljive protoka, na način $\mathbf{Y2} \cdot \mathbf{u} = f(\mathbf{X2}, \alpha)$. Jedan primjer za stabilno stanje obrtnog momenta lopatice sprovednog aparata na pumpnoj turbini sa niskom specifičnom brzinom,

obrađene na ovaj način. Parametar proporcionalnosti T_{GDE} se koristi u ovom slučaju. Treba imati na umu da u turbinskom kvadrantu ($0 < X2 < 0.5$) bi se očekivala mjesta u kojima je obrtni moment lopatice sprovodnog aparata bio jednak nuli, da odgovaraju konstantnim vrijednostima α , međutim, ovo važi samo u rasponu dobro razvijenog protoka turbine, a ne u oblasti turbinskog kočenja, a takođe ni u oblasti pumpnog kočenja ($-0.5 < X2 < 0$). Sa ostalim varijablama kao što su srednji pritisak (između lopatica sprovodnog aparata i radnog kola), ili aksijalne sile može se rukovati na isti način.

Pulsacije pritiska, amplitude pulsacija pritiska su čest predmet garancija. U slučaju tranzijentnog procesa, teško je predvidjeti maksimalnu amplitudu jer može zavistiti od mnogih parametara koji utiču na određeni tranzijent.

Moguće je primijeniti opisanu vrstu transformacije i spojite je sa rezultatima proračuna hidrauličnih prelaznih režima. U slučaju amplitude, koje po definiciji nikada ne postanu negativne, zgodno je da se primenjuje kvadratni korjen u transformaciji varijable jer amplitude Δp u normalnom i tranzijentnom radnom stanju mogu se razlikovati više od reda veličine, i stoga je $f(X2, \alpha) = \sqrt{Y2 \cdot \Delta p / (\rho E)}$ manje promjenljiva i bolje prilagođena za interpolaciju. Za pumpne turbine sa niskim padovima, ovaj postupak je korišćen sa pik-pik amplitudama pulsiranja pritiska između lopatica sprovodnog aparata i radnog kola koje su uzete za Δp , da bi se dobio dijagram pulsiranja pritiska.

Područja relativno nesmetanog rada su (pumpa na $X2 \cong -0.75$, turbina na $X2 \cong 0.25$, a tu je takođe i 'optimum pumpe' od reverzibilnog pumpnog režima u blizini $X2 = 0.55$). Vrlo velike amplitude se obično javljaju u kvadrantu kočenja pumpe ($-0.5 < X2 < 0$).

Povezivanje aplikacija sa analizom hidrauličkih prelaznih procesa, dok pravi podaci ispitivanja prelaznih procesa na modelu obično nijesu dostupni, setovi podataka izvedenih iz ispitivanja Četvorokvadrantnih karakteristika u stacionarnom stanju, pružaju mogućnost da se procijeni ponašanje u nestacionarnim radnim režimima. U sledećem primjeru, prelazni režim pumpe – pobjeg, simuliran je koristeći standardni program za hidraulički udar. Komponenta "stacionarnog – stanja", kao i amplituda pulsiranja pritiska za obrtni moment lopatice sprovodnog aparata se interpoliraju u dva odgovarajuća **2D** niza za svaki vremenski korak. Zatim, koristeći trenutne vrijednosti za **H** i **Y2**, reverzibilnom transformacijom u jednačinama može se izvršiti dobijanje apsolutne vrijednosti od prosječne vrijednosti fluktuacije obrtnog momenta **GV** (lopatice sprovodnog aparata).

Razvijeni hidraulični parametri pumpne-turbine ukazuju u koje vrijeme su postignuti određeni odgovarajući uslovi. Protok pada na nulu za nekih 6.5 sekundi poslije gubitka snage, brzina je u tom trenutku još uvijek 58% u smislu pumpe. Smisao rotacije se mijenja na 15,7 s. Jake fluktuacije obrtnog momenta lopatice sprovodnog aparata se javljaju u stanju kočenja pumpe, i što je još gore blizu pobjega (stanje obrtni moment nula, javlja se na 31,8 s po prvi put). Za oko 23,8 s na oko 80% brzine, turbina približno prolazi kroz svoju najbolju efikasnost.

Zaključak, metodički nedostaci običnih bezdimenzionih parametara mogu se izbjeći korišćenjem više odgovarajućih definicija. Suterovo lukavstvo, prvobitno definisano za neregulisane pumpe, zahtijeva određene modifikacije za pumpne-turbine pojedinačno regulisane. Dok je najvažnije poboljšanje u pogledu zastupljenosti protoka već poznato dugo vremena, druga poboljšanja u vezi zastupljenosti obrtnog momenta i preciznosti malih otvor su moguća. Primjenom modifikovanog Suterovog koncepta za druge parametre, kao što su pulsiranje pritiska ili obrtni moment lopatice sprovodnog aparata, je praktičan način da se povežu ovi parametri na tranzijentne radne režime mašine.

Zheng, X.B.^{1,2}, **Guo, P.C.**^{1,2}, **Tong, H.Z.**¹ and **Luo, X.Q.**^{1,2} (2012). *Improved Suter-transformation for complete characteristic curves of pump-turbine*; ¹ Institute of Water Resources and Hydro-Electric Engineering, Xi'an University of Technology, No.5 South Jinhua Road, Xi'an, 710048, China; ² FINE Institute for Hydraulic Machinery, A-16F, Huaxing Times Plaza, No.478 Wensan Rd, Hangzhou, 310013, China, 26th IAHR Symposium on Hydraulic Machinery and Systems, IOP Publishing, Beijing China.

Kompletne karakteristike krivih pumpne-turbine prikazuje "s" karakteristiku u anti - pumpnom i pumpnom radnom stanju. Multi - numeričke vrijednosti krive jediničnog protoka i jediničnog momenta izazvane sa ukrštanjem i fenomenom preklapanja krivih mogu donijeti neprijatnosti za analizu tranzijentnih prelaznih procesa. U ovom radu, kompletne karakteristike krivih pumpne - turbine su obrađene korišćenjem poboljšane metode za transformaciju Suterove krive. Površinski fitting je sproveden za transformaciji **Wh** krive. Dakle, tro - dimenziona površina je postignuta. Tranzijentni proces rasterećenje je analiziran koristeći gore pomenute krive. Rezultati pokazuju da metoda korišćena u ovom radu može da eliminiše neravnomjerne raspodjele, ukrštanja, preklapanja i multi - vrijednosti karakteristika, obezbjeđujući pogodnosti za analizu tranzijentnih procesa pumpne - turbine.

Pumpno - akumulacione hidroelektrane imaju sve više važniju ulogu u elektroenergetskom sistemu, i njihov bezbjedan i efikasan rad ima direktan uticaj na kvalitet i pouzdanost električne mreže. Da bi se osigurao bezbjedan i pouzdan rad pumpno - akumulacionih hidroelektrana, proračun prelaznih procesa mora da bude urađen. Zbog složene strukture pumpno - akumulacionih hidroelektrana, promjenjivih uslova rada, čestog pokretanja i zaustavljanja, dvosmjernog rada radnog kola, karakteristika visokog pada, njihovi tranzijentni procesi, kao dodatak opštim karakteristikama tranzijentnih procesa u konvencionalnim hidroelektranama, takođe imaju svoju posebnost. Tranzijentni procesi na pumpnoj - hidroturbini i pumpi karakteristični su tranzijentni procesi, jedno stanje jedan tranzijentni proces, turbina ili pumpa u njima i ne postoji suštinska razlika između tranzijentnih procesa, ali više

pumpa za visoke padove reverzibilnih agregata, i njihove kompletne karakteristike krivih turbine ili kompletne karakteristike krivih pumpe za opšte veće razlike imaće veći uticaj na proračun tranzijentnih procesa. I zbog njihovog fleksibilnog starta i stopa i brzog dizanja tereta, nije potrebno često transformisanje uslova, i njihov proračun za bezbjedan i pouzdan rad je od ključnog značaja za tranzijentne procese. U proračunu tranzijentnih procesa, zahtijeva se često primjena kompletne karakteristike krivih reverzibilnog agregata pumpne - turbine za parametre tranzijenata. Obično daju karakteristike krive pumpne - turbine, stanje pobjega turbine, i oblast kočenja "s" tip, stanje pumpe područja ukrštanja i preklapanja, ako je interpolacijom izračunata kriva ponekad može dovesti do velikih grešaka, i zbog dvosmislenosti može učiniti da se interpolacija ne može izvesti. Stoga, postupak obrade kompletne karakteristike krivih reverzibilnog agregata daje direktan uticaj na preciznost proračuna tranzijentnih procesa kod pumpanja, pouzdanosti, ključnih pitanja, a sve ovo u punom ispuhavanju i stabilnom radu ima višestruki značaj.

Obrada metodom kompletne karakteristike krivih, analiza karakteristika krivih, s obzirom na dvije "s" karakteristike kompletne karakteristike krivih reverzibilnog agregata, proračun tranzijentnih procesa, ako je direktna primjena n_{11} ili Q_{11} , interpolacijom, dovešće do velikih grešaka, i zbog dvosmislenosti, može čak dovesti da je nemoguće izračunavanje interpolacijom. Zbog toga, kompletne karakteristike krivih reverzibilne pumpne - turbine moraju biti neophodne da se prevaziđu određeni nedostaci i manjkavosti karakteristika originalne krive, i poboljša se preciznost izračunavanja. Iz ovog razloga, naučnici u zemlji i inostranstvu iz mnogih istraživanja, zaključili su razne kompletne karakteristike krivih reverzibilne pumpne - turbine. Kompletne karakteristike krivih reverzibilne pumpne - turbine, u skladu sa parametrima, $n_{11} = n D_1 / \sqrt{H}$, $Q_{11} = Q / D^2 \sqrt{H}$, $M_{11} = M / D^3 \sqrt{H}$. Pri dostupnom $H = n^2 D^3 / n_{11}$, $Q = n D^3 Q_{11} / n_{11}$, $M = n^2 D^5 M_{11} / n_{11}^2$, n_{11} dostupan u Q_{11} i M_{11} , zatim se traži otvor pod protokom Q i obrtnim momentum M , za bilo koji promet između dvije linije otvora, i kao takvi su određeni interpolacijom Q i obrtni moment M .

Sva svojstva ukrštanja, preklapanja, i "s" se pojavljuju na obje strane krive. Prilikom izračunavanja vrijednosti u postupku interpolacije može čak dovesti do ponavljanja izračunavanja, dakle, rukovanje kompletne karakteristike krivih za proračun tranzijentnih procesa je od važnijih pitanja za ispuhavanje i direktno utiču na tačnost rezultata proračuna i izračunavanje opterećenja.

Suterov metod, karakteristike krive pumpne - turbine za kompletno strujanje određene su metodom testiranja, kad se radi proračun tranzijentnih procesa, diskretni podaci krivih se unose u kompjuter. Kompletne karakteristike krivih su sačinjene od mnogih nepravilnih krivih, izračunate proračunom interpolacije kada su podaci dvije tačke u nevolji. Pored toga, u pumpnoj oblasti i u anti - pumpnoj oblasti zakrivljenost krivih u velikoj mjeri varira, susjedne linije otvora lopatica sprovednog aparata se ukrštaju, tako da su kompletne karakteristike krivih obrađene, tako da je lakše za čitanje pri izračunavanju tačnosti podataka.

Suterov fizički koncept je jasan, mala kalkulacija opterećenje na kompletne karakteristike krivih od vrijednosti efekta tretmana metode, ovaj će metod kompletne karakteristike krivih reverzibilnog agregata u okviru četiri kvadranta prema sledećoj formuli pretvoriti u ciklične promjene ove dvije krive, $Wh(x) = h / (\alpha^2 + v^2)$, $Wm(x) = \beta / (\alpha^2 + v^2)$, u ovom tipu, $x = \arctan v / \alpha$, $\alpha = n / n_r$, $v = Q / Q_r$, $\beta = M / M_r$, $h = H / H_r$, gdje N , Q , M , H predstavljaju brzinu, protok, moment i pad, u indeksu sa r.

Za reverzibilne agregate sa lopaticama sprovednog aparata, treba da postoji promenljiva u ovoj transformaciji, otvorenost lopatica sprovednog aparata, $y = Y / Y_r$, $Wh(x,y) = h / ((n_{11} / n_{11r})^2 + (Q_{11} / Q_{11r})^2)$, $Wm(x,y) = M_{11} + M_{11r} / ((n_{11} / n_{11r})^2 + (Q_{11} / Q_{11r})^2)$. Prema tome $\alpha \geq 0$ $x = \arctan [(Q_{11} / Q_{11r}) / (n_{11} / n_{11r})]$, $\alpha \leq 0$ $x = \pi + \arctan [(Q_{11} / Q_{11r}) / (n_{11} / n_{11r})]$ gdje su Q_{11} , n_{11} , M_{11} respektivni jedinični protok, brzina, obrtni moment, a Q_{11r} , n_{11r} , M_{11r} , respektivni nominalni protok, brzina i obrtni moment. Kroz prethodne izraze konvertuju se krive.

Transformacije su uglavnom ravne krive na obje strane, i smanjuje se na obje strane ukrštanje i preklapanje. Ali distribucija krive nije uniformna. Pri manjim otvorima tada je kriva previše udaljena, pri većim otvorima tada su krive suviše blizu, u pumpnoj oblasti i anti - pumpnoj oblasti smanjena su ukrštanja i preklapanja ali nijesu potpuno eliminisana. U krivini na lijevoj strani pada, postoji kriva gotovo vertikalna x osi, i može imati više vrijednosti. Da sumiramo, ovaj metod transformisanja krivih je i dalje sa nedostacima, tako da efekat interpolacije nije baš idealan. Neke korekcije su napravljene na Suterovoj krivi uglavnom u ovom radu, i sledeći odnos konverzija je iznijet, $Wh(x,y) = y^2 / ((n_{11} / n_{11r})^2 + (Q_{11} / Q_{11r})^2) = (h / \alpha^2 + v^2) y^2$, $Wm(x,y) = ((M_{11} + k_1) / M_{11r}) y = (\beta / h + k_1 / M_{11r}) y$, kada je $\alpha \geq 0$ $x = \arctan [(Q_{11} / Q_{11r} + k_2) / (n_{11} / n_{11r})] = \arctan [(v + k_2 \sqrt{h}) / \alpha]$, kada je $\alpha < 0$, $x = \pi + \arctan [(Q_{11} / Q_{11r} + k_2) / (n_{11} / n_{11r})] = \pi + \arctan [(v + k_2 \sqrt{h}) / \alpha]$.

Sada se spoznaje značaj, k_1 kao koeficijenta za koji su uzete vrijednosti od 1.0 do 1.8, k_2 kao koeficijenta za koji su uzete vrijednosti od 0,5 do 1.2. Nakon ove vrste konverzije navedene u prethodnim izrazima mogu se vidjeti krive $Wh(x,y)$ i $Wm(x,y)$ u dva paralelna seta krivih, da su potpuno eliminisale iz Suterovih tranzicionih krivih iskošenja, sječenja i preklapanja, kao i nedostaci vrijednosti dobijenih interpolacijom, dobijaju se dobri interpolirani rezultati. Podaci o kompletne karakteristike krivih reverzibilnog agregata i ponašanje interpolacije, je svojstveno karakteristici protoka za reverzibilni agregat, obrada podataka nije karakteristika za eliminisanje ovih, ali treba punu garanciju na osnovu stvarnog lica originalnog podatka, i biće je teško eliminisati zbog tih svojstava kao rezultat izračunavanja. U proračunu tranzijentnih procesa, proizvođači daju kompletne krive karakteristika podaci su dobijeni u potpunosti kontinuirano, predviđanje najviše interpolacija i razumno proširenje krive

karakteristika je u skladu sa gore opisanom metodom i neće prouzrokovati izostavljanje originalnih podataka, i dalje ćemo imati karakteristike originalnog podatka.

Fitovanje površina, u namjeri da se dobiju vrijednosti za Wh , Wm po bilo kojem od otvora lopatica sprovednog aparata pri izračunavanju tranzijentnih procesa, pristupom dokumentima koja se odnose na ovaj rad, površine krivih Wh fitovane su pomoću najmanjih kvadrata. Za određene otvore lopatica sprovednog aparata reverzibilne pumpne - turbine, osobine njihovi Wh , Wm su u redu. U proračunu tranzijentnih procesa pumpne - turbine, matematički model je zasnovan na fitovanju površina Wh , Wm pomoću najmanjih kvadrata, matematički model je zasnovan na relativnom uglu protoka x i argumentu relativnog otvora.

Korišćenjem iz programa Matlab opcije fitovanje od sume kvadrata odstupanja minimalne površine jednačina od $Wh(x,y)$ i $Wm(x,y)$. U proračunu tranzijentnih procesa, može se naći kao argument (x,y) pod parametrima performansi.

Zaključci, u ovom radu je poboljšana postojeća Suterova kriva metodom transformacije za krive karakteristika pumpne - turbine. Koristeći tretman poboljšane metode, kompletne krive karakteristika krivih pumpe - turbine su u klasi paralelnog stanja. Problem multi - vrijednosti u kompletnim krivim karakteristika pumpne - turbine je eliminisan u osnovi. Krive su obrađene polinomijalnim fittingom, dobija se relativno glatka kriva karakteristika. Na ovoj osnovi, fitovanje zakrivljenih površina sprovedeno je korišćenjem metode najmanjih kvadrata. Koristeći ovaj metod u kasnijem proračunu tranzijentnih procesa, mogu da se brzo i lako dobiju traženi parametre pri bilo kojem otvoru lopatica sprovednog aparata, da se olakša proračun tranzijentnih procesa pumpne - turbine.

Prilozi

Prilog – P2 Tabela sa preračunatim podacima Krive $n/n^* = 100\%$ i Krive $n/n^* = -100\%$ iz Stepanoff 1959 u Suterove krive Wh i Wm , saglasno postupku iz knjige Wylie, E.B. & Streeter, V.L. 1993.

nq = 35(25) - (Stepanoff 1959 Kriva $n/n^* = 100\%$ i Kriva $n/n^* = -100\%$ - preračunate u Suterove krive Wh i Wm) kao iz knjige Wylie, E.B. & Streeter, V.L. 1993.									
Kriva $n/n^* = 100\%$				100	1	$\alpha=1$ $\alpha=-1$			
Kriva $n/n^* = -100\%$									
$v=Q/Q^*$	$h = H/H^*$	$\beta=M/M^*$	$v=(Q/Q^*)/100$	$h=(H/H^*)/100$	$\beta=(M/M^*)/100$	$theta$	Wh	$theta$	Wm
0	62,215740	-64,13511	0,00	0,622157	-0,641351	0,000000	0,622157	0,000000	-0,641351
-1	62,378141	-62,60564	-0,01	0,623781	-0,626056	0,010000	0,623719	0,010000	-0,625994
-2	62,521726	-61,09142	-0,02	0,625217	-0,610914	0,019997	0,624967	0,019997	-0,610670
-3	62,649524	-59,59209	-0,03	0,626495	-0,595921	0,029991	0,625932	0,029991	-0,595385
-4	62,764564	-58,10730	-0,04	0,627646	-0,581073	0,039979	0,626643	0,039979	-0,580145
-5	62,869876	-56,63667	-0,05	0,628699	-0,566367	0,049958	0,627131	0,049958	-0,564954
-6	62,968421	-55,17987	-0,06	0,629684	-0,551799	0,059928	0,627425	0,059928	-0,549819
-7	63,062123	-53,73684	-0,07	0,630621	-0,537368	0,069886	0,627546	0,069886	-0,534748
-8	63,152099	-52,30807	-0,08	0,631521	-0,523081	0,079830	0,627505	0,079830	-0,519754
-9	63,239445	-50,89411	-0,09	0,632394	-0,508941	0,089758	0,627313	0,089758	-0,504852
-10	63,325255	-49,49553	-0,10	0,633253	-0,494955	0,099669	0,626983	0,099669	-0,490055
-11	63,410625	-48,11288	-0,11	0,634106	-0,481129	0,109560	0,626525	0,109560	-0,475377
-12	63,496650	-46,74671	-0,12	0,634967	-0,467467	0,119429	0,625953	0,119429	-0,460831
-13	63,584425	-45,39757	-0,13	0,635844	-0,453976	0,129275	0,625277	0,129275	-0,446431
-14	63,675046	-44,06603	-0,14	0,636750	-0,440660	0,139096	0,624510	0,139096	-0,432189
-15	63,769608	-42,75264	-0,15	0,637696	-0,427526	0,148890	0,623664	0,148890	-0,418119
-16	63,869205	-41,45795	-0,16	0,638692	-0,414579	0,158655	0,622750	0,158655	-0,404231
-17	63,974893	-40,18251	-0,17	0,639749	-0,401825	0,168390	0,621779	0,168390	-0,390539
-18	64,087024	-38,92689	-0,18	0,640870	-0,389269	0,178093	0,620758	0,178093	-0,377052
-19	64,205372	-37,69164	-0,19	0,642054	-0,376916	0,187762	0,619683	0,187762	-0,363784
-20	64,329688	-36,47687	-0,20	0,643297	-0,364769	0,197396	0,618555	0,197396	-0,350739
-21	64,459727	-35,28152	-0,21	0,644597	-0,352815	0,206992	0,617371	0,206992	-0,337913
-22	64,595240	-34,10440	-0,22	0,645952	-0,341044	0,216550	0,616132	0,216550	-0,325299
-23	64,735983	-32,94426	-0,23	0,647360	-0,329443	0,226068	0,614835	0,226068	-0,312891
-24	64,881706	-31,79990	-0,24	0,648817	-0,317999	0,235545	0,613481	0,235545	-0,300680
-25	65,032165	-30,67008	-0,25	0,650322	-0,306701	0,244979	0,612067	0,244979	-0,288660
-26	65,187112	-29,55360	-0,26	0,651871	-0,295536	0,254368	0,610595	0,254368	-0,276823
-27	65,346301	-28,44922	-0,27	0,653463	-0,284492	0,263712	0,609062	0,263712	-0,265162
-28	65,509484	-27,35572	-0,28	0,655095	-0,273557	0,273009	0,607469	0,273009	-0,253670

-29	65,676415	-26,27189	-0,29	0,656764	-0,262719	0,282257	0,605815	0,282257	-0,242338
-30	65,846847	-25,19651	-0,30	0,658468	-0,251965	0,291457	0,604100	0,291457	-0,231161
-31	66,020609	-24,12842	-0,31	0,660206	-0,241284	0,300606	0,602323	0,300606	-0,220130
-32	66,198043	-23,06728	-0,32	0,661980	-0,230673	0,309703	0,600490	0,309703	-0,209246
-33	66,379706	-22,01316	-0,33	0,663797	-0,220132	0,318748	0,598609	0,318748	-0,198513
-34	66,566157	-20,96613	-0,34	0,665662	-0,209661	0,327739	0,596685	0,327739	-0,187936
-35	66,757954	-19,92626	-0,35	0,667580	-0,199263	0,336675	0,594726	0,336675	-0,177517
-36	66,955656	-18,89364	-0,36	0,669557	-0,188936	0,345556	0,592738	0,345556	-0,167260
-37	67,159822	-17,86835	-0,37	0,671598	-0,178683	0,354380	0,590728	0,354380	-0,157167
-38	67,371009	-16,85045	-0,38	0,673710	-0,168505	0,363147	0,588702	0,363147	-0,147243
-39	67,589775	-15,84003	-0,39	0,675898	-0,158400	0,371856	0,586666	0,371856	-0,137488
-40	67,816680	-14,83717	-0,40	0,678167	-0,148372	0,380506	0,584627	0,380506	-0,127907
-41	68,052281	-13,84193	-0,41	0,680523	-0,138419	0,389097	0,582590	0,389097	-0,118500
-42	68,297138	-12,85440	-0,42	0,682971	-0,128544	0,397628	0,580561	0,397628	-0,109269
-43	68,551808	-11,87466	-0,43	0,685518	-0,118747	0,406098	0,578545	0,406098	-0,100217
-44	68,816827	-10,90277	-0,44	0,688168	-0,109028	0,414507	0,576548	0,414507	-0,091344
-45	69,092252	-9,93882	-0,45	0,690923	-0,099388	0,422854	0,574572	0,422854	-0,082651
-46	69,377662	-8,98288	-0,46	0,693777	-0,089829	0,431139	0,572612	0,431139	-0,074141
-47	69,672615	-8,03504	-0,47	0,696726	-0,080350	0,439361	0,570666	0,439361	-0,065812
-48	69,976672	-7,09539	-0,48	0,699767	-0,070954	0,447520	0,568731	0,447520	-0,057667
-49	70,289393	-6,16555	-0,49	0,702894	-0,061655	0,455616	0,566804	0,455616	-0,049718
-50	70,610336	-5,24946	-0,50	0,706103	-0,052495	0,463648	0,564883	0,463648	-0,041996
-51	70,939062	-4,35124	-0,51	0,709391	-0,043512	0,471616	0,562964	0,471616	-0,034531
-52	71,275132	-3,47503	-0,52	0,712751	-0,034750	0,479519	0,561045	0,479519	-0,027354
-53	71,618388	-2,62495	-0,53	0,716184	-0,026250	0,487359	0,559126	0,487359	-0,020493
-54	71,969195	-1,80513	-0,54	0,719692	-0,018051	0,495133	0,557210	0,495133	-0,013976
-55	72,327979	-1,01964	-0,55	0,723280	-0,010196	0,502843	0,555301	0,502843	-0,007828
-56	72,695164	-0,26691	-0,56	0,726952	-0,002669	0,510488	0,553404	0,510488	-0,002032
-57	73,071175	0,46462	-0,57	0,730712	0,004646	0,518069	0,551522	0,518069	0,003507
-58	73,456436	1,18755	-0,58	0,734564	0,011876	0,525584	0,549659	0,525584	0,008886
-59	73,851372	1,91447	-0,59	0,738514	0,019145	0,533034	0,547818	0,533034	0,014201
-60	74,256408	2,65797	-0,60	0,742564	0,026580	0,540420	0,546003	0,540420	0,019544
-61	74,671968	3,42765	-0,61	0,746720	0,034277	0,547740	0,544217	0,547740	0,024981
-62	75,098478	4,22498	-0,62	0,750985	0,042250	0,554996	0,542462	0,554996	0,030518
-63	75,536361	5,05006	-0,63	0,755364	0,050501	0,562187	0,540743	0,562187	0,036152
-64	75,986043	5,90303	-0,64	0,759860	0,059030	0,569313	0,539061	0,569313	0,041877
-65	76,447946	6,78398	-0,65	0,764479	0,067840	0,576375	0,537420	0,576375	0,047691
-66	76,922356	7,69304	-0,66	0,769224	0,076930	0,583373	0,535820	0,583373	0,053588

-67	77,409353	8,63033	-0,67	0,774094	0,086303	0,590307	0,534263	0,590307	0,059565
-68	77,908995	9,59594	-0,68	0,779090	0,095959	0,597177	0,532748	0,597177	0,065618
-69	78,421343	10,59001	-0,69	0,784213	0,105900	0,603983	0,531274	0,603983	0,071743
-70	78,946457	11,61264	-0,70	0,789465	0,116126	0,610726	0,529842	0,610726	0,077937
-71	79,484398	12,66396	-0,71	0,794844	0,126640	0,617406	0,528452	0,617406	0,084196
-72	80,035224	13,74389	-0,72	0,800352	0,137439	0,624023	0,527102	0,624023	0,090516
-73	80,598997	14,85038	-0,73	0,805990	0,148504	0,630578	0,525794	0,630578	0,096878
-74	81,175775	15,98009	-0,74	0,811758	0,159801	0,637070	0,524527	0,637070	0,103257
-75	81,765620	17,12963	-0,75	0,817656	0,171296	0,643501	0,523300	0,643501	0,109630
-76	82,368516	18,29564	-0,76	0,823685	0,182956	0,649870	0,522113	0,649870	0,115971
-77	82,983550	19,47475	-0,77	0,829836	0,194747	0,656179	0,520959	0,656179	0,122260
-78	83,609216	20,66358	-0,78	0,836092	0,206636	0,662426	0,519829	0,662426	0,128473
-79	84,243997	21,85877	-0,79	0,842440	0,218588	0,668614	0,518712	0,668614	0,134590
-80	84,886376	23,05694	-0,80	0,848864	0,230569	0,674741	0,517600	0,674741	0,140591
-81	85,534836	24,25472	-0,81	0,855348	0,242547	0,680809	0,516484	0,680809	0,146457
-82	86,187861	25,44874	-0,82	0,861879	0,254487	0,686818	0,515354	0,686818	0,152169
-83	86,843935	26,63564	-0,83	0,868439	0,266356	0,692768	0,514204	0,692768	0,157710
-84	87,501679	27,81438	-0,84	0,875017	0,278144	0,698660	0,513026	0,698660	0,163077
-85	88,161948	28,98929	-0,85	0,881619	0,289893	0,704494	0,511826	0,704494	0,168298
-86	88,827384	30,16546	-0,86	0,888274	0,301655	0,710271	0,510620	0,710271	0,173405
-87	89,500682	31,34799	-0,87	0,895007	0,313480	0,715991	0,509424	0,715991	0,178428
-88	90,184535	32,54197	-0,88	0,901845	0,325420	0,721655	0,508254	0,721655	0,183397
-89	90,881638	33,75247	-0,89	0,908816	0,337525	0,727263	0,507124	0,727263	0,188340
-90	91,594684	34,98460	-0,90	0,915947	0,349846	0,732815	0,506048	0,732815	0,193285
-91	92,326368	36,24343	-0,91	0,923264	0,362434	0,738313	0,505040	0,738313	0,198257
-92	93,079383	37,53407	-0,92	0,930794	0,375341	0,743756	0,504113	0,743756	0,203282
-93	93,856423	38,86141	-0,93	0,938564	0,388614	0,749145	0,503279	0,749145	0,208383
-94	94,659721	40,22643	-0,94	0,946597	0,402264	0,754480	0,502547	0,754480	0,213561
-95	95,488318	41,62649	-0,95	0,954883	0,416265	0,759763	0,501910	0,759763	0,218799
-96	96,339913	43,05883	-0,96	0,963399	0,430588	0,764993	0,501353	0,764993	0,224078
-97	97,212198	44,52067	-0,97	0,972122	0,445207	0,770171	0,500861	0,770171	0,229382
-98	98,102863	46,00923	-0,98	0,981029	0,460092	0,775298	0,500423	0,775298	0,234693
-99	99,009602	47,52173	-0,99	0,990096	0,475217	0,780373	0,500023	0,780373	0,239997
-100	99,930107	49,05541	-1,00	0,999301	0,490554	0,785398	0,499651	0,785398	0,245277
-101	100,862070	50,60749	-1,01	1,008621	0,506075	0,790373	0,499292	0,790373	0,250520
-102	101,803182	52,17519	-1,02	1,018032	0,521752	0,795299	0,498937	0,795299	0,255711
-103	102,751137	53,75573	-1,03	1,027511	0,537557	0,800175	0,498574	0,800175	0,260836
-104	103,703626	55,34635	-1,04	1,037036	0,553464	0,805004	0,498192	0,805004	0,265884

-105	104,658388	56,94429	-1,05	1,046584	0,569443	0,809784	0,497781	0,809784	0,270841
-106	105,614608	58,54827	-1,06	1,056146	0,585483	0,814516	0,497338	0,814516	0,275703
-107	106,573172	60,15938	-1,07	1,065732	0,601594	0,819202	0,496868	0,819202	0,280476
-108	107,535061	61,77890	-1,08	1,075351	0,617789	0,823841	0,496377	0,823841	0,285168
-109	108,501254	63,40811	-1,09	1,085013	0,634081	0,828434	0,495870	0,828434	0,289786
-110	109,472735	65,04832	-1,10	1,094727	0,650483	0,832981	0,495352	0,832981	0,294336
-111	110,450483	66,70080	-1,11	1,104505	0,667008	0,837484	0,494828	0,837484	0,298825
-112	111,435481	68,36685	-1,12	1,114355	0,683668	0,841942	0,494302	0,841942	0,303260
-113	112,428708	70,04775	-1,13	1,124287	0,700477	0,846355	0,493780	0,846355	0,307645
-114	113,431147	71,74480	-1,14	1,134311	0,717448	0,850726	0,493265	0,850726	0,311988
-115	114,443779	73,45912	-1,15	1,144438	0,734591	0,855053	0,492761	0,855053	0,316293
-116	115,467583	75,19113	-1,16	1,154676	0,751911	0,859337	0,492273	0,859337	0,320562
-117	116,503452	76,94099	-1,17	1,165035	0,769410	0,863580	0,491804	0,863580	0,324796
-118	117,552122	78,70889	-1,18	1,175521	0,787089	0,867780	0,491356	0,867780	0,328996
-119	118,614314	80,49499	-1,19	1,186143	0,804950	0,871939	0,490933	0,871939	0,333161
-120	119,690748	82,29948	-1,20	1,196907	0,822995	0,876058	0,490536	0,876058	0,337293
-121	120,782146	84,12254	-1,21	1,207821	0,841225	0,880136	0,490167	0,880136	0,341393
-122	121,889227	85,96434	-1,22	1,218892	0,859643	0,884175	0,489830	0,884175	0,345460
-123	123,012713	87,82505	-1,23	1,230127	0,878251	0,888174	0,489525	0,888174	0,349497
-124	124,153324	89,70486	-1,24	1,241533	0,897049	0,892134	0,489255	0,892134	0,353503
-125	125,311782	91,60390	-1,25	1,253118	0,916039	0,896055	0,489022	0,896055	0,357479
-126	126,488806	93,52232	-1,26	1,264888	0,935223	0,899939	0,488827	0,899939	0,361425
-127	127,684876	95,46023	-1,27	1,276849	0,954602	0,903785	0,488671	0,903785	0,365342
-128	128,899442	97,41778	-1,28	1,288994	0,974178	0,907593	0,488552	0,907593	0,369231
-129	130,131673	99,39510	-1,29	1,301317	0,993951	0,911365	0,488464	0,911365	0,373091
-130	131,380741	101,39232	-1,30	1,313807	1,013923	0,915101	0,488404	0,915101	0,376923
-131	132,645819	103,40957	-1,31	1,326458	1,034096	0,918800	0,488369	0,918800	0,380728
-132	133,926076	105,44700	-1,32	1,339261	1,054470	0,922464	0,488354	0,922464	0,384506
-133	135,220684	107,50463	-1,33	1,352207	1,075046	0,926093	0,488355	0,926093	0,388258
-134	136,528815	109,58104	-1,34	1,365288	1,095810	0,929688	0,488370	0,929688	0,391977
-135	137,849836	111,67356	-1,35	1,378498	1,116736	0,933248	0,488396	0,933248	0,395655
-136	139,185553	113,77948	-1,36	1,391856	1,137795	0,936774	0,488439	0,936774	0,399282
-137	140,539429	115,89610	-1,37	1,405394	1,158961	0,940266	0,488510	0,940266	0,402851
-138	141,914957	118,02073	-1,38	1,419150	1,180207	0,943726	0,488621	0,943726	0,406351
-139	143,315630	120,15065	-1,39	1,433156	1,201507	0,947152	0,488782	0,947152	0,409777
-140	144,744942	122,28318	-1,40	1,447449	1,222832	0,950547	0,489003	0,950547	0,413119
-141	146,206385	124,41560	-1,41	1,462064	1,244156	0,953909	0,489295	0,953909	0,416370
-142	147,703400	126,54522	-1,42	1,477034	1,265452	0,957240	0,489668	0,957240	0,419524

-143	149,237717	128,67003	-1,43	1,492377	1,286700	0,960540	0,490124	0,960540	0,422576
-144	150,809038	130,79058	-1,44	1,508090	1,307906	0,963809	0,490659	0,963809	0,425529
-145	152,416950	132,90803	-1,45	1,524169	1,329080	0,967047	0,491271	0,967047	0,428390
-146	154,061038	135,02353	-1,46	1,540610	1,350235	0,970255	0,491956	0,970255	0,431165
-147	155,740888	137,13822	-1,47	1,557409	1,371382	0,973434	0,492711	0,973434	0,433858
-148	157,456086	139,25324	-1,48	1,574561	1,392532	0,976583	0,493531	0,976583	0,436476
-149	159,206218	141,36975	-1,49	1,592062	1,413697	0,979703	0,494414	0,979703	0,439023
-150	160,990870	143,48889	-1,50	1,609909	1,434889	0,982794	0,495357	0,982794	0,441504
-151	162,809627	145,61181	-1,51	1,628096	1,456118	0,985857	0,496356	0,985857	0,443925
-152	164,662075	147,73966	-1,52	1,646621	1,477397	0,988891	0,497408	0,988891	0,446289
-153	166,547799	149,87359	-1,53	1,665478	1,498736	0,991898	0,498512	0,991898	0,448602
-154	168,465894	152,01473	-1,54	1,684659	1,520147	0,994878	0,499662	0,994878	0,450868
-155	170,414310	154,16425	-1,55	1,704143	1,541642	0,997830	0,500850	0,997830	0,453091
-156	172,390833	156,32429	-1,56	1,723908	1,563243	1,000756	0,502070	1,000756	0,455278
-157	174,393248	158,49999	-1,57	1,743932	1,585000	1,003655	0,503314	1,003655	0,457445
-158	176,419340	160,69700	-1,58	1,764193	1,606970	1,006528	0,504574	1,006528	0,459607
-159	178,466895	162,92099	-1,59	1,784669	1,629210	1,009375	0,505844	1,009375	0,461781
-160	180,533697	165,17761	-1,60	1,805337	1,651776	1,012197	0,507117	1,012197	0,463982
-161	182,617533	167,47254	-1,61	1,826175	1,674725	1,014993	0,508387	1,014993	0,466225
-162	184,716193	169,81143	-1,62	1,847162	1,698114	1,017765	0,509646	1,017765	0,468523
-163	186,828195	172,19994	-1,63	1,868282	1,721999	1,020512	0,510892	1,020512	0,470890
-164	188,953480	174,64373	-1,64	1,889535	1,746437	1,023234	0,512125	1,023234	0,473341
-165	191,092157	177,14830	-1,65	1,910922	1,771483	1,025932	0,513344	1,025932	0,475885
-166	193,244334	179,70561	-1,66	1,932443	1,797056	1,028607	0,514550	1,028607	0,478500
-167	195,410118	182,28454	-1,67	1,954101	1,822845	1,031258	0,515744	1,031258	0,481101
-168	197,589618	184,85173	-1,68	1,975896	1,848517	1,033886	0,516926	1,033886	0,483601
-169	199,782941	187,37384	-1,69	1,997829	1,873738	1,036490	0,518096	1,036490	0,485915
-170	201,990196	189,81751	-1,70	2,019902	1,898175	1,039072	0,519255	1,039072	0,487963
-171	204,212255	192,14984	-1,71	2,042123	1,921498	1,041632	0,520405	1,041632	0,489666
-172	206,453268	194,36652	-1,72	2,064533	1,943665	1,044169	0,521557	1,044169	0,491023
-173	208,718263	196,50755	-1,73	2,087183	1,965075	1,046684	0,522723	1,046684	0,492142
-174	211,012270	198,61674	-1,74	2,110123	1,986167	1,049178	0,523916	1,049178	0,493139
-175	213,340318	200,73789	-1,75	2,133403	2,007379	1,051650	0,525145	1,051650	0,494124
-176	215,707435	202,91482	-1,76	2,157074	2,029148	1,054101	0,526424	1,054101	0,495204
-177	218,118651	205,18911	-1,77	2,181187	2,051891	1,056531	0,527762	1,056531	0,496477
-178	220,578994	207,56622	-1,78	2,205790	2,075662	1,058941	0,529169	1,058941	0,497952
-179	223,093502	210,02246	-1,79	2,230935	2,100225	1,061329	0,530657	1,061329	0,499566
-180	225,667906	212,53328	-1,80	2,256679	2,125333	1,063698	0,532236	1,063698	0,501258

-181	228,309154	215,07414	-1,81	2,283092	2,150741	1,066046	0,533919	1,066046	0,502968
-182	231,024319	217,62051	-1,82	2,310243	2,176205	1,068375	0,535721	1,068375	0,504639
-183	233,820473	220,14784	-1,83	2,338205	2,201478	1,070684	0,537654	1,070684	0,506215
-184	236,704687	222,63159	-1,84	2,367047	2,226316	1,072974	0,539732	1,072974	0,507642
-185	239,684032	225,04722	-1,85	2,396840	2,250472	1,075245	0,541965	1,075245	0,508869
-186	242,765582	227,38462	-1,86	2,427656	2,273846	1,077496	0,544366	1,077496	0,509877
-187	245,956407	229,71314	-1,87	2,459564	2,297131	1,079729	0,546947	1,079729	0,510826
-188	249,263579	232,12938	-1,88	2,492636	2,321294	1,081944	0,549717	1,081944	0,511930
-189	252,694170	234,72638	-1,89	2,526942	2,347264	1,084140	0,552687	1,084140	0,513389
-131	251,237856	163,6301	-1,31	2,512379	1,636301	2,222792	0,924995	2,222792	0,602445
-130	249,225398	161,63558	-1,3	2,492254	1,616356	2,226492	0,926488	2,226492	0,600876
-129	247,201203	159,64087	-1,29	2,472012	1,596409	2,230227	0,927898	2,230227	0,599230
-128	245,168999	157,6376	-1,28	2,451690	1,576376	2,233999	0,929234	2,233999	0,597474
-127	243,132513	155,62435	-1,27	2,431325	1,556244	2,237808	0,930508	2,237808	0,595600
-126	241,095472	153,60709	-1,26	2,410955	1,536071	2,241654	0,931734	2,241654	0,593628
-125	239,061602	151,59213	-1,25	2,390616	1,515921	2,245537	0,932923	2,245537	0,591579
-124	237,034632	149,58577	-1,24	2,370346	1,495858	2,249459	0,934090	2,249459	0,589477
-123	235,018288	147,59434	-1,23	2,350183	1,475943	2,253419	0,935247	2,253419	0,587347
-122	233,016296	145,62414	-1,22	2,330163	1,456241	2,257418	0,936410	2,257418	0,585212
-121	231,032385	143,68121	-1,21	2,310324	1,436812	2,261456	0,937593	2,261456	0,583098
-120	229,070281	141,76702	-1,2	2,290703	1,417670	2,265535	0,938813	2,265535	0,581012
-119	227,133586	139,87929	-1,19	2,271336	1,398793	2,269653	0,940084	2,269653	0,578947
-118	225,223874	138,01562	-1,18	2,252239	1,380156	2,273813	0,941414	2,273813	0,576892
-117	223,341076	136,17364	-1,17	2,233411	1,361736	2,278013	0,942805	2,278013	0,574839
-116	221,485080	134,35094	-1,16	2,214851	1,343509	2,282255	0,944258	2,282255	0,572779
-115	219,655769	132,54514	-1,15	2,196558	1,325451	2,286540	0,945773	2,286540	0,570700
-114	217,853031	130,75384	-1,14	2,178530	1,307538	2,290867	0,947352	2,290867	0,568594
-113	216,076750	128,97466	-1,13	2,160768	1,289747	2,295237	0,948995	2,295237	0,566449
-112	214,326812	127,20521	-1,12	2,143268	1,272052	2,299651	0,950704	2,299651	0,564253
-111	212,603103	125,44327	-1,11	2,126031	1,254433	2,304109	0,952480	2,304109	0,561997
-110	210,905508	123,68743	-1,1	2,109055	1,236874	2,308611	0,954324	2,308611	0,559672
-109	209,233912	121,93655	-1,09	2,092339	1,219366	2,313159	0,956236	2,313159	0,557271
-108	207,588202	120,18947	-1,08	2,075882	1,201895	2,317752	0,958217	2,317752	0,554789
-107	205,968262	118,44504	-1,07	2,059683	1,184450	2,322391	0,960270	2,322391	0,552217
-106	204,373311	116,70211	-1,06	2,043733	1,167021	2,327076	0,962391	2,327076	0,549548
-105	202,800354	114,95951	-1,05	2,028004	1,149595	2,331809	0,964568	2,331809	0,546775
-104	201,245937	113,2161	-1,04	2,012459	1,132161	2,336589	0,966785	2,336589	0,543890
-103	199,706604	111,47072	-1,03	1,997066	1,114707	2,341417	0,969026	2,341417	0,540884

-102	198,178904	109,72228	-1,02	1,981789	1,097223	2,346294	0,971275	2,346294	0,537749
-101	196,659380	107,96995	-1,01	1,966594	1,079700	2,351219	0,973513	2,351219	0,534478
-100	195,144581	106,21298	-1	1,951446	1,062130	2,356194	0,975723	2,356194	0,531065
-99	193,631050	104,45061	-0,99	1,936311	1,044506	2,361220	0,977885	2,361220	0,527502
-98	192,115335	102,68209	-0,98	1,921153	1,026821	2,366295	0,979980	2,366295	0,523781
-97	190,593981	100,90667	-0,97	1,905940	1,009067	2,371422	0,981988	2,371422	0,519896
-96	189,063535	99,123585	-0,96	1,890635	0,991236	2,376600	0,983886	2,376600	0,515839
-95	187,520541	97,332778	-0,95	1,875205	0,973328	2,381830	0,985653	2,381830	0,511605
-94	185,961547	95,541433	-0,94	1,859615	0,955414	2,387112	0,987267	2,387112	0,507228
-93	184,383098	93,761062	-0,93	1,843831	0,937611	2,392448	0,988702	2,392448	0,502767
-92	182,781742	92,003234	-0,92	1,827817	0,920032	2,397837	0,989936	2,397837	0,498284
-91	181,156473	90,279518	-0,91	1,811565	0,902795	2,403280	0,990955	2,403280	0,493843
-90	179,513780	88,601484	-0,9	1,795138	0,886015	2,408777	0,991789	2,408777	0,489511
-89	177,861580	86,980048	-0,89	1,778616	0,869800	2,414330	0,992476	2,414330	0,485353
-88	176,207793	85,415234	-0,88	1,762078	0,854152	2,419938	0,993056	2,419938	0,481375
-87	174,560335	83,898069	-0,87	1,745603	0,838981	2,425601	0,993570	2,425601	0,477535
-86	172,927125	82,419312	-0,86	1,729271	0,824193	2,431322	0,994063	2,431322	0,473783
-85	171,316081	80,969723	-0,85	1,713161	0,809697	2,437099	0,994578	2,437099	0,470071
-84	169,735122	79,540059	-0,84	1,697351	0,795401	2,442933	0,995164	2,442933	0,466347
-83	168,192164	78,121081	-0,83	1,681922	0,781211	2,448825	0,995868	2,448825	0,462556
-82	166,695127	76,703547	-0,82	1,666951	0,767035	2,454775	0,996742	2,454775	0,458644
-81	165,251928	75,278342	-0,81	1,652519	0,752783	2,460784	0,997838	2,460784	0,454552
-80	163,870444	73,842989	-0,8	1,638704	0,738430	2,466852	0,999210	2,466852	0,450262
-79	162,554454	72,404759	-0,79	1,625545	0,724048	2,472979	1,000889	2,472979	0,445815
-78	161,300189	70,971703	-0,78	1,613002	0,709717	2,479166	1,002861	2,479166	0,441257
-77	160,103070	69,551872	-0,77	1,601031	0,695519	2,485414	1,005104	2,485414	0,436637
-76	158,958516	68,153317	-0,76	1,589585	0,681533	2,491722	1,007597	2,491722	0,432006
-75	157,861948	66,784088	-0,75	1,578619	0,667841	2,498091	1,010316	2,498091	0,427418
-74	156,808785	65,452237	-0,74	1,568088	0,654522	2,504522	1,013238	2,504522	0,422927
-73	155,794447	64,164853	-0,73	1,557944	0,641649	2,511015	1,016338	2,511015	0,418585
-72	154,814354	62,922348	-0,72	1,548144	0,629223	2,517570	1,019589	2,517570	0,414399
-71	153,863926	61,722304	-0,71	1,538639	0,617223	2,524187	1,022963	2,524187	0,410360
-70	152,938583	60,562292	-0,7	1,529386	0,605623	2,530867	1,026433	2,530867	0,406458
-69	152,033745	59,439881	-0,69	1,520337	0,594399	2,537610	1,029969	2,537610	0,402682
-68	151,144832	58,352642	-0,68	1,511448	0,583526	2,544416	1,033540	2,544416	0,399020
-67	150,267263	57,298146	-0,67	1,502673	0,572981	2,551286	1,037113	2,551286	0,395460
-66	149,396460	56,273964	-0,66	1,493965	0,562740	2,558220	1,040655	2,558220	0,391989
-65	148,527848	55,277665	-0,65	1,485278	0,552777	2,565217	1,044132	2,565217	0,388595

-64	147,658773	54,306883	-0,64	1,476588	0,543069	2,572279	1,047523	2,572279	0,385264
-63	146,790985	53,360661	-0,63	1,467910	0,533607	2,579406	1,050834	2,579406	0,381993
-62	145,926857	52,439446	-0,62	1,459269	0,524394	2,586597	1,054080	2,586597	0,378788
-61	145,068757	51,543747	-0,61	1,450688	0,515437	2,593853	1,057275	2,593853	0,375656
-60	144,219056	50,674071	-0,6	1,442191	0,506741	2,601173	1,060434	2,601173	0,372603
-59	143,380124	49,830926	-0,59	1,433801	0,498309	2,608558	1,063572	2,608558	0,369638
-58	142,554332	49,01482	-0,58	1,425543	0,490148	2,616009	1,066704	2,616009	0,366768
-57	141,744050	48,22626	-0,57	1,417441	0,482263	2,623524	1,069847	2,623524	0,363999
-56	140,951648	47,465755	-0,56	1,409516	0,474658	2,631104	1,073018	2,631104	0,361341
-55	140,179497	46,733812	-0,55	1,401795	0,467338	2,638749	1,076234	2,638749	0,358801
-54	139,429966	46,030939	-0,54	1,394300	0,460309	2,646459	1,079514	2,646459	0,356387
-53	138,705427	45,357643	-0,53	1,387054	0,453576	2,654234	1,082875	2,654234	0,354108
-52	138,008248	44,71443	-0,52	1,380082	0,447144	2,662073	1,086337	2,662073	0,351971
-51	137,340801	44,101399	-0,51	1,373408	0,441014	2,669977	1,089920	2,669977	0,349983
-50	136,705456	43,517845	-0,5	1,367055	0,435178	2,677945	1,093644	2,677945	0,348143
-49	136,104584	42,962967	-0,49	1,361046	0,429630	2,685977	1,097529	2,685977	0,346448
-48	135,540511	42,435966	-0,48	1,355405	0,424360	2,694073	1,101597	2,694073	0,344896
-47	135,013957	41,936042	-0,47	1,350140	0,419360	2,702232	1,105856	2,702232	0,343485
-46	134,523552	41,462394	-0,46	1,345236	0,414624	2,710454	1,110297	2,710454	0,342212
-45	134,067793	41,014222	-0,45	1,340678	0,410142	2,718739	1,114909	2,718739	0,341075
-44	133,645172	40,590902	-0,44	1,336452	0,405909	2,727086	1,119681	2,727086	0,340071
-43	133,254185	40,192875	-0,43	1,332542	0,401929	2,735495	1,124603	2,735495	0,339209
-42	132,893326	39,820982	-0,42	1,328933	0,398210	2,743965	1,129661	2,743965	0,338499
-41	132,561088	39,476066	-0,41	1,325611	0,394761	2,752495	1,134844	2,752495	0,337951
-40	132,255967	39,158967	-0,4	1,322560	0,391590	2,761086	1,140138	2,761086	0,337577
-39	131,976456	38,870529	-0,39	1,319765	0,388705	2,769737	1,145530	2,769737	0,337388
-38	131,721050	38,611592	-0,38	1,317210	0,386116	2,778446	1,151005	2,778446	0,337396
-37	131,488243	38,382999	-0,37	1,314882	0,383830	2,787213	1,156551	2,787213	0,337611
-36	131,276530	38,185592	-0,36	1,312765	0,381856	2,796037	1,162151	2,796037	0,338045
-35	131,084405	38,020212	-0,35	1,310844	0,380202	2,804918	1,167790	2,804918	0,338710
-34	130,910361	37,887702	-0,34	1,309104	0,378877	2,813854	1,173453	2,813854	0,339617
-33	130,752895	37,788903	-0,33	1,307529	0,377889	2,822845	1,179123	2,822845	0,340778
-32	130,610499	37,724657	-0,32	1,306105	0,377247	2,831890	1,184783	2,831890	0,342205
-31	130,481668	37,695806	-0,31	1,304817	0,376958	2,840987	1,190418	2,840987	0,343908
-30	130,364896	37,703192	-0,3	1,303649	0,377032	2,850136	1,196008	2,850136	0,345901
-29	130,258678	37,747657	-0,29	1,302587	0,377477	2,859335	1,201537	2,859335	0,348193
-28	130,161508	37,829474	-0,28	1,301615	0,378295	2,868584	1,206987	2,868584	0,350793
-27	130,071881	37,947173	-0,27	1,300719	0,379472	2,877881	1,212339	2,877881	0,353688

-26	129,988290	38,09895	-0,26	1,299883	0,380990	2,887225	1,217575	2,887225	0,356865
-25	129,909230	38,283002	-0,25	1,299092	0,382830	2,896614	1,222675	2,896614	0,360311
-24	129,833195	38,497524	-0,24	1,298332	0,384975	2,906048	1,227621	2,906048	0,364008
-23	129,758680	38,740714	-0,23	1,297587	0,387407	2,915524	1,232393	2,915524	0,367943
-22	129,684179	39,010766	-0,22	1,296842	0,390108	2,925042	1,236972	2,925042	0,372098
-21	129,608186	39,305877	-0,21	1,296082	0,393059	2,934600	1,241339	2,934600	0,376457
-20	129,529196	39,624243	-0,2	1,295292	0,396242	2,944197	1,245473	2,944197	0,381002
-19	129,445702	39,964061	-0,19	1,294457	0,399641	2,953831	1,249355	2,953831	0,385716
-18	129,356201	40,323527	-0,18	1,293562	0,403235	2,963500	1,252966	2,963500	0,390580
-17	129,259658	40,700836	-0,17	1,292597	0,407008	2,973202	1,256290	2,973202	0,395576
-16	129,156298	41,094188	-0,16	1,291563	0,410942	2,982937	1,259324	2,982937	0,400684
-15	129,046549	41,501929	-0,15	1,290465	0,415019	2,992703	1,262069	2,992703	0,405887
-14	128,930841	41,9226	-0,14	1,289308	0,419226	3,002497	1,264524	3,002497	0,411167
-13	128,809604	42,354758	-0,13	1,288096	0,423548	3,012318	1,266689	3,012318	0,416509
-12	128,683267	42,79696	-0,12	1,286833	0,427970	3,022164	1,268565	3,022164	0,421894
-11	128,552260	43,247763	-0,11	1,285523	0,432478	3,032033	1,270154	3,032033	0,427307
-10	128,417012	43,705722	-0,1	1,284170	0,437057	3,041924	1,271456	3,041924	0,432730
-9	128,277953	44,169396	-0,09	1,282780	0,441694	3,051834	1,272473	3,051834	0,438145
-8	128,135513	44,637339	-0,08	1,281355	0,446373	3,061763	1,273207	3,061763	0,443535
-7	127,990120	45,10811	-0,07	1,279901	0,451081	3,071707	1,273660	3,071707	0,448882
-6	127,842206	45,5803	-0,06	1,278422	0,455803	3,081664	1,273836	3,081664	0,454168
-5	127,692198	46,053404	-0,05	1,276922	0,460534	3,091634	1,273738	3,091634	0,459386
-4	127,540527	46,52788	-0,04	1,275405	0,465279	3,101614	1,273368	3,101614	0,464536
-3	127,387622	47,004232	-0,03	1,273876	0,470042	3,111602	1,272731	3,111602	0,469620
-2	127,233913	47,482964	-0,02	1,272339	0,474830	3,121595	1,271830	3,121595	0,474640
-1	127,079829	47,96458	-0,01	1,270798	0,479646	3,131593	1,270671	3,131593	0,479598
0	126,925800	48,449584	0	1,269258	0,484496	3,141593	1,269258	3,141593	0,484496
1	126,772256	48,93848	0,01	1,267723	0,489385	3,151592	1,267596	3,151592	0,489336
2	126,619625	49,431773	0,02	1,266196	0,494318	3,161590	1,265690	3,161590	0,494120
3	126,468339	49,929966	0,03	1,264683	0,499300	3,171584	1,263546	3,171584	0,498851
4	126,318825	50,433563	0,04	1,263188	0,504336	3,181571	1,261170	3,181571	0,503530
5	126,171514	50,943069	0,05	1,261715	0,509431	3,191551	1,258569	3,191551	0,508160
6	126,026835	51,458987	0,06	1,260268	0,514590	3,201521	1,255748	3,201521	0,512744
7	125,885215	51,981822	0,07	1,258852	0,519818	3,211479	1,252714	3,211479	0,517284
8	125,746857	52,512077	0,08	1,257469	0,525121	3,221423	1,249472	3,221423	0,521781
9	125,611556	53,050126	0,09	1,256116	0,530501	3,231351	1,246023	3,231351	0,526239
10	125,479064	53,595538	0,1	1,254791	0,535955	3,241261	1,242367	3,241261	0,530649
11	125,349134	54,147576	0,11	1,253491	0,541476	3,251152	1,238505	3,251152	0,535002

12	125,221519	54,705505	0,12	1,252215	0,547055	3,261022	1,234439	3,261022	0,539289
13	125,095971	55,268586	0,13	1,250960	0,552686	3,270868	1,230170	3,270868	0,543501
14	124,972243	55,836085	0,14	1,249722	0,558361	3,280689	1,225699	3,280689	0,547627
15	124,850087	56,407263	0,15	1,248501	0,564073	3,290483	1,221028	3,290483	0,551660
16	124,729257	56,981385	0,16	1,247293	0,569814	3,300248	1,216159	3,300248	0,555591
17	124,609505	57,557714	0,17	1,246095	0,575577	3,309983	1,211094	3,309983	0,559410
18	124,490583	58,135513	0,18	1,244906	0,581355	3,319686	1,205837	3,319686	0,563110
19	124,372244	58,714046	0,19	1,243722	0,587140	3,329355	1,200388	3,329355	0,566683
20	124,254241	59,292575	0,2	1,242542	0,592926	3,338988	1,194752	3,338988	0,570121
21	124,136326	59,870365	0,21	1,241363	0,598704	3,348585	1,188931	3,348585	0,573416
22	124,018253	60,446678	0,22	1,240183	0,604467	3,358143	1,182929	3,358143	0,576561
23	123,899773	61,020779	0,23	1,238998	0,610208	3,367661	1,176748	3,367661	0,579550
24	123,780639	61,59193	0,24	1,237806	0,615919	3,377138	1,170392	3,377138	0,582375
25	123,660605	62,159395	0,25	1,236606	0,621594	3,386571	1,163865	3,386571	0,585030
26	123,539421	62,722437	0,26	1,235394	0,627224	3,395961	1,157170	3,395961	0,587509
27	123,416842	63,280594	0,27	1,234168	0,632806	3,405304	1,150311	3,405304	0,589809
28	123,292620	63,834142	0,28	1,232926	0,638341	3,414601	1,143292	3,414601	0,591934
29	123,166507	64,383482	0,29	1,231665	0,643835	3,423850	1,136118	3,423850	0,593889
30	123,038257	64,929014	0,3	1,230383	0,649290	3,433049	1,128791	3,433049	0,595679
31	122,907621	65,471137	0,31	1,229076	0,654711	3,442198	1,121318	3,442198	0,597310
32	122,774353	66,010251	0,32	1,227744	0,660103	3,451296	1,113701	3,451296	0,598787
33	122,638204	66,546758	0,33	1,226382	0,665468	3,460340	1,105945	3,460340	0,600115
34	122,498928	67,081056	0,34	1,224989	0,670811	3,469331	1,098054	3,469331	0,601300
35	122,356278	67,613546	0,35	1,223563	0,676135	3,478267	1,090034	3,478267	0,602348
36	122,210022	68,144628	0,36	1,222100	0,681446	3,487148	1,081888	3,487148	0,603263
37	122,060055	68,674703	0,37	1,220601	0,686747	3,495973	1,073622	3,495973	0,604052
38	121,906321	69,204169	0,38	1,219063	0,692042	3,504740	1,065242	3,504740	0,604720
39	121,748767	69,733428	0,39	1,217488	0,697334	3,513449	1,056755	3,513449	0,605272
40	121,587338	70,26288	0,4	1,215873	0,702629	3,522099	1,048167	3,522099	0,605714
41	121,421980	70,792924	0,41	1,214220	0,707929	3,530690	1,039483	3,530690	0,606052
42	121,252640	71,32396	0,42	1,212526	0,713240	3,539221	1,030709	3,539221	0,606290
43	121,079262	71,85639	0,43	1,210793	0,718564	3,547691	1,021852	3,547691	0,606434
44	120,901794	72,390612	0,44	1,209018	0,723906	3,556099	1,012917	3,556099	0,606490
45	120,720180	72,927023	0,45	1,207202	0,729270	3,564447	1,003910	3,564447	0,606462
46	120,534367	73,465772	0,46	1,205344	0,734658	3,572731	0,994836	3,572731	0,606353
47	120,344300	74,00658	0,47	1,203443	0,740066	3,580953	0,985702	3,580953	0,606164
48	120,149926	74,549129	0,48	1,201499	0,745491	3,589113	0,976511	3,589113	0,605893
49	119,951191	75,093102	0,49	1,199512	0,750931	3,597208	0,967270	3,597208	0,605541

50	119,748039	75,638178	0,5	1,197480	0,756382	3,605240	0,957984	3,605240	0,605105
51	119,540418	76,18404	0,51	1,195404	0,761840	3,613208	0,948658	3,613208	0,604587
52	119,328272	76,73037	0,52	1,193283	0,767304	3,621112	0,939297	3,621112	0,603986
53	119,111549	77,276849	0,53	1,191115	0,772768	3,628951	0,929905	3,628951	0,603301
54	118,890193	77,823159	0,54	1,188902	0,778232	3,636726	0,920488	3,636726	0,602533
55	118,664151	78,368981	0,55	1,186642	0,783690	3,644436	0,911049	3,644436	0,601681
56	118,433368	78,913996	0,56	1,184334	0,789140	3,652081	0,901594	3,652081	0,600746
57	118,197791	79,457888	0,57	1,181978	0,794579	3,659661	0,892126	3,659661	0,599727
58	117,957365	80,000336	0,58	1,179574	0,800003	3,667176	0,882650	3,667176	0,598626
59	117,712037	80,541022	0,59	1,177120	0,805410	3,674627	0,873170	3,674627	0,597441
60	117,461751	81,079629	0,6	1,174618	0,810796	3,682012	0,863689	3,682012	0,596174
61	117,206455	81,615838	0,61	1,172065	0,816158	3,689333	0,854212	3,689333	0,594824
62	116,946083	82,149329	0,62	1,169461	0,821493	3,696588	0,844742	3,696588	0,593393
63	116,680427	82,679786	0,63	1,166804	0,826798	3,703779	0,835281	3,703779	0,591880
64	116,409158	83,206889	0,64	1,164092	0,832069	3,710906	0,825831	3,710906	0,590287
65	116,131948	83,73032	0,65	1,161319	0,837303	3,717968	0,816393	3,717968	0,588614
66	115,848467	84,249761	0,66	1,158485	0,842498	3,724966	0,806969	3,724966	0,586861
67	115,558385	84,764893	0,67	1,155584	0,847649	3,731899	0,797559	3,731899	0,585029
68	115,261372	85,275398	0,68	1,152614	0,852754	3,738769	0,788166	3,738769	0,583120
69	114,957099	85,780957	0,69	1,149571	0,857810	3,745576	0,778789	3,745576	0,581132
70	114,645237	86,281336	0,7	1,146452	0,862813	3,752319	0,769431	3,752319	0,579069
71	114,325454	86,776566	0,71	1,143255	0,867766	3,758998	0,760092	3,758998	0,576933
72	113,997423	87,26673	0,72	1,139974	0,872667	3,765616	0,750773	3,765616	0,574728
73	113,660812	87,751912	0,73	1,136608	0,877519	3,772170	0,741476	3,772170	0,572457
74	113,315293	88,232197	0,74	1,133153	0,882322	3,778663	0,732200	3,778663	0,570123
75	112,960536	88,707668	0,75	1,129605	0,887077	3,785094	0,722947	3,785094	0,567729
76	112,596211	89,17841	0,76	1,125962	0,891784	3,791463	0,713718	3,791463	0,565279
77	112,221988	89,644505	0,77	1,122220	0,896445	3,797771	0,704514	3,797771	0,562775
78	111,837538	90,106039	0,78	1,118375	0,901060	3,804019	0,695334	3,804019	0,560222
79	111,442530	90,563094	0,79	1,114425	0,905631	3,810206	0,686180	3,810206	0,557620
80	111,036637	91,015755	0,8	1,110366	0,910158	3,816334	0,677053	3,816334	0,554974
81	110,619527	91,464105	0,81	1,106195	0,914641	3,822401	0,667952	3,822401	0,552286
82	110,190870	91,908229	0,82	1,101909	0,919082	3,828410	0,658879	3,828410	0,549559
83	109,750339	92,348211	0,83	1,097503	0,923482	3,834360	0,649833	3,834360	0,546795
84	109,297602	92,784134	0,84	1,092976	0,927841	3,840252	0,640816	3,840252	0,543997
85	108,832329	93,216082	0,85	1,088323	0,932161	3,846087	0,631828	3,846087	0,541167
86	108,354193	93,644139	0,86	1,083542	0,936441	3,851864	0,622868	3,851864	0,538308
87	107,862862	94,068389	0,87	1,078629	0,940684	3,857584	0,613939	3,857584	0,535423

88	107,358006	94,488916	0,88	1,073580	0,944889	3,863247	0,605038	3,863247	0,532512
89	106,839297	94,905804	0,89	1,068393	0,949058	3,868855	0,596168	3,868855	0,529579
90	106,306405	95,319026	0,9	1,063064	0,953190	3,874408	0,587328	3,874408	0,526624
91	105,759000	95,728177	0,91	1,057590	0,957282	3,879905	0,578519	3,879905	0,523648
92	105,196805	96,132765	0,92	1,051968	0,961328	3,885348	0,569740	3,885348	0,520650
93	104,619738	96,532301	0,93	1,046197	0,965323	3,890737	0,560994	3,890737	0,517627
94	104,027762	96,926294	0,94	1,040278	0,969263	3,896073	0,552282	3,896073	0,514580
95	103,420840	97,314256	0,95	1,034208	0,973143	3,901355	0,543605	3,901355	0,511507
96	102,798934	97,695695	0,96	1,027989	0,976957	3,906585	0,534965	3,906585	0,508408
97	102,162009	98,070122	0,97	1,021620	0,980701	3,911764	0,526364	3,911764	0,505282
98	101,510027	98,437046	0,98	1,015100	0,984370	3,916890	0,517803	3,916890	0,502127
99	100,842950	98,795979	0,99	1,008429	0,987960	3,921966	0,509282	3,921966	0,498944
100	100,160742	99,146429	1	1,001607	0,991464	3,926991	0,500804	3,926991	0,495732
101	99,463365	99,487907	1,01	0,994634	0,994879	3,931966	0,492369	3,931966	0,492490
102	98,750783	99,819923	1,02	0,987508	0,998199	3,936891	0,483978	3,936891	0,489217
103	98,022958	100,14199	1,03	0,980230	1,001420	3,941768	0,475632	3,941768	0,485914
104	97,279853	100,45361	1,04	0,972799	1,004536	3,946596	0,467332	3,946596	0,482579
105	96,521431	100,7543	1,05	0,965214	1,007543	3,951376	0,459079	3,951376	0,479212
106	95,747656	101,04357	1,06	0,957477	1,010436	3,956109	0,450874	3,956109	0,475813
107	94,958490	101,32092	1,07	0,949585	1,013209	3,960794	0,442718	3,960794	0,472381
108	94,153895	101,58587	1,08	0,941539	1,015859	3,965433	0,434610	3,965433	0,468916
109	93,333836	101,83793	1,09	0,933338	1,018379	3,970026	0,426552	3,970026	0,465417
110	92,498274	102,07667	1,1	0,924983	1,020767	3,974574	0,418544	3,974574	0,461885
111	91,647173	102,30201	1,11	0,916472	1,023020	3,979076	0,410587	3,979076	0,458322
112	90,780496	102,51398	1,12	0,907805	1,025140	3,983534	0,402681	3,983534	0,454728
113	89,898205	102,71263	1,13	0,898982	1,027126	3,987948	0,394827	3,987948	0,451107
114	89,000264	102,89799	1,14	0,890003	1,028980	3,992318	0,387025	3,992318	0,447460
115	88,086635	103,07011	1,15	0,880866	1,030701	3,996645	0,379275	3,996645	0,443789
116	87,157283	103,22903	1,16	0,871573	1,032290	4,000930	0,371578	4,000930	0,440096
117	86,212381	103,37479	1,17	0,862124	1,033748	4,005172	0,363934	4,005172	0,436383
118	85,252488	103,50742	1,18	0,852525	1,035074	4,009373	0,356347	4,009373	0,432651
119	84,278208	103,62698	1,19	0,842782	1,036270	4,013532	0,348819	4,013532	0,428902
120	83,290142	103,73349	1,2	0,832901	1,037335	4,017651	0,341353	4,017651	0,425137
121	82,288893	103,827	1,21	0,822889	1,038270	4,021729	0,333951	4,021729	0,421359
122	81,275063	103,90756	1,22	0,812751	1,039076	4,025767	0,326616	4,025767	0,417568
123	80,249255	103,97519	1,23	0,802493	1,039752	4,029766	0,319349	4,029766	0,413766
124	79,212072	104,02995	1,24	0,792121	1,040299	4,033726	0,312153	4,033726	0,409954
125	78,164115	104,07187	1,25	0,781641	1,040719	4,037648	0,305031	4,037648	0,406134

126	77,105988	104,10099	1,26	0,771060	1,041010	4,041531	0,297983	4,041531	0,402307
127	76,038292	104,11735	1,27	0,760383	1,041173	4,045377	0,291011	4,045377	0,398474
128	74,961630	104,121	1,28	0,749616	1,041210	4,049186	0,284118	4,049186	0,394637
129	73,876605	104,11197	1,29	0,738766	1,041120	4,052958	0,277304	4,052958	0,390796
130	72,783819	104,09032	1,3	0,727838	1,040903	4,056693	0,270572	4,056693	0,386953
131	71,683875	104,05613	1,31	0,716839	1,040561	4,060393	0,263922	4,060393	0,383109
132	70,577374	104,0095	1,32	0,705774	1,040095	4,064057	0,257356	4,064057	0,379265
133	69,464920	103,95051	1,33	0,694649	1,039505	4,067686	0,250876	4,067686	0,375422
134	68,347115	103,87924	1,34	0,683471	1,038792	4,071280	0,244481	4,071280	0,371581
135	67,224561	103,79579	1,35	0,672246	1,037958	4,074840	0,238174	4,074840	0,367744
136	66,097861	103,70023	1,36	0,660979	1,037002	4,078366	0,231955	4,078366	0,363912
137	64,967617	103,59266	1,37	0,649676	1,035927	4,081859	0,225825	4,081859	0,360084
138	63,834311	103,47317	1,38	0,638343	1,034732	4,085318	0,219785	4,085318	0,356263
139	62,697856	103,34183	1,39	0,626979	1,033418	4,088745	0,213833	4,088745	0,352450
140	61,558003	103,19873	1,4	0,615580	1,031987	4,092139	0,207966	4,092139	0,348644
141	60,414503	103,04397	1,41	0,604145	1,030440	4,095502	0,202184	4,095502	0,344848
142	59,267104	102,87763	1,42	0,592671	1,028776	4,098833	0,196483	4,098833	0,341061
143	58,115556	102,6998	1,43	0,581156	1,026998	4,102132	0,190862	4,102132	0,337285
144	56,959611	102,51056	1,44	0,569596	1,025106	4,105401	0,185319	4,105401	0,333520
145	55,799017	102,30999	1,45	0,557990	1,023100	4,108640	0,179852	4,108640	0,329766
146	54,633524	102,0982	1,46	0,546335	1,020982	4,111848	0,174459	4,111848	0,326026
147	53,462883	101,87525	1,47	0,534629	1,018753	4,115026	0,169138	4,115026	0,322298
148	52,286843	101,64125	1,48	0,522868	1,016412	4,118175	0,163888	4,118175	0,318585
149	51,105154	101,39627	1,49	0,511052	1,013963	4,121295	0,158707	4,121295	0,314885
150	49,917566	101,14041	1,5	0,499176	1,011404	4,124386	0,153593	4,124386	0,311201
151	48,723830	100,87374	1,51	0,487238	1,008737	4,127449	0,148544	4,127449	0,307533
152	47,523694	100,59636	1,52	0,475237	1,005964	4,130484	0,143559	4,130484	0,303880
153	46,316910	100,3084	1,53	0,463169	1,003084	4,133491	0,138636	4,133491	0,300244
154	45,103226	100,01011	1,54	0,451032	1,000101	4,136470	0,133774	4,136470	0,296625
155	43,882393	99,701761	1,55	0,438824	0,997018	4,139423	0,128971	4,139423	0,293025
156	42,654158	99,383647	1,56	0,426542	0,993836	4,142348	0,124226	4,142348	0,289444
157	41,417797	99,056042	1,57	0,414178	0,990560	4,145248	0,119535	4,145248	0,285884
158	40,171523	98,719227	1,58	0,401715	0,987192	4,148121	0,114894	4,148121	0,282345
159	38,913406	98,373482	1,59	0,389134	0,983735	4,150968	0,110296	4,150968	0,278828
160	37,641517	98,019086	1,6	0,376415	0,980191	4,153790	0,105735	4,153790	0,275335
161	36,353927	97,65632	1,61	0,363539	0,976563	4,156586	0,101205	4,156586	0,271864
162	35,048704	97,285463	1,62	0,350487	0,972855	4,159357	0,096702	4,159357	0,268418
163	33,723919	96,906795	1,63	0,337239	0,969068	4,162104	0,092220	4,162104	0,264997

164	32,377643	96,520597	1,64	0,323776	0,965206	4,164827	0,087754	4,164827	0,261602
165	31,007946	96,127148	1,65	0,310079	0,961271	4,167525	0,083299	4,167525	0,258233
166	29,612897	95,726728	1,66	0,296129	0,957267	4,170200	0,078850	4,170200	0,254891
167	28,190568	95,319617	1,67	0,281906	0,953196	4,172850	0,074403	4,172850	0,251576
168	26,739027	94,906095	1,68	0,267390	0,949061	4,175478	0,069954	4,175478	0,248289
169	25,256346	94,486442	1,69	0,252563	0,944864	4,178083	0,065497	4,178083	0,245031
170	23,740594	94,060938	1,7	0,237406	0,940609	4,180665	0,061030	4,180665	0,241802
171	22,189842	93,629835	1,71	0,221898	0,936298	4,183224	0,056548	4,183224	0,238602
172	20,602181	93,19325	1,72	0,206022	0,931932	4,185762	0,052047	4,185762	0,235432
173	18,977650	92,751261	1,73	0,189776	0,927513	4,188277	0,047528	4,188277	0,232290
174	17,319737	92,303945	1,74	0,173197	0,923039	4,190771	0,043003	4,190771	0,229179
175	15,632286	91,85138	1,75	0,156323	0,918514	4,193243	0,038479	4,193243	0,226096
176	13,919141	91,393643	1,76	0,139191	0,913936	4,195694	0,033969	4,195694	0,223042
177	12,184145	90,930812	1,77	0,121841	0,909308	4,198124	0,029481	4,198124	0,220017
178	10,431143	90,462965	1,78	0,104311	0,904630	4,200533	0,025024	4,200533	0,217021
179	8,663977	89,990178	1,79	0,086640	0,899902	4,202922	0,020608	4,202922	0,214053
180	6,886492	89,512529	1,8	0,068865	0,895125	4,205290	0,016242	4,205290	0,211114
181	5,102567	89,030096	1,81	0,051026	0,890301	4,207639	0,011933	4,207639	0,208204
182	3,318357	88,542956	1,82	0,033184	0,885430	4,209968	0,007695	4,209968	0,205322
183	1,543667	88,051187	1,83	0,015437	0,880512	4,212277	0,003550	4,212277	0,202468
184	-0,211373	87,554866	1,84	-0,002114	0,875549	4,214567	-0,000482	4,214567	0,199642
185	-1,936635	87,054071	1,85	-0,019366	0,870541	4,216837	-0,004379	4,216837	0,196844
186	-3,622114	86,548878	1,86	-0,036221	0,865489	4,219089	-0,008122	4,219089	0,194073
187	-5,264001	86,039367	1,87	-0,052640	0,860394	4,221322	-0,011706	4,221322	0,191330
188	-6,867326	85,525613	1,88	-0,068673	0,855256	4,223537	-0,015145	4,223537	0,188615
189	-8,437800	85,007635	1,89	-0,084378	0,850076	4,225733	-0,018455	4,225733	0,185927
190	-9,981134	84,485314	1,9	-0,099811	0,844853	4,227911	-0,021651	4,227911	0,183265
191	-11,503038	83,958516	1,91	-0,115030	0,839585	4,230071	-0,024748	4,230071	0,180630
192	-13,009222	83,427104	1,92	-0,130092	0,834271	4,232214	-0,027760	4,232214	0,178020
193	-14,504815	82,890943	1,93	-0,145048	0,828909	4,234339	-0,030699	4,234339	0,175434
194	-15,993347	82,349895	1,94	-0,159933	0,823499	4,236447	-0,033574	4,236447	0,172873
195	-17,478071	81,803827	1,95	-0,174781	0,818038	4,238538	-0,036394	4,238538	0,170336
196	-18,962241	81,2526	1,96	-0,189622	0,812526	4,240611	-0,039165	4,240611	0,167822
197	-20,449114	80,696081	1,97	-0,204491	0,806961	4,242669	-0,041896	4,242669	0,165330
198	-21,941942	80,134131	1,98	-0,219419	0,801341	4,244709	-0,044594	4,244709	0,162861
199	-23,443980	79,566617	1,99	-0,234440	0,795666	4,246733	-0,047265	4,246733	0,160413
200	-24,958483	78,993401	2	-0,249585	0,789934	4,248741	-0,049917	4,248741	0,157987
201	-26,488704	78,414348	2,01	-0,264887	0,784143	4,250733	-0,052556	4,250733	0,155581

202	-28,037900	77,829322	2,02	-0,280379	0,778293	4,252710	-0,055188	4,252710	0,153195
203	-29,609323	77,238187	2,03	-0,296093	0,772382	4,254670	-0,057821	4,254670	0,150829
204	-31,206218	76,640807	2,04	-0,312062	0,766408	4,256615	-0,060458	4,256615	0,148483
205	-32,829964	76,037047	2,05	-0,328300	0,760370	4,258545	-0,063104	4,258545	0,146155
206	-34,477974	75,426878	2,06	-0,344780	0,754269	4,260460	-0,065752	4,260460	0,143846
207	-36,147149	74,810542	2,07	-0,361471	0,748105	4,262359	-0,068397	4,262359	0,141555
208	-37,834392	74,188321	2,08	-0,378344	0,741883	4,264244	-0,071032	4,264244	0,139284
209	-39,536603	73,560496	2,09	-0,395366	0,735605	4,266114	-0,073651	4,266114	0,137033
210	-41,250686	72,927349	2,1	-0,412507	0,729273	4,267970	-0,076249	4,267970	0,134801
211	-42,973543	72,289161	2,11	-0,429735	0,722892	4,269811	-0,078820	4,269811	0,132590
212	-44,702075	71,646214	2,12	-0,447021	0,716462	4,271638	-0,081359	4,271638	0,130399
213	-46,433184	70,998791	2,13	-0,464332	0,709988	4,273451	-0,083861	4,273451	0,128228
214	-48,163773	70,347172	2,14	-0,481638	0,703472	4,275250	-0,086321	4,275250	0,126079
215	-49,890744	69,691639	2,15	-0,498907	0,696916	4,277036	-0,088734	4,277036	0,123951
216	-51,610998	69,032474	2,16	-0,516110	0,690325	4,278807	-0,091095	4,278807	0,121845
217	-53,321438	68,369958	2,17	-0,533214	0,683700	4,280566	-0,093401	4,280566	0,119760
218	-55,018966	67,704374	2,18	-0,550190	0,677044	4,282311	-0,095645	4,282311	0,117698
219	-56,700483	67,036003	2,19	-0,567005	0,670360	4,284043	-0,097825	4,284043	0,115657
220	-58,362894	66,365126	2,2	-0,583629	0,663651	4,285761	-0,099936	4,285761	0,113639
221	-60,004430	65,692025	2,21	-0,600044	0,656920	4,287467	-0,101977	4,287467	0,111643
222	-61,627218	65,016982	2,22	-0,616272	0,650170	4,289160	-0,103953	4,289160	0,109670
223	-63,234096	64,340279	2,23	-0,632341	0,643403	4,290841	-0,105868	4,290841	0,107720
224	-64,827899	63,662197	2,24	-0,648279	0,636622	4,292509	-0,107730	4,292509	0,105793
225	-66,411463	62,982927	2,25	-0,664115	0,629829	4,294165	-0,109545	4,294165	0,103889
226	-67,987627	62,302432	2,26	-0,679876	0,623024	4,295808	-0,111316	4,295808	0,102008
227	-69,559225	61,620638	2,27	-0,695592	0,616206	4,297439	-0,113051	4,297439	0,100149
228	-71,129094	60,937473	2,28	-0,711291	0,609375	4,299059	-0,114754	4,299059	0,098312
229	-72,700071	60,252863	2,29	-0,727001	0,602529	4,300666	-0,116430	4,300666	0,096496
230	-74,274992	59,566736	2,3	-0,742750	0,595667	4,302262	-0,118084	4,302262	0,094701
231	-75,856693	58,879019	2,31	-0,758567	0,588790	4,303846	-0,119721	4,303846	0,092926
232	-77,448012	58,189638	2,32	-0,774480	0,581896	4,305418	-0,121346	4,305418	0,091172
233	-79,051785	57,498521	2,33	-0,790518	0,574985	4,306979	-0,122963	4,306979	0,089438
234	-80,670847	56,805594	2,34	-0,806708	0,568056	4,308529	-0,124577	4,308529	0,087723
235	-82,308036	56,110786	2,35	-0,823080	0,561108	4,310068	-0,126191	4,310068	0,086027
236	-83,966185	55,414022	2,36	-0,839662	0,554140	4,311595	-0,127810	4,311595	0,084349
237	-85,647055	54,715229	2,37	-0,856471	0,547152	4,313112	-0,129437	4,313112	0,082690
238	-87,349643	54,014335	2,38	-0,873496	0,540143	4,314618	-0,131069	4,314618	0,081049
239	-89,072507	53,311267	2,39	-0,890725	0,533113	4,316113	-0,132704	4,316113	0,079426

240	-90,814206	52,605952	2,4	-0,908142	0,526060	4,317598	-0,134341	4,317598	0,077819
241	-92,573298	51,898316	2,41	-0,925733	0,518983	4,319072	-0,135975	4,319072	0,076230
242	-94,348343	51,188287	2,42	-0,943483	0,511883	4,320536	-0,137606	4,320536	0,074658
243	-96,137897	50,475792	2,43	-0,961379	0,504758	4,321989	-0,139231	4,321989	0,073101
244	-97,940521	49,760757	2,44	-0,979405	0,497608	4,323432	-0,140849	4,323432	0,071561
245	-99,754772	49,04311	2,45	-0,997548	0,490431	4,324865	-0,142456	4,324865	0,070037
246	-101,579209	48,322778	2,46	-1,015792	0,483228	4,326288	-0,144051	4,326288	0,068527
247	-103,412391	47,599681	2,47	-1,034124	0,475997	4,327701	-0,145633	4,327701	0,067033
248	-105,252876	46,873589	2,48	-1,052529	0,468736	4,329105	-0,147199	4,329105	0,065554
249	-107,099222	46,144122	2,49	-1,070992	0,461441	4,330498	-0,148747	4,330498	0,064088
250	-108,949989	45,410895	2,5	-1,089500	0,454109	4,331883	-0,150276	4,331883	0,062636
251	-110,803736	44,673523	2,51	-1,108037	0,446735	4,333257	-0,151784	4,333257	0,061196
252	-112,659441	43,93162	2,52	-1,126594	0,439316	4,334622	-0,153270	4,334622	0,059768
253	-114,517206	43,184802	2,53	-1,145172	0,431848	4,335978	-0,154734	4,335978	0,058351
254	-116,377316	42,432683	2,54	-1,163773	0,424327	4,337325	-0,156178	4,337325	0,056944
255	-118,240056	41,674877	2,55	-1,182401	0,416749	4,338662	-0,157601	4,338662	0,055548
256	-120,105712	40,910999	2,56	-1,201057	0,409110	4,339990	-0,159005	4,339990	0,054161
257	-121,974569	40,140664	2,57	-1,219746	0,401407	4,341310	-0,160389	4,341310	0,052783
258	-123,846912	39,363487	2,58	-1,238469	0,393635	4,342620	-0,161756	4,342620	0,051413
259	-125,723028	38,579081	2,59	-1,257230	0,385791	4,343922	-0,163105	4,343922	0,050050
260	-127,603201	37,787063	2,6	-1,276032	0,377871	4,345215	-0,164437	4,345215	0,048695
261	-129,487718	36,987046	2,61	-1,294877	0,369870	4,346499	-0,165753	4,346499	0,047346
262	-131,376863	36,178644	2,62	-1,313769	0,361786	4,347775	-0,167053	4,347775	0,046003
263	-133,270922	35,361474	2,63	-1,332709	0,353615	4,349043	-0,168337	4,349043	0,044666
264	-135,170187	34,535149	2,64	-1,351702	0,345351	4,350302	-0,169607	4,350302	0,043334
265	-137,075162	33,699284	2,65	-1,370752	0,336993	4,351552	-0,170863	4,351552	0,042006
266	-138,986592	32,853494	2,66	-1,389866	0,328535	4,352795	-0,172107	4,352795	0,040682
267	-140,905239	31,997467	2,67	-1,409052	0,319975	4,354029	-0,173339	4,354029	0,039363
268	-142,831862	31,131356	2,68	-1,428319	0,311314	4,355255	-0,174560	4,355255	0,038047
269	-144,767222	30,255496	2,69	-1,447672	0,302555	4,356473	-0,175772	4,356473	0,036735
270	-146,712080	29,370221	2,7	-1,467121	0,293702	4,357683	-0,176975	4,357683	0,035428
271	-148,667196	28,475867	2,71	-1,486672	0,284759	4,358886	-0,178170	4,358886	0,034127
272	-150,633331	27,572768	2,72	-1,506333	0,275728	4,360080	-0,179360	4,360080	0,032831
273	-152,611244	26,661258	2,73	-1,526112	0,266613	4,361267	-0,180543	4,361267	0,031541
274	-154,601696	25,741673	2,74	-1,546017	0,257417	4,362446	-0,181722	4,362446	0,030257
275	-156,605448	24,814347	2,75	-1,566054	0,248143	4,363618	-0,182897	4,363618	0,028980
276	-158,623260	23,879614	2,76	-1,586233	0,238796	4,364782	-0,184069	4,364782	0,027710
277	-160,655893	22,937811	2,77	-1,606559	0,229378	4,365939	-0,185239	4,365939	0,026448

278	-162,703964	21,98927	2,78	-1,627040	0,219893	4,367088	-0,186408	4,367088	0,025193
279	-164,765960	21,034328	2,79	-1,647660	0,210343	4,368230	-0,187573	4,368230	0,023946
280	-166,838729	20,073318	2,8	-1,668387	0,200733	4,369365	-0,188732	4,369365	0,022707
281	-168,919075	19,106576	2,81	-1,689191	0,191066	4,370493	-0,189880	4,370493	0,021477
282	-171,003803	18,134436	2,82	-1,710038	0,181344	4,371613	-0,191014	4,371613	0,020257
283	-173,089717	17,157233	2,83	-1,730897	0,171572	4,372727	-0,192132	4,372727	0,019045
284	-175,173622	16,175302	2,84	-1,751736	0,161753	4,373833	-0,193229	4,373833	0,017843
285	-177,252323	15,18898	2,85	-1,772523	0,151890	4,374933	-0,194302	4,374933	0,016650
286	-179,322625	14,198646	2,86	-1,793226	0,141986	4,376026	-0,195349	4,376026	0,015468
287	-181,381332	13,204708	2,87	-1,813813	0,132047	4,377112	-0,196366	4,377112	0,014296
288	-183,425429	12,207574	2,88	-1,834254	0,122076	4,378191	-0,197350	4,378191	0,013134
289	-185,454808	11,207652	2,89	-1,854548	0,112077	4,379263	-0,198303	4,379263	0,011984
290	-187,471709	10,205351	2,9	-1,874717	0,102054	4,380329	-0,199226	4,380329	0,010845
291	-189,478442	9,2010777	2,91	-1,894784	0,092011	4,381389	-0,200123	4,381389	0,009718
292	-191,477316	8,1952416	2,92	-1,914773	0,081952	4,382442	-0,200997	4,382442	0,008603
293	-193,470639	7,1882506	2,93	-1,934706	0,071883	4,383488	-0,201849	4,383488	0,007500
294	-195,460720	6,1805129	2,94	-1,954607	0,061805	4,384528	-0,202684	4,384528	0,006409
295	-197,449867	5,1724367	2,95	-1,974499	0,051724	4,385562	-0,203504	4,385562	0,005331
296	-199,440390	4,1644302	2,96	-1,994404	0,041644	4,386590	-0,204311	4,386590	0,004266
62	-11,367434	-197,2642	0,62	-0,113674	-1,972642	5,728189	-0,082111	5,728189	-1,424907
61	-9,667566	-195,3723	0,61	-0,096676	-1,953723	5,735445	-0,070458	5,735445	-1,423893
60	-7,976560	-193,348	0,60	-0,079766	-1,933480	5,742766	-0,058651	5,742766	-1,421676
59	-6,295113	-191,2021	0,59	-0,062951	-1,912021	5,750151	-0,046696	5,750151	-1,418308
58	-4,625359	-188,9457	0,58	-0,046254	-1,889457	5,757601	-0,034611	5,757601	-1,413841
57	-2,971573	-186,5899	0,57	-0,029716	-1,865899	5,765117	-0,022429	5,765117	-1,408332
56	-1,338206	-184,1456	0,56	-0,013382	-1,841456	5,772697	-0,010187	5,772697	-1,401839
55	0,270292	-181,6238	0,55	0,002703	-1,816238	5,780342	0,002075	5,780342	-1,394425
54	1,849470	-179,0356	0,54	0,018495	-1,790356	5,788052	0,014319	5,788052	-1,386154
53	3,394876	-176,3919	0,53	0,033949	-1,763919	5,795827	0,026504	5,795827	-1,377094
52	4,902223	-173,7038	0,52	0,049022	-1,737038	5,803666	0,038588	5,803666	-1,367316
51	6,371013	-170,9823	0,51	0,063710	-1,709823	5,811570	0,050560	5,811570	-1,356895
50	7,804561	-168,2384	0,50	0,078046	-1,682384	5,819538	0,062436	5,819538	-1,345907
49	9,206355	-165,483	0,49	0,092064	-1,654830	5,827570	0,074239	5,827570	-1,334433
48	10,579879	-162,7273	0,48	0,105799	-1,627273	5,835665	0,085987	5,835665	-1,322556
47	11,928618	-159,9822	0,47	0,119286	-1,599822	5,843824	0,097703	5,843824	-1,310363
46	13,256058	-157,2587	0,46	0,132561	-1,572587	5,852046	0,109410	5,852046	-1,297942
45	14,565684	-154,5678	0,45	0,145657	-1,545678	5,860331	0,121128	5,860331	-1,285387
44	15,861644	-151,9206	0,44	0,158616	-1,519206	5,868678	0,132889	5,868678	-1,272793

43	17,152146	-149,328	0,43	0,171521	-1,493280	5,877087	0,144756	5,877087	-1,260258
42	18,446947	-146,8011	0,42	0,184469	-1,468011	5,885557	0,156808	5,885557	-1,247884
41	19,755801	-144,3467	0,41	0,197558	-1,443467	5,894088	0,169128	5,894088	-1,235739
40	21,088466	-141,9607	0,40	0,210885	-1,419607	5,902679	0,181797	5,902679	-1,223799
39	22,454699	-139,6371	0,39	0,224547	-1,396371	5,911329	0,194902	5,911329	-1,212022
38	23,864228	-137,3697	0,38	0,238642	-1,373697	5,920038	0,208530	5,920038	-1,200365
37	25,321273	-135,1527	0,37	0,253213	-1,351527	5,928805	0,222722	5,928805	-1,188783
36	26,817922	-132,98	0,36	0,268179	-1,329800	5,937630	0,237411	5,937630	-1,177231
35	28,344653	-130,8455	0,35	0,283447	-1,308455	5,946510	0,252514	5,946510	-1,165661
34	29,891939	-128,7431	0,34	0,298919	-1,287431	5,955447	0,267945	5,955447	-1,154026
33	31,450255	-126,667	0,33	0,314503	-1,266670	5,964438	0,283617	5,964438	-1,142276
32	33,010078	-124,6111	0,32	0,330101	-1,246111	5,973482	0,299438	5,973482	-1,130361
31	34,561882	-122,5701	0,31	0,345619	-1,225701	5,982580	0,315317	5,982580	-1,118238
30	36,096149	-120,5405	0,30	0,360961	-1,205405	5,991728	0,331157	5,991728	-1,105877
29	37,606162	-118,519	0,29	0,376062	-1,185190	6,000928	0,346888	6,000928	-1,093248
28	39,092249	-116,5019	0,28	0,390922	-1,165019	6,010177	0,362502	6,010177	-1,080322
27	40,555835	-114,486	0,27	0,405558	-1,144860	6,019473	0,378002	6,019473	-1,067071
26	41,998339	-112,4678	0,26	0,419983	-1,124678	6,028817	0,393390	6,028817	-1,053464
25	43,421185	-110,4438	0,25	0,434212	-1,104438	6,038207	0,408670	6,038207	-1,039471
24	44,825793	-108,4106	0,24	0,448258	-1,084106	6,047640	0,423844	6,047640	-1,025062
23	46,213587	-106,3647	0,23	0,462136	-1,063647	6,057117	0,438917	6,057117	-1,010207
22	47,585989	-104,3028	0,22	0,475860	-1,043028	6,066635	0,453892	6,066635	-0,994876
21	48,944419	-102,2237	0,21	0,489444	-1,022237	6,076193	0,468771	6,076193	-0,979061
20	50,287103	-100,1342	0,20	0,502871	-1,001342	6,085790	0,483530	6,085790	-0,962828
19	51,595040	-98,04266	0,19	0,515950	-0,980427	6,095423	0,497974	6,095423	-0,946266
18	52,843459	-95,95775	0,18	0,528435	-0,959577	6,105092	0,511851	6,105092	-0,929463
17	54,007583	-93,88795	0,17	0,540076	-0,938880	6,114795	0,524906	6,114795	-0,912508
16	55,062635	-91,84178	0,16	0,550626	-0,918418	6,124530	0,536882	6,124530	-0,895493
15	55,985977	-89,82777	0,15	0,559860	-0,898278	6,134295	0,547540	6,134295	-0,878511
14	56,780246	-87,85442	0,14	0,567802	-0,878544	6,144089	0,556887	6,144089	-0,861656
13	57,464575	-85,92988	0,13	0,574646	-0,859299	6,153910	0,565096	6,153910	-0,845018
12	58,058380	-84,05586	0,12	0,580584	-0,840559	6,163756	0,572342	6,163756	-0,828626
11	58,581080	-82,22855	0,11	0,585811	-0,822285	6,173626	0,578807	6,173626	-0,812455
10	59,052091	-80,44399	0,10	0,590521	-0,804440	6,183517	0,584674	6,183517	-0,796475
9	59,490811	-78,69823	0,09	0,594908	-0,786982	6,193427	0,590128	6,193427	-0,780659
8	59,910219	-76,98729	0,08	0,599102	-0,769873	6,203355	0,595292	6,203355	-0,764977
7	60,307551	-75,30722	0,07	0,603076	-0,753072	6,213299	0,600135	6,213299	-0,749400
6	60,677675	-73,65405	0,06	0,606777	-0,736541	6,223257	0,604600	6,223257	-0,733898

5	61,015458	-72,02382	0,05	0,610155	-0,720238	6,233227	0,608633	6,233227	-0,718442
4	61,317383	-70,41267	0,04	0,613174	-0,704127	6,243207	0,612194	6,243207	-0,703002
3	61,585344	-68,81862	0,03	0,615853	-0,688186	6,253194	0,615300	6,253194	-0,687567
2	61,822371	-67,24124	0,02	0,618224	-0,672412	6,263188	0,617977	6,263188	-0,672144
1	62,031493	-65,6802	0,01	0,620315	-0,656802	6,273186	0,620253	6,273186	-0,656736

Prilozi

Prilog - P3 Regresija

Linearne regresije

Kvantifikacija greške linearne regresije, jedan broj dodatnih karakteristika fitovanja - uklapanja može se rasvijetliti bližim ispitivanjem načina na koji su obračunavati ostaci - riduali. Suma kvadrata definiše se kao,

$$s_r = \sum_{i=1}^n e_i^2 = \sum_{i=1}^n (y_i - a_0 - a_1 x_i)^2 \quad (1)$$

Kvadrat ostatka - riduala predstavlja kvadrat razlike između podataka i jedinstvene procjene mjera centralne tendencije - srednja vrijednost. U jednačini (1), kvadrat ostatka - riduala predstavlja kvadrat vertikalnog rastojanja između podataka i drugih mjera centralne tendencije - prava linija Sl.1.

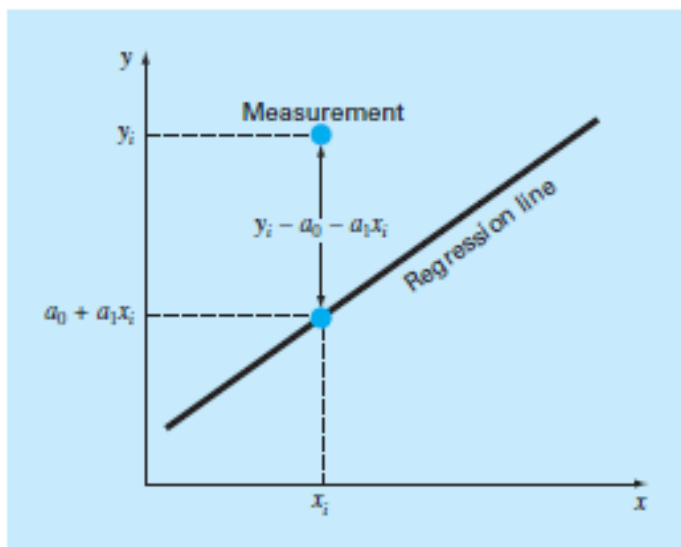
Analogija se može produžiti dalje za slučajeve u kojima je širenje tačaka oko linije sličnog obima duž čitavog niza podataka i distribucija ovih tačaka oko linije je normalna. To može pokazati da ukoliko su ispunjeni ovi kriterijumi, najmanji kvadrati ostataka - regresije će obezbijediti najbolje (to jest, najverovatnije) procjene a_0 i a_1 (Draper i Smith, 1981). To se zove *maksimalni princip vjerovatnoće* u statistici. Osim toga, ako su ispunjeni ovi kriterijumi, "standardna devijacija" za liniju regresije može se odrediti kao,

$$s_{y/x} = \sqrt{\frac{S_r}{n-2}} \quad (2)$$

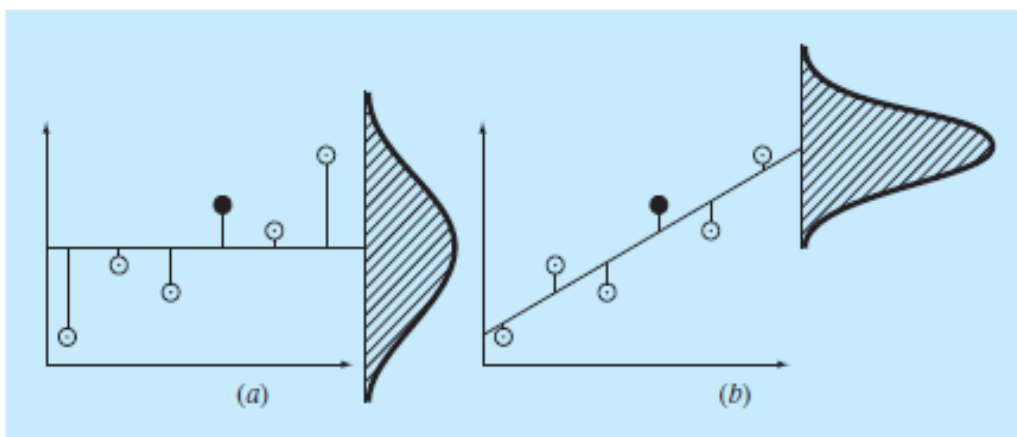
gdje se $s_{y/x}$ naziva *procjena standardne greške*. Indeks obelježen sa "y/x" označava da je greška sa predviđenom vrijednosti y i odgovara određenoj vrijednosti x. Takođe, primjećujemo da sada možemo dijeliti sa $n - 2$ jer procijenjeni izvodi dva podatka a_0 i a_1 korišćeni su za izračunavanje S_r ; tako, da smo izgubili dva stepena slobode. Drugo opravdanje za dijeljenje sa $n - 2$ je da ne postoji tako nešto kao je "širenje podataka" oko prave linije koja povezuje dvije tačke. Tako, u slučaju gdje je $n = 2$, jednačina (2) daje besmislen rezultat beskonačnost.

Kao što je bio slučaj sa standardnom devijacijom, procjena standardne greške kvantifikuje širenje podataka. Međutim, $s_{y/x}$ kvantifikuje širenje *oko regresione linije* kao što je prikazano na Sl.2b nasuprot originalnoj standardnoj devijaciji s_y koja kvantifikuje širenje *oko srednje vrijednosti* Sl.2a.

Navedeni koncepti mogu da se koriste da se koriste da kvantifikuje "dobrotu" našeg fitovanja - uklapanja. Ovo je naročito korisno za poređenje nekoliko regresija Sl.3. Da bi to uradili, moramo se vratiti na originalni podatak i utvrditi *ukupnu sumu kvadrata* oko srednje vrijednosti zavisne varijable (u našem slučaju, y), ova količina je označen sa S_r . Ovo je veličina reziduala - ostatka greške povezane sa zavisnom varijablom prije regresije. Nakon sprovođenja regresije, možemo izračunati S_r sumu kvadrata ostataka - reziduala oko linije regresije. Ovo karakteriše preostale greške koja ostaju nakon regresije. To se, dakle, ponekad naziva neobjašnjivi zbir-suma kvadrata.



Slika 1. Rezidual u linearnoj regresiji predstavlja vertikalno rastojanje između tačke podataka i prave linije.



Slika 2. Podaci regresije pokazuju (a) širenje podataka oko srednje vrijednosti zavisne varijable i (b) širenjem podataka oko najbolje - fitovane linije. Smanjenje širenja idući od (a) do (b), kao što je naznačeno kriva u obliku zvona na desnoj strani, predstavlja poboljšanje uslijed linearne regresije.

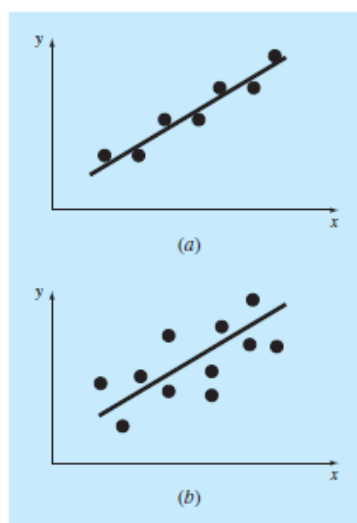
Razlika između ove dvije količine, $S_t - S_r$, kvantifikuje poboljšanje ili smanjenje greške zbog opisivanja podatka u smislu prave linije a ne kao prosječne vrijednosti. Jer je veličina ove količine zavisna - skala, razlika je normalizovana do S_t da se dobije

$$r^2 = \frac{S_t - S_r}{S_t} \quad (3)$$

gdje se r^2 naziva *koeficijent determinacije* a r je *koeficijent korelacije* ($= \sqrt{r^2}$). Za savršeno uklapanje – fitovanje $S_r = 0$ i $r = r^2 = 1$, označava da linija objašnjava 100 posto varijabilnost podataka. Za $r = r^2 = 0$, $S_r = S_t$ i da fitovanje - uklapanje ne predstavlja poboljšanje. Alternativna formulacija za r koja je pogodnija za sprovođenje na računaru je

$$r = \frac{n \sum x_i y_i - (\sum x_i)(\sum y_i)}{\sqrt{n \sum x_i^2 - (\sum x_i)^2} \sqrt{n \sum y_i^2 - (\sum y_i)^2}} \quad (4)$$

Prije nego što pređemo na kompjuterski program za linearnu regresiju, riječ opreza bila bi u redu. Iako koeficijent korelacije pruža odličnu mjeru dobrog na osnovu fitovanja - uklapanja, treba biti oprezan da se ne pripisuju više smisla na njega nego što je opravdano. Samo zato što se r "zatvara" na 1 ne znači da je fitovanje-uklapanje neminovno "dobro." Na primjer, moguće je dobiti relativno visoku vrijednost r kada osnovni odnos između x i y nije ni linearan. Draper i Smit (1981) pružaju smjernice i dodatni materijal u vezi sa procjenom rezultata za linearnu regresiju. Pored toga, u najmanju ruku, uvijek treba ispitati zaplet podataka duž krive regresije. Kao što je opisano u sledećem odeljku, softverski paketi sadrže takvu mogućnost.



Slika 3. Primjeri linearne regresije sa (a) malim i (b) velikim zaostalim greškama.

Računarski program za linearnu regresiju

To je relativno trivijalna stvar da se razvije pseudokod za linearnu regresiju S1.4. Kao što je već pomenuto, opcija crtanje je od ključnog značaja za efikasnu upotrebu i tumačenje regresije. Takve mogućnosti su uključene u popularnim paketima kao što su MATLAB softver i Exsel. Ako vaš računarski jezik ima mogućnosti crtanja, preporučujemo da proširite svoj program da obuhvata parcelu od y u odnosu na x, pokazujući oba podatka i liniju regresije. Uključivanje ove mogućnosti će značajno povećati korisnost programa u kontekstu rješavanja problema.

```
SUB Regress(x, y, n, a1, a0, syx, r2)

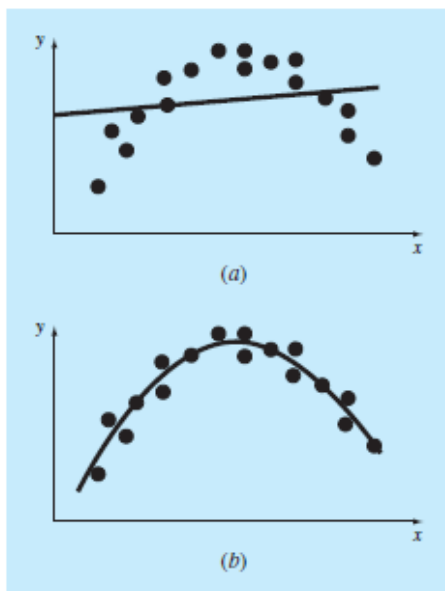
sumx = 0: sumy = 0: st = 0
sumy = 0: sumx2 = 0: sr = 0
DOFOR i = 1, n
  sumx = sumx + xi
  sumy = sumy + yi
  sumxy = sumxy + xi*yi
  sumx2 = sumx2 + xi*xi
END DO
xm = sumx/n
ym = sumy/n
a1 = (n*sumxy - sumx*sumy)/(n*sumx2 - sumx*sumx)
a0 = ym - a1*xm
DOFOR i = 1, n
  st = st + (yi - ym)2
  sr = sr + (yi - a1*xi - a0)2
END DO
syx = (sr/(n - 2))0.5
r2 = (st - sr)/st

END Regress
```

Slika 4. Algoritam za linearnu regresije.

Linearizacija nelinearnih odnosa

Linearna regresija daje snažnu tehniku za fitovanje – uklapanje podataka sa najboljom linijom. Međutim, to je zasnovano na činjenici da je odnos između zavisne i nezavisne varijable linearan. Ovo nije uvijek slučaj, a prvi korak u svakoj regresije treba da bude iscrtavanje i vizuelno pregledanje podatke da se utvrdi da li je linearni model primjenjiv. Na primjer, S1.5 pokazuje neke podatke da je očigledno da su krivolinijski. U nekim slučajevima, tehnike kao što polinomna regresija, su odgovarajuće. Za druge, transformacija se može koristi za izražavanje podataka u obliku koji je kompatibilan sa linearnom regresijom.



Slika 5. (a) Podaci koji su nijesu pogodni za linearnu regresiju najmanjim - kvadratima. (b) Naznaka da je parabola poželjna.

Jedan od primjera je *eksponencijalni model*

$$y = \alpha_1 e^{\beta_1 x} \quad (5)$$

gdje su α_1 i β_1 konstante. Ovaj model se koristi u mnogim oblastima inženjeringa da okarakteriše količine koje se povećavaju (pozitivno β_1) ili smanjuju (negativno β_1) po stopi koja je direktno proporcionalna sopstvenoj veličini. Na primjer, prirodni priraštaj ili radioaktivni raspad može pokazivati takvo ponašanje. Drugi primjer nelinearnog modela je jednostavna jednačina snage

$$y = \alpha_2 x^{\beta_2} \quad (6)$$

gdje su α_2 i β_2 konstantni koeficijenti. Ovaj model ima široku primjenu u svim oblastima inženjerstva. Treći primjer nelinearnih modela je jednačina zasićenja rasta stope,

$$y = \alpha_3 \frac{x}{\beta_3 + x} \quad (7)$$

gdje su α_3 i β_3 konstantni koeficijenti. Ovaj model, koji je posebno podesan za karakterizaciju stope rasta stanovništva pod ograničavajućim uslovima, takođe predstavlja nelinearnu vezu između y i x do nivoa "zasićenja", kako se x povećava.

Prilozi

Prilog – P4 Kodovi i dijagrami razvijenih numeričkih modela (1), (2), (3), (4) na osnovu krivih modela pumpi za samo jedan kvadrant iz klasične literature – primjer Stepanoff, A. J. (1957), Pfeleiderer, C. (1961)

Prilog za poglavlje - 5.3.1 Numerički model (1) razvijen postupkom regresije u programu Matlab za krive poznate iz klasične literature – primjer Stepanoff, A. J. (1957)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela (1) u programu Matlab:

```
close all, clear all, clc
%% Podaci koji se mogu mijenjati
% Definisanje polinoma u Delta
W = 3; % polinom Delte
Ww = 3; % polinom koeficijenta
% Novi nq-ovi za testiranje
nqNew = [25 40 65 70 75 85 95 100]; % Ubaciti zeljeni nq

%% Importovanje podataka iz Excel fajla
[~, ~, raw] = xlsread('C:\Users\zdravko.giljen\Documents\MATLAB\12.11.2016
Srednja jednacina Druga1\09.11.2016 Konacni Dijagrami Krive b c d e f
produzene.xlsx', 'krive 2', 'A3:N136');
raw(cellfun(@(x) ~isempty(x) && isnumeric(x) && isnan(x), raw)) = {''};
R = cellfun(@(x) ~isnumeric(x) && ~islogical(x), raw); % Find non-numeric
cells
raw(R) = {NaN}; % Replace non-numeric cells

data = reshape([raw{:}], size(raw));
Capacity = data(:,1);
Head = data(:,2);
Capacity1 = data(:,3);
Head1 = data(:,4);
Capacity2 = data(:,5);
Head2 = data(:,6);
Capacity3 = data(:,7);
Head3 = data(:,8);
Capacity4 = data(:,9);
Head4 = data(:,10);
Capacity5 = data(:,11);
Head5 = data(:,12);
Capacity6 = data(:,13);
Head6 = data(:,14);
clearvars data raw R;

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
warning off
%% Podaci za srednju jednacinu
Vp = 0:1:134; % opseg V za srednju jednacinu
p1 = 4.1647e-05;
p2 = -0.0143;
p3 = 0.65123;
p4 = 134.38;
Srednja = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;
%% Crtanje krivih zajedno sa srednjom krivom
figure(1)
```



```

plot(Capacity,Head,'--k',Capacity1,Head1,'--b',Capacity2,Head2,'--
g',Capacity3,Head3,'--c',Capacity4,Head4,'--m',Capacity5,Head5,'-
.b',Capacity6,Head6,'-.k') % Krive sa dijagrama 2
hold on
plot(Vp,Srednja,'-r','LineWidth',2)
grid on
title('Dijagram krivih sa srednjom'), xlabel('V [%]'), ylabel('H [%]')
legend('1','2','3','4','5','6','7','srednja')
xlim([0 140]), ylim([0 300])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:300)

%% Pronalazenje Delte za svaku liniju
VV = [Capacity Capacity1 Capacity2 Capacity3 Capacity4 Capacity5 Capacity6];
% broj linija 7
HH = [Head Head1 Head2 Head3 Head4 Head5 Head6];
krive = {'1','2','3','4','5','6','7'};
nq = [12.32 20.53 30.11 41.07 54.76 110.35 178.15]; % dobijeni nq-ovi
o = [132 131 131 134 134 132 114]; % redovi u krivima
for i = 1:7
    t1 = size(HH(:,i));
    t2 = t1(1);
    Hnew = HH(:,i);
    X = VV(:,i);
    Sred = p1*X.^3 + p2*X.^2 + p3*X + p4;
    Razl = Hnew - Sred;
    Raz(:,i) = Razl;
    %clear t1 t2 Hnew Sred Razl X
    figure(i+1)
    plot(VV(:,i),Raz(:,i),'-b'), grid on
    title(['Dijagram razlike srednje krive i krive ',krive(i)])
    xlabel('V [%]'), ylabel('\deltaH [%]')
    xlim([0 150])
end
%% Pravljenje opsega i matrice kapaciteta
dV1 = max(min(VV));
gV1 = min(max(VV));
dV = max(dV1);
gV = min(gV1);
opseg = dV:1:gV;
for i = 1:length(opseg)
    for j = 1:7
        U = find(VV(:,j) == opseg(i));
        vr1(i,j) = Raz(U,j);
    end
end
vr = [vr1];

%% Rjesavanje koeficijenata
for i = 1:length(opseg)
    koefD(i,:) = polyfit(nq,vr(i,:),W);
    figure(100+i)

plot(nq,vr(i,:), 'xr',min(nq):1:max(nq),polyval(koefD(i,:),min(nq):1:max(nq)),
'-b'), grid on
xlabel('n_{q}'), ylabel('\Delta H'), title(['Vrijednosti za
V=',num2str(opseg(i))])
legend('\Delta', ['Polinom ',num2str(W), ' stepena'])
set(gca,'xTick',[sort(nq)])

```

```

set(gca, 'xTickLabel', {'12.32', '20.53', '30.11', '41.07', '54.76', '110.35', '178.15'})
%set(gca, 'xTickLabelRotation', 90)
end

for i = 1:W+1
    KoefV(i,:) = polyfit(opseg', koefD(:,i), Ww);
    figure(300+i)

plot(opseg', koefD(:,i), 'xr', opseg(1):1:opseg(length(opseg)), polyval(KoefV(i,:), opseg(1):1:opseg(length(opseg))), '-b'), grid on
    xlabel('Kapacitet V'), ylabel('Koeficijent'), title(['Koeficijent P=', num2str(i)])
    legend('Koeficijenti', ['Polinom ', num2str(Ww), ' stepena'])
    xlim([0 140])
end
clc
%% Ispisivanje izgleda konacne jednacine
ispis = 'D%.0d*V^%1.0d + '; % oblik ispisa koeficijenata u polinom reda Ww1
BB = sprintf(ispis, [ 1:1:Ww+1 ; Ww:-1:0]); % ispis koeficijenata u tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-7);
BB = strrep(BB, 'V^1 ', 'V '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB, 'D', 'D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:W+1
    for j = 1:Ww+1
        A(i,j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
B = [W:-1:0]; % Matrica za stepen uz polinom reda Ww
C = [A B]; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed ']*nq^%.0d + ']; % Izgled polinoma
Kon = sprintf(BBa, C'); % ispisivanje jednacine
Jednacina = Kon(1:end-7); % izgled polinoma reda Ww (sa polinomom reda Ww1 kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina, 'nq^1 ', 'nq '); % Izbacivanje stepena 1 uz theta
IsS = 'S1*V^3 + S2*V^2 + S3*V + S4'; % izgled jednacine srednje krive u tekstualnom obliku
Del = ' + Delta';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['Delta = ', Jednacina]) % opis jednacine Delta
disp(' ')
disp('Izgled cijele jednacine je:')
disp([IsS ' + ' Jednacina]) % ispis cijele jednacine u tekstualnom obliku
disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ', num2str(p1)])
disp([' S2 = ', num2str(p2)])
disp([' S3 = ', num2str(p3)])
disp([' S4 = ', num2str(p4)])
% ispis koeficijenata u polinom reda Ww1
for i = 1:W+1
    for j = 1:Ww+1
        TtT = KoefV(i,j);
        Tttt = sprintf([' D', num2str(i), num2str(j), ' = %.15e'], TtT);
        disp(Tttt)
    end
end
end
Vnew = Vp;
nqNew = [25 40 65 70 75 85 95 100]; % Ubaciti zeljeni nq

```

```

for i = 1:length(nqNew) % opseg novih nq-ova
    for oo = 1:length(Vnew) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:W+1 % opseg koeficijentata u polinomu Ww reda
            TTr(j) = polyval(KoefV(j,:),Vnew(oo)); % Racunanje polinoma reda
            Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta

                end
            Do(oo) = polyval(TTr,nqNew(i)); % Racunanje Delte za svako Theta
            koraka 1

                end
            D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta

                WHnew(:,i) = Srednja' + D(:,i); % Zbir Srednje jednacine i jednacine
            Delta
            % Srednja jednacina je ista

                % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
            svako nq
            figure(400+i)
            plot(Vnew',WHnew(:,i),'-o'), grid on
            xlabel('V'), ylabel('H'), title('Dijagram V - H za novi n_{q}')
            legend(['n_{q}=',num2str(nqNew(i))])
        end
        % Crtanje svih novih krivih na jednom dijagramu
        figure(500)
        plot(Vnew',WHnew), grid on
        xlabel('V'), ylabel('H'), title('Dijagram V - H za nove n_{q}-ove'), hold on
        legendCell = cellstr(num2str(nqNew', 'n_{q}=%-d'));
        legend(legendCell)

        % Crtanje svih novih kao i realnih dijagrama
        figure(501)
        plot(Vnew',WHnew,'LineWidth',1), grid on
        xlabel('V'), ylabel('H'), title('Dijagram V - H za nove n_{q}-ove'), hold on
        legendCell = cellstr(num2str(nqNew', 'n_{q}=%-d'));
        hold on
        plot(Capacity,Head,'--k',Capacity1,Head1,'--b',Capacity2,Head2,'--
        g',Capacity3,Head3,'--c',Capacity4,Head4,'--m',Capacity5,Head5,'-
        .b',Capacity6,Head6,'-.k') % Krive sa dijagrama 2
        hold on
        title('Dijagram krivih'), xlabel('V [%]'), ylabel('H [%]')
        legendCell1 =
        {'n_{q}=12.32';'n_{q}=20.53';'n_{q}=31.11';'n_{q}=41.07';'n_{q}=54.76';'n_{q}
        =110.35';'n_{q}=178.15'};
        legend([legendCell; legendCell1])
        xlim([0 140]), ylim([0 200])
        set(gca,'xTick',0:10:150)
        set(gca,'yTick',0:20:200)

        % Crtanje svih novih krivih pojedinačno sa dvije krive modela koje se
        % nalaze blizu
        nqs = sort(nq);
        for i = 1:length(nqNew)
            br1 = find(nqNew(i) <= nqs); % traženje nq-a koji je veći
            br1 = br1(1);
            br2 = find(nqs(br1) == nq);
            brv = br2(1); % veći nq od zadatog
            br3 = find(nqs(br1-1) == nq);
            brm = br3(1);
            figure(502+i)

```

```

% uslov za crtanje nq-a koji je veci
if brv <= 7
    plot(VV(:,brv),HH(:,brv),'-b'), hold on
elseif brv >= 8
    plot(VV1(:,brv-5),HH1(:,brv-5),'-b'), hold on
end
% uslov za crtanje nq-a koji je manji
if brm <= 7
    plot(VV(:,brm),HH(:,brm),'-r'), hold on
elseif brm >= 8
    plot(VV1(:,brm-5),HH1(:,brm-5),'-r'), hold on
end
% crtaje zadatog nq-a
plot(Vnew',WHnew(:,i),'-g','LineWidth',2), grid on
xlabel('V'), ylabel('H'), title('Dijagram V - H za novi n_{q}')
legend(['n_{q}=',num2str(nqs(brl))],[ 'n_{q}=',num2str(nqs(brl-
1))],[ 'n_{q}=',num2str(nqNew(i))])
xlim([0 140]), ylim([0 300])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:300)
end

%% Crtanje dijagrama sa jednacinom i r^2
clear Vp oo j

for i = 1:length(nq)
    % Racunanje r^2 za svako nq provuceno kroz jednacinu
    % Racunanje jednacine kada ubacimo vrijednosti V i nq u jednacinu
    Vp = VV(1:o(i),i); % opseg
    Horg = HH(1:o(i),i);
    for oo = 1:length(Vp) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:W+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(KoefV(j,:),Vp(oo)); % Racunanje polinoma reda
Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta
        end
        Dor(oo) = polyval(TTr,nq(i)); % Racunanje Delte za svako Theta koraka
1
    end
    Dpr = Dor'; % Pretvaranje matrice Delta u inverznu matricu Delta
    Srn = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;
    Htest = Srn + Dpr; % Zbir Srednje jednacine i jednacine Delta

    SStot1 = sum((Srn-mean(Horg)).^2);
    SSres1 = sum((Srn-Horg).^2);
    R2s(i) = 1-SSres1/SStot1;

    SStot = sum((Htest-mean(Horg)).^2);
    SSres = sum((Htest-Horg).^2);
    R2(i) = 1-SSres/SStot;
    figure(600+i)
    plot(Vp,Horg,'-r',Vp,Srn,'--m',Vp,Htest,'-b','LineWidth',2), grid on
    title(['Dijagram krive n_{q}=',num2str(nq(i))]), xlabel('V [%]'),
ylabel('H [%]')
    legend('kriva modela',['Srednja jednacina:
r^{2}=',num2str(R2s(i))],[ 'Srednja + \Delta: r^{2}=',num2str(R2(i))])
    xlim([0 140]), ylim([0 300])
    set(gca,'xTick',0:10:150)
    set(gca,'yTick',0:20:300)
    clear Htest Horg Vp oo Dpr Dor TTr Srn r21 r22 SStot SSres SStot1 SSres1
end
% ispis podataka r^2 za svako nq vezano za srednju krivu i konacnu

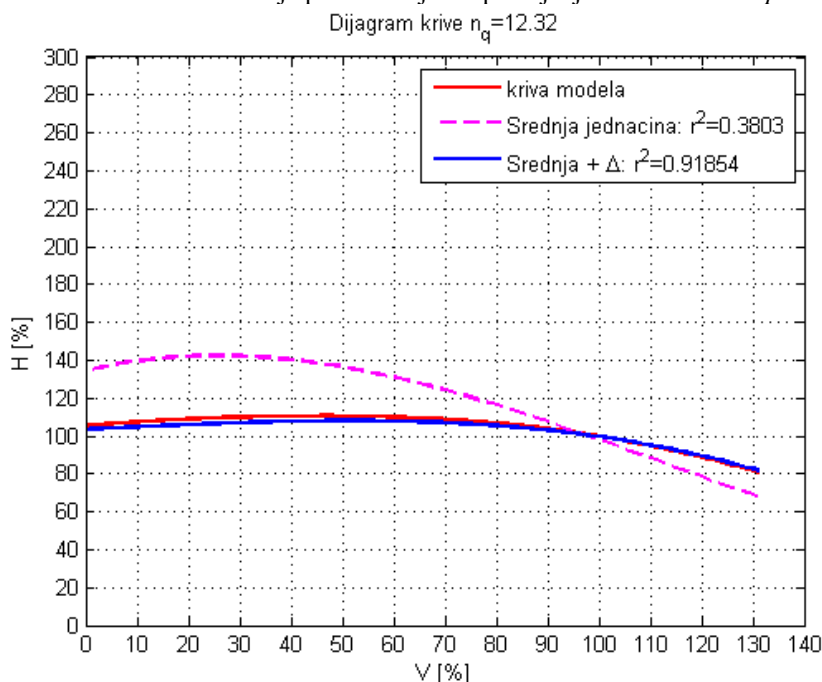
```

```

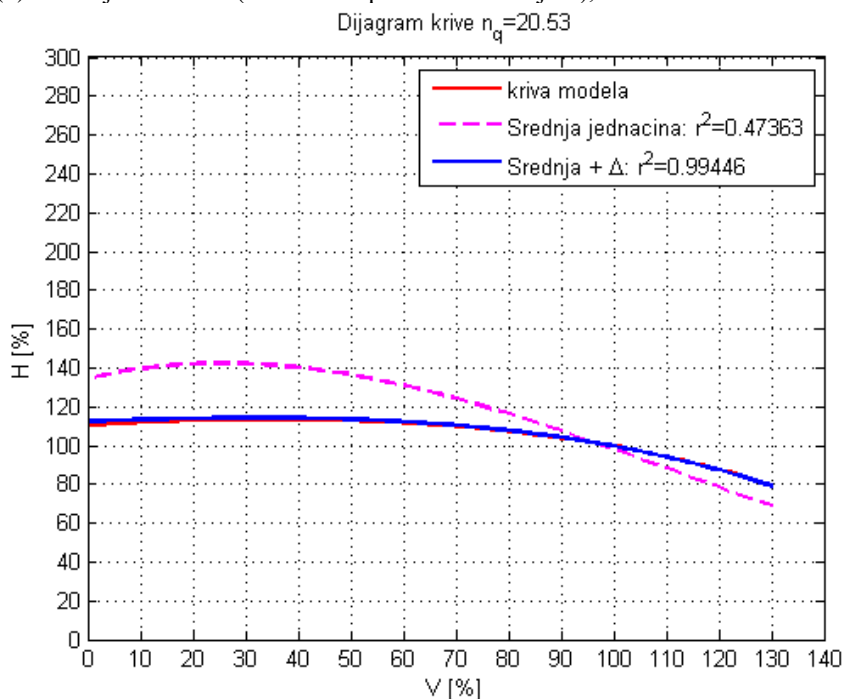
% jednacinu
disp(' ')
disp(table(nq',R2s',R2', 'VariableNames',{'nq' 'r2Srednje' 'r2Final'}))

```

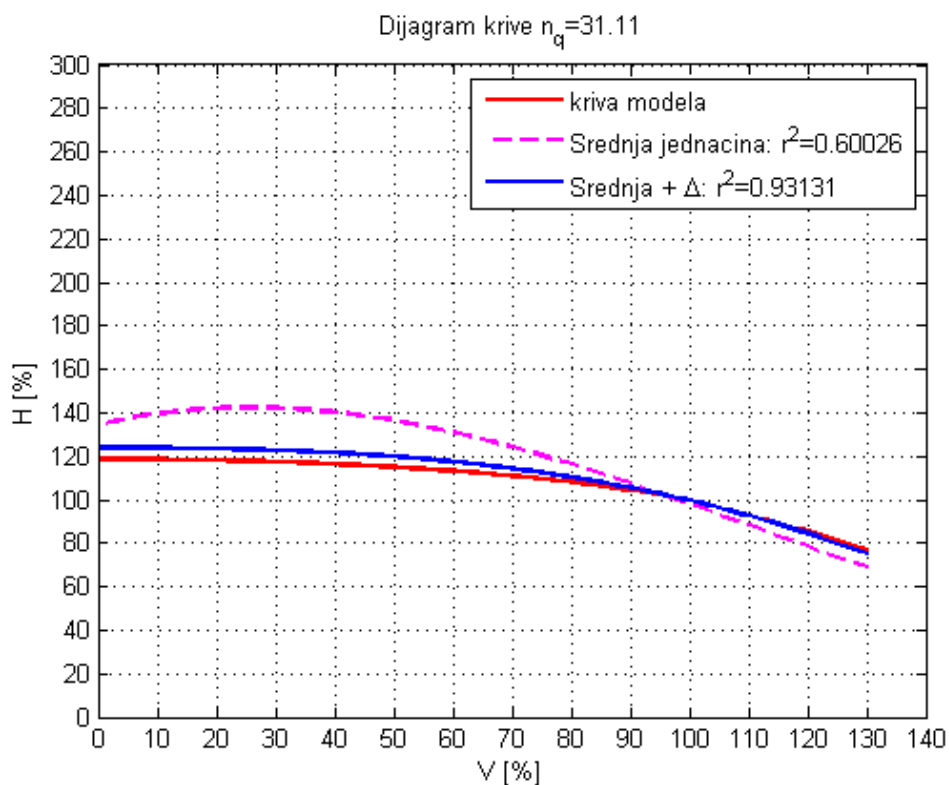
U narednom dijelu teksta prikazan je dio rezultata razvijenog *numeričkog modela* (1) u programu Matlab na dijagramima sa Slikama 51, 52, 53, 54, 55, 56. I može se izvesti sledeći zaključak: da su rezultati dobri i da ohrabljaju da postoji univerzalna analitička zavisnost kojom bi se mogle opisati sve krive sa različitim n_q , da te zavisnosti ne zavise od referentne krive i da je potvrđeno jasno postojanje zavisnosti od n_q .



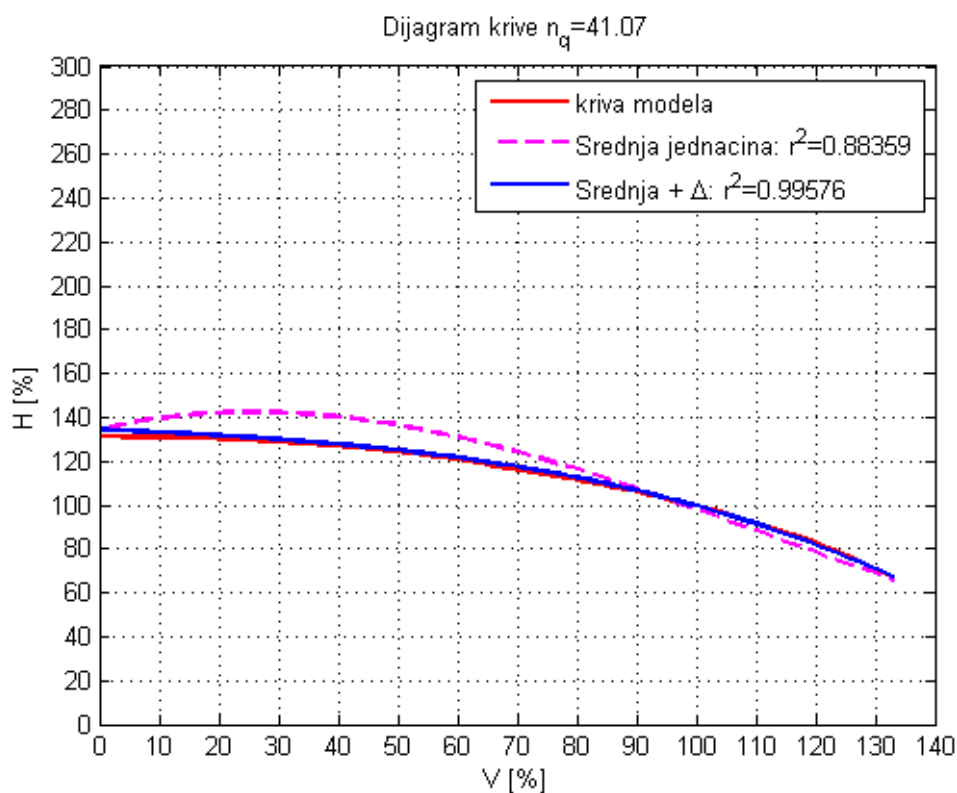
Slika 51. Dijagram sa krivom modela pumpe (krive 1 (n_q 12.32) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 12.32) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (1) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



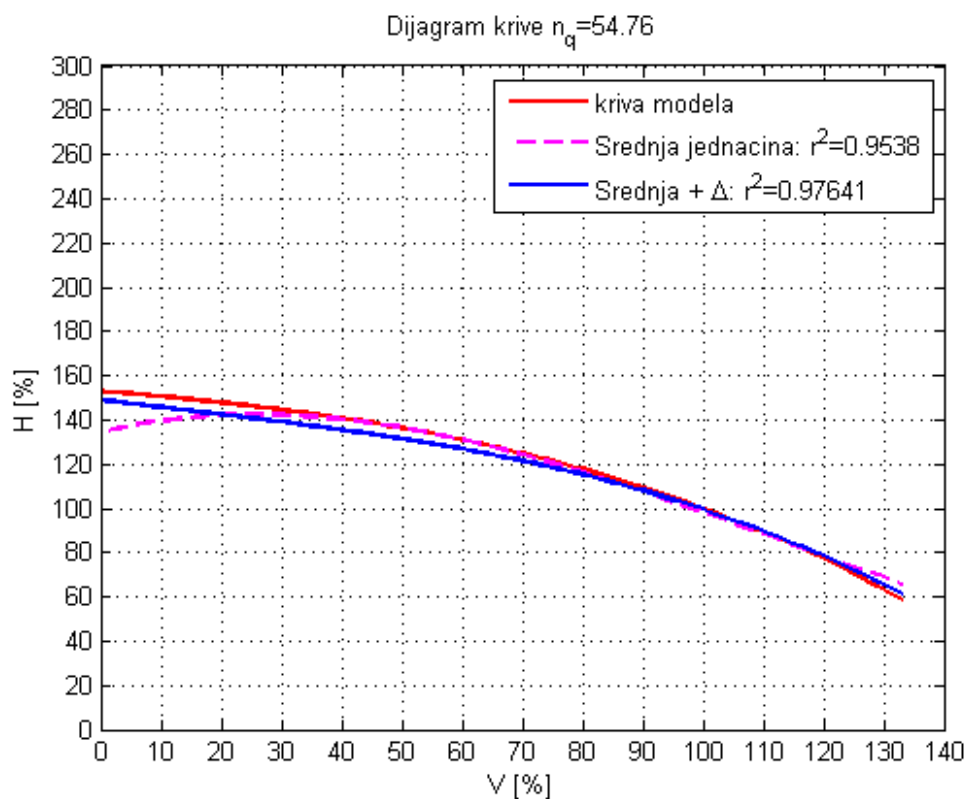
Slika 52. Dijagram sa krivom modela pumpe (krive 2 (n_q 20.53) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 20.53) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (1) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



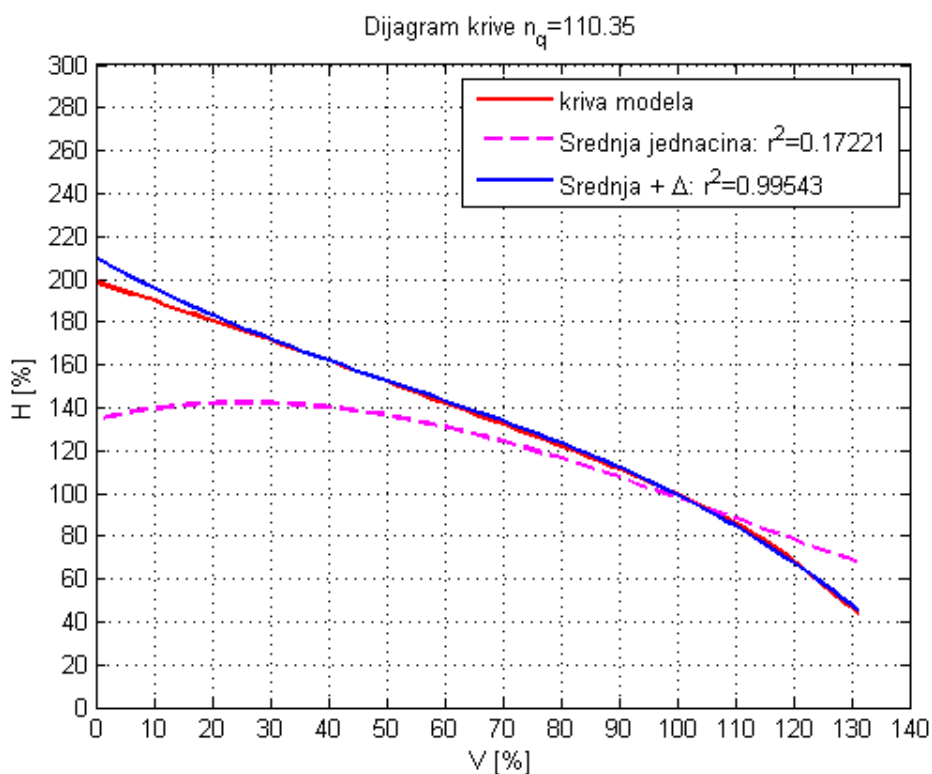
Slika 53. Dijagram sa krivom modela pumpe (krive 3 (n_q 30.11) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 30.11) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (1) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .



Slika 54. Dijagram sa krivom modela pumpe (krive 4 (n_q 41.07) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 41.07) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (1) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .



Slika 55. Dijagram sa krivom modela pumpe (krive 5 (n_q 54.76) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 54.76) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (1) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .



Slika 56. Dijagram sa krivom modela pumpe (krive 6 (n_q 110.35) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 110.35) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (1) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .

Prilog za poglavlje - 5.3.3 Numerički model (2) razvijen postupkom regresije u programu Matlab za krive poznate iz klasične literature – primjer Stepanoff, A. J. (1957)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela (2) u programu Matlab:

```
close all, clear all, clc

%% Podaci koji se mogu mijenjati
% Definisane polinoma u Delta
W = 3; % polinom Delte
Ww = 3; % polinom koeficijenta
% Novi nq-ovi za testiranje
nqNew = [25 40 65 70 75 85 95 100]; % Ubaciti zeljeni nq

%% Importovanje podataka iz Excel fajla
[~, ~, raw] = xlsread('C:\Users\zdravko.giljen\Documents\MATLAB\13.11.2016
Srednja jednacina Druga2\09.11.2016 Konacni Dijagrami Krive b c d e f
produzene.xlsx', 'krive 2', 'A3:N136');
raw(cellfun(@(x) ~isempty(x) && isnumeric(x) && isnan(x), raw)) = {' '};
R = cellfun(@(x) ~isnumeric(x) && ~islogical(x), raw); % Find non-numeric
cells
raw(R) = {NaN}; % Replace non-numeric cells

data = reshape([raw{:}], size(raw));
Capacity = data(:,1);
Head = data(:,2);
Capacity1 = data(:,3);
Head1 = data(:,4);
Capacity2 = data(:,5);
Head2 = data(:,6);
Capacity3 = data(:,7);
Head3 = data(:,8);
Capacity4 = data(:,9);
Head4 = data(:,10);
Capacity5 = data(:,11);
Head5 = data(:,12);
Capacity6 = data(:,13);
Head6 = data(:,14);
clearvars data raw R;

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
warning off
%% Podaci za srednju jednacinu
Vp = 0:1:134; % opseg V za srednju jednacinu
p1 = -1.3495e-05;
p2 = -0.0011363;
p3 = 0.19106;
p4 = 105.53;
Srednja = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;

%% Crtanje krivih zajedno sa srednjom krivom
figure(1)
plot(Capacity, Head, '--k', Capacity1, Head1, '--b', Capacity2, Head2, '--
g', Capacity3, Head3, '--c', Capacity4, Head4, '--m', Capacity5, Head5, '-
.b', Capacity6, Head6, '-.k') % Krive sa dijagrama 2
hold on
plot(Vp, Srednja, '-r', 'LineWidth', 2)
```



```

grid on
title('Dijagram krivih sa srednjom'), xlabel('V [%]'), ylabel('H [%]')
legend('1','2','3','4','5','6','7','srednja')
xlim([0 140]), ylim([0 300])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:300)

%% Pronalazenje Delte za svaku liniju
VV = [Capacity Capacity1 Capacity2 Capacity3 Capacity4 Capacity5 Capacity6];
% broj linija 7
HH = [Head Head1 Head2 Head3 Head4 Head5 Head6];
krive = {'1','2','3','4','5','6','7'};
nq = [12.32 20.53 30.11 41.07 54.76 110.35 178.15]; % dobijeni nq-ovi
o = [132 131 131 134 134 132 114]; % redovi u krivima
for i = 1:7
    t1 = size(HH(:,i));
    t2 = t1(1);
    Hnew = HH(:,i);
    X = VV(:,i);
    Sred = p1*X.^3 + p2*X.^2 + p3*X + p4;
    Razl = Hnew - Sred;
    Raz(:,i) = Razl;
    %clear t1 t2 Hnew Sred Razl X
    figure(i+1)
    plot(VV(:,i),Raz(:,i),'-b'), grid on
    title(['Dijagram razlike srednje krive i krive ',krive(i)])
    xlabel('V [%]'), ylabel('\deltaH [%]')
    xlim([0 150])
end

%% Pravljenje opsega i matrice kapaciteta
dV1 = max(min(VV));
gV1 = min(max(VV));
dV = max(dV1);
gV = min(gV1);
opseg = dV:1:gV;
for i = 1:length(opseg)
    for j = 1:7
        U = find(VV(:,j) == opseg(i));
        vr1(i,j) = Raz(U,j);
    end
end

vr = [vr1];

%% Rjesavanje koeficijenata

for i = 1:length(opseg)
    koefD(i,:) = polyfit(nq,vr(i,:),W);
    figure(100+i)

plot(nq,vr(i,:), 'xr',min(nq):1:max(nq),polyval(koefD(i,:),min(nq):1:max(nq)),
'-b'), grid on
    xlabel('n_{q}'), ylabel('\Delta H'), title(['Vrijednosti za
V=',num2str(opseg(i))])
    legend('\Delta',['Polinom ',num2str(W),' stepena'])
    set(gca,'xTick',[sort(nq)])

set(gca,'xTickLabel',{'12.32','20.53','30.11','41.07','54.76','110.35','178.1
5'})
    %set(gca,'xTickLabelRotation',90)
end

```

```

for i = 1:Ww+1
    KoefV(i,:) = polyfit(opseg',koefD(:,i),Ww);
    figure(300+i)

plot(opseg', koefD(:,i), 'xr', opseg(1):1:opseg(length(opseg)), polyval(KoefV(i,:), opseg(1):1:opseg(length(opseg))), '-b'), grid on
    xlabel('Kapacitet V'), ylabel('Koeficijent'), title(['Koeficijent P=', num2str(i)])
    legend('Koeficijenti', ['Polinom ', num2str(Ww), ' stepena'])
    xlim([0 140])
end
clc
%% Ispisivanje izgleda konacne jednacine
ispis = 'D%.0d*V^%.1d + '; % oblik ispisa koeficijenata u polinom reda Ww1
BB = sprintf(ispis, [ 1:1:Ww+1 ; Ww:-1:0]); % ispis koeficijenata u tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-7);
BB = strrep(BB, 'V^1 ', 'V '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB, 'D', 'D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:Ww+1
    for j = 1:Ww+1
        A(i,j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
B = [W:-1:0]; % Matrica za stepen uz polinom reda Ww
C = [A B]; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed ']nq^%.0d + ']; % Izgled polinoma
Kon = sprintf(BBa,C'); % ispisivanje jednacine
Jednacina = Kon(1:end-7); % izgled polinoma reda Ww (sa polinomom reda Ww1 kojim su izraženi koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina, 'nq^1 ', 'nq '); % Izbacivanje stepena 1 uz theta
IsS = 'S1*V^3 + S2*V^2 + S3*V + S4'; % izgled jednacine srednje krive u tekstualnom obliku
Del = ' + Delta';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['Delta = ', Jednacina]) % opis jednacine Delta
disp(' ')
disp('Izgled cijele jednacine je:')
disp([IsS ' + ' Jednacina]) % ispis cijele jednacine u tekstualnom obliku
disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ', num2str(p1)])
disp([' S2 = ', num2str(p2)])
disp([' S3 = ', num2str(p3)])
disp([' S4 = ', num2str(p4)])
% ispis koeficijenata u polinom reda Ww1
for i = 1:Ww+1
    for j = 1:Ww+1
        TtT = KoefV(i,j);
        Tttt = sprintf([' D', num2str(i), num2str(j), ' = %.15e'], TtT);
        disp(Tttt)
    end
end
end
Vnew = Vp;
nqNew = [25 40 65 70 75 85 95 100]; % Ubaciti zeljeni nq
for i = 1:length(nqNew) % opseg novih nq-ova
    for oo = 1:length(Vnew) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:Ww+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(KoefV(j,:), Vnew(oo)); % Racunanje polinoma reda Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta

```

```

        end
        Do(oo) = polyval(TTr,nqNew(i)); % Racunanje Delte za svako Theta
koraka 1

    end
    D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta

    WHnew(:,i) = Srednja' + D(:,i); % Zbir Srednje jednacine i jednacine
Delta
    % Srednja jednacina je ista

    % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako nq
    figure(400+i)
    plot(Vnew',WHnew(:,i),'-o'), grid on
    xlabel('V'), ylabel('H'), title('Dijagram V - H za novi n_{q}')
    legend(['n_{q}=',num2str(nqNew(i))])
end
% Crtanje svih novih krivih na jednom dijagramu
figure(500)
plot(Vnew',WHnew), grid on
xlabel('V'), ylabel('H'), title('Dijagram V - H za nove n_{q}-ove'), hold on
legendCell = cellstr(num2str(nqNew', 'n_{q}=%-d'));
legend(legendCell)

% Crtanje svih novih kao i realnih dijagrama
figure(501)
plot(Vnew',WHnew,'LineWidth',1), grid on
xlabel('V'), ylabel('H'), title('Dijagram V - H za nove n_{q}-ove'), hold on
legendCell = cellstr(num2str(nqNew', 'n_{q}=%-d'));
hold on
plot(Capacity,Head,'--k',Capacity1,Head1,'--b',Capacity2,Head2,'--
g',Capacity3,Head3,'--c',Capacity4,Head4,'--m',Capacity5,Head5,'-
.b',Capacity6,Head6,'-.k') % Krive sa dijagrama 2
hold on
title('Dijagram krivih'), xlabel('V [%]'), ylabel('H [%]')
legendCell1 =
{'n_{q}=12.32';'n_{q}=20.53';'n_{q}=30.11';'n_{q}=41.07';'n_{q}=54.76';'n_{q}
=110.35';'n_{q}=178.15'};
legend([legendCell; legendCell1])
xlim([0 140]), ylim([0 200])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:200)

% Crtanje svih novih krivih pojedinačno sa dvije krive modela koje se
% nalaze blizu
nqs = sort(nq);
for i = 1:length(nqNew)
    br1 = find(nqNew(i) <= nqs); % traženje nq-a koji je veci
    br1 = br1(1);
    br2 = find(nqs(br1) == nq);
    brv = br2(1); % veci nq od zadatog
    br3 = find(nqs(br1-1) == nq);
    brm = br3(1);
    figure(502+i)
    % uslov za crtanje nq-a koji je veci
    if brv <= 7
        plot(VV(:,brv),HH(:,brv),'-b'), hold on
    elseif brv >= 8
        plot(VV1(:,brv-5),HH1(:,brv-5),'-b'), hold on
    end
end

```

```

end
% uslov za crtanje nq-a koji je manji
if brm <= 7
    plot(VV(:,brm),HH(:,brm),'-r'), hold on
elseif brm >= 8
    plot(VV1(:,brm-5),HH1(:,brm-5),'-r'), hold on
end
% crtaje zadanog nq-a
plot(Vnew',WHnew(:,i),'-g','LineWidth',2), grid on
xlabel('V'), ylabel('H'), title('Dijagram V - H za novi n_{q}')
legend(['n_{q}=',num2str(nqs(brl))],[ 'n_{q}=',num2str(nqs(brl-
1))],[ 'n_{q}=',num2str(nqNew(i))])
xlim([0 140]), ylim([0 300])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:300)
end

%% Crtanje dijagrama sa jednacinom i r^2
clear Vp oo j

for i = 1:length(nq)
    % Racunanje r^2 za svako nq provuceno kroz jednacinu
    % Racunanje jednacine kada ubacimo vrijednosti V i nq u jednacinu
    Vp = VV(1:o(i),i); % opseg
    Horg = HH(1:o(i),i);
    for oo = 1:length(Vp) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:W+1 % opseg koeficijentata u polinomu Ww reda
            TTr(j) = polyval(KoefV(j,:),Vp(oo)); % Racunanje polinoma reda
            Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta
        end
        Dor(oo) = polyval(TTr,nq(i)); % Racunanje Delte za svako Theta koraka
    end
    Dpr = Dor'; % Pretvaranje matrice Delta u inverznu matricu Delta
    Srn = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;
    Htest = Srn + Dpr; % Zbir Srednje jednacine i jednacine Delta

    SStot1 = sum((Srn-mean(Horg)).^2);
    SSres1 = sum((Srn-Horg).^2);
    R2s(i) = 1-SSres1/SStot1;

    SStot = sum((Htest-mean(Horg)).^2);
    SSres = sum((Htest-Horg).^2);
    R2(i) = 1-SSres/SStot;

    figure(600+i)
    plot(Vp,Horg,'-r',Vp,Srn,'--m',Vp,Htest,'-b','LineWidth',2), grid on
    title(['Dijagram krive n_{q}=',num2str(nq(i))]), xlabel('V [%]'),
    ylabel('H [%]')
    legend('kriva modela',['Srednja jednacina:
r^{2}=',num2str(R2s(i))],[ 'Srednja + \Delta: r^{2}=',num2str(R2(i))])
    xlim([0 140]), ylim([0 300])
    set(gca,'xTick',0:10:150)
    set(gca,'yTick',0:20:300)

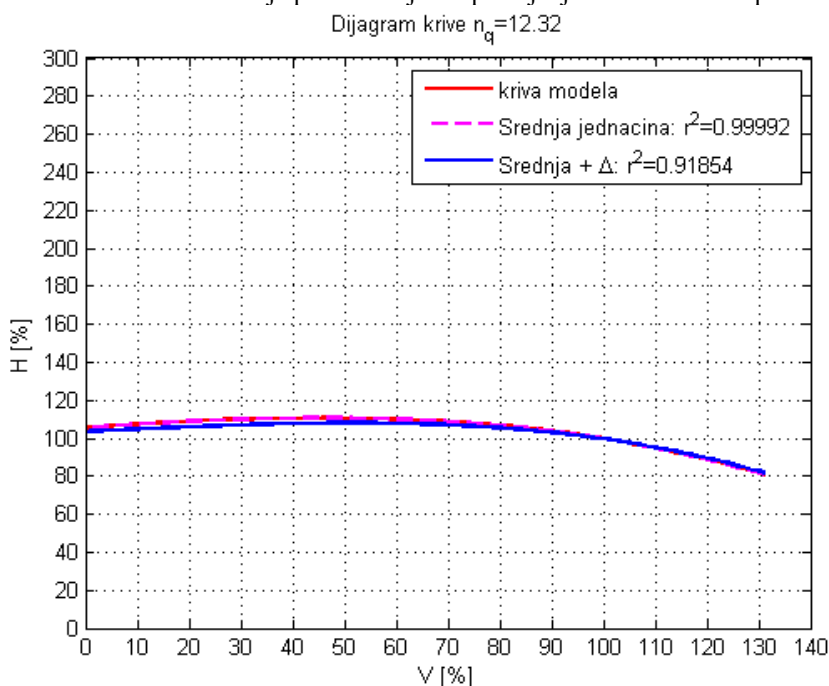
    clear Htest Horg Vp oo Dpr Dor TTr Srn r21 r22 SStot SSres SStot1 SSres1
end

% ispis podataka r^2 za svako nq vezano za srednju krivu i konacnu
% jednacinu
disp(' ')

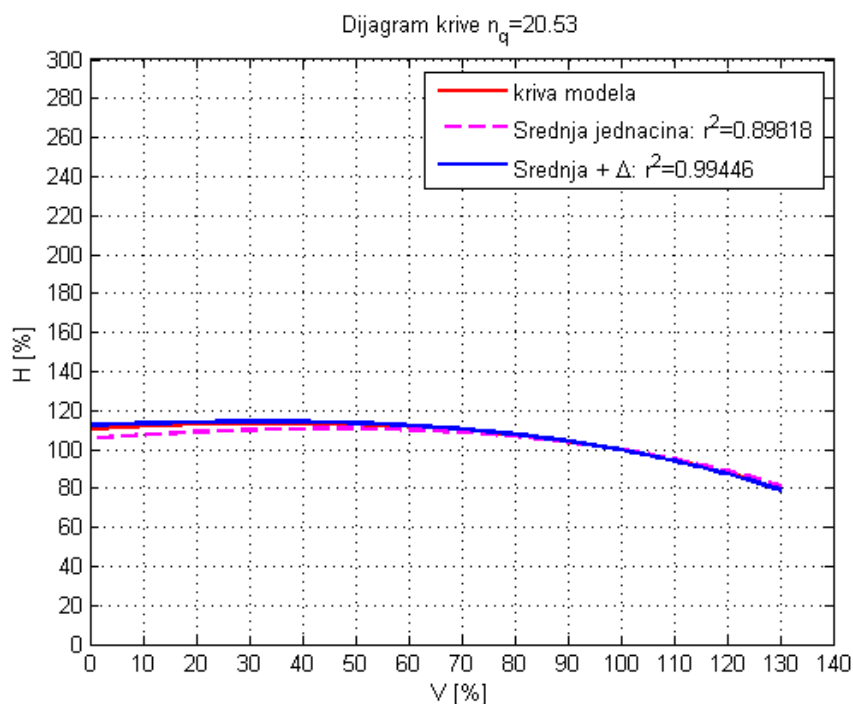
```

```
disp(table(nq',R2s',R2', 'VariableNames', {'nq' 'r2Srednje' 'r2Final'}))
```

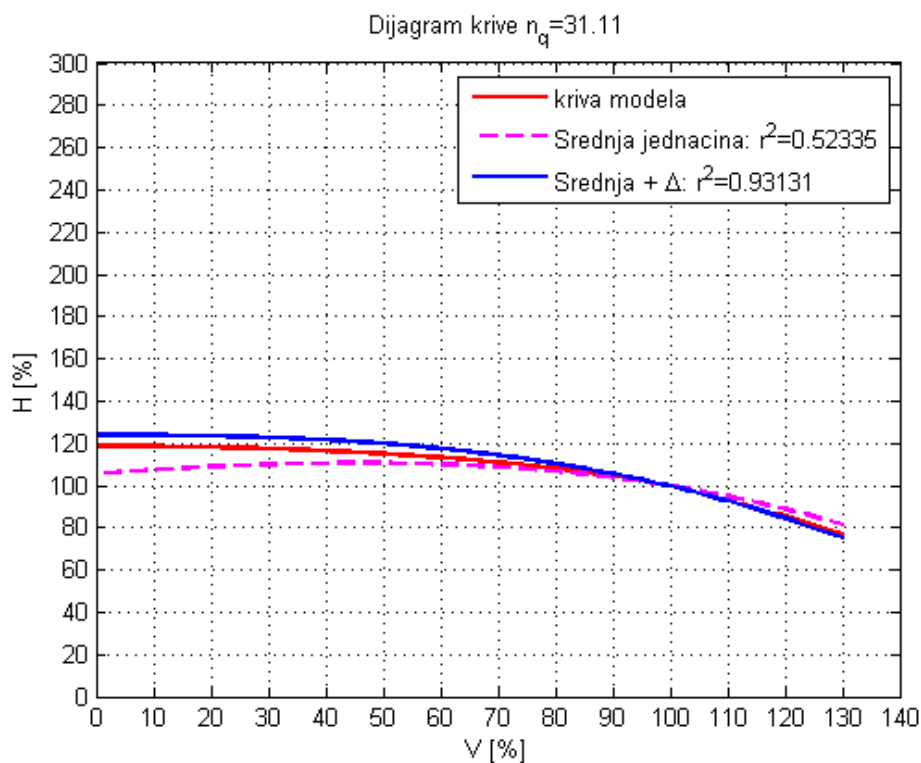
U narednom dijelu teksta prikazan je dio rezultata razvijenog numeričkog modela (2) u programu Matlab na dijagrami sa Slikama 59, 60, 61, 62, 63, 64. I može se izvesti sledeći zaključak: da su rezultati dobri i da ohrabrljuju da postoji univerzalna analitička zavisnost kojom bi se mogle opisati sve krive sa različitim n_q , da te zavisnosti ne zavise od referentne krive i da je potvrđeno jasno postojanje zavisnosti od n_q .



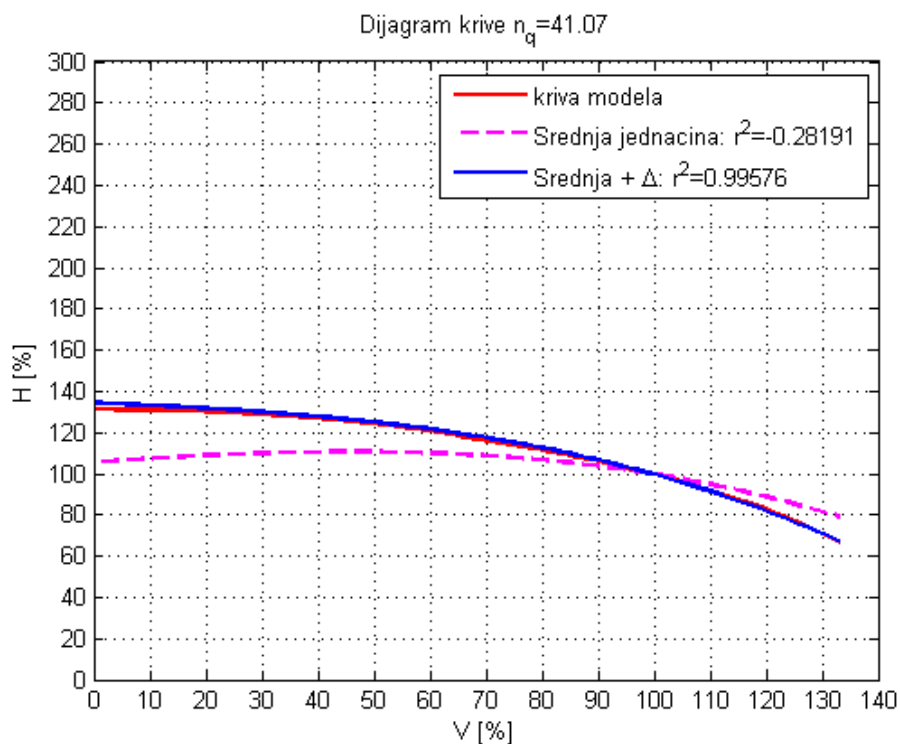
Slika 59. Dijagram sa krivom modela pumpe (krive 1 (n_q 12.32) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 12.32) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (2) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



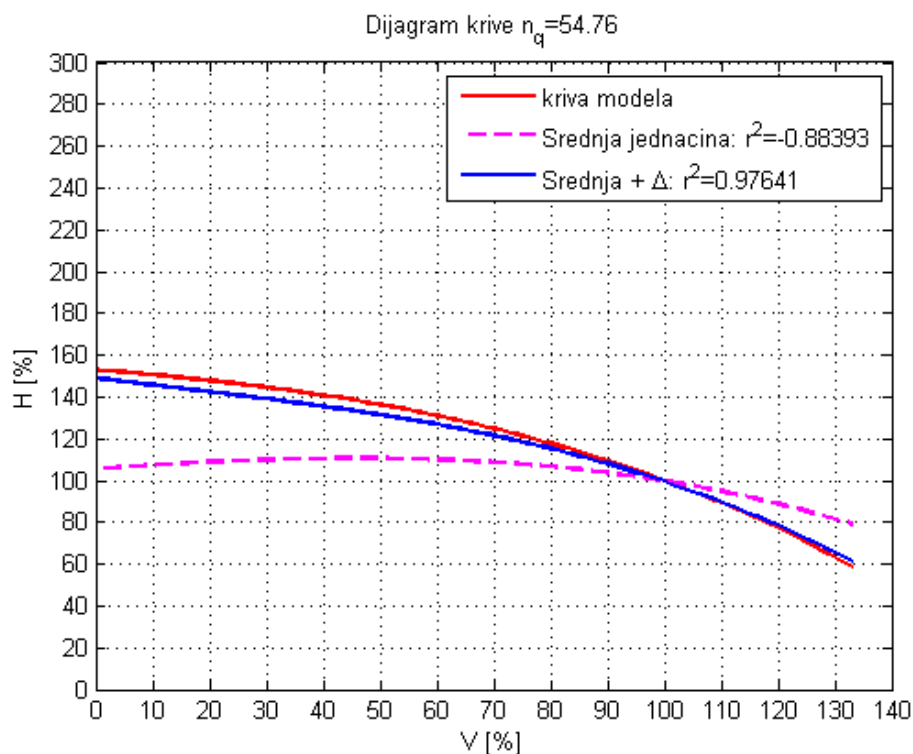
Slika 60. Dijagram sa krivom modela pumpe (krive 2 (n_q 20.53) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 20.53) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (2) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



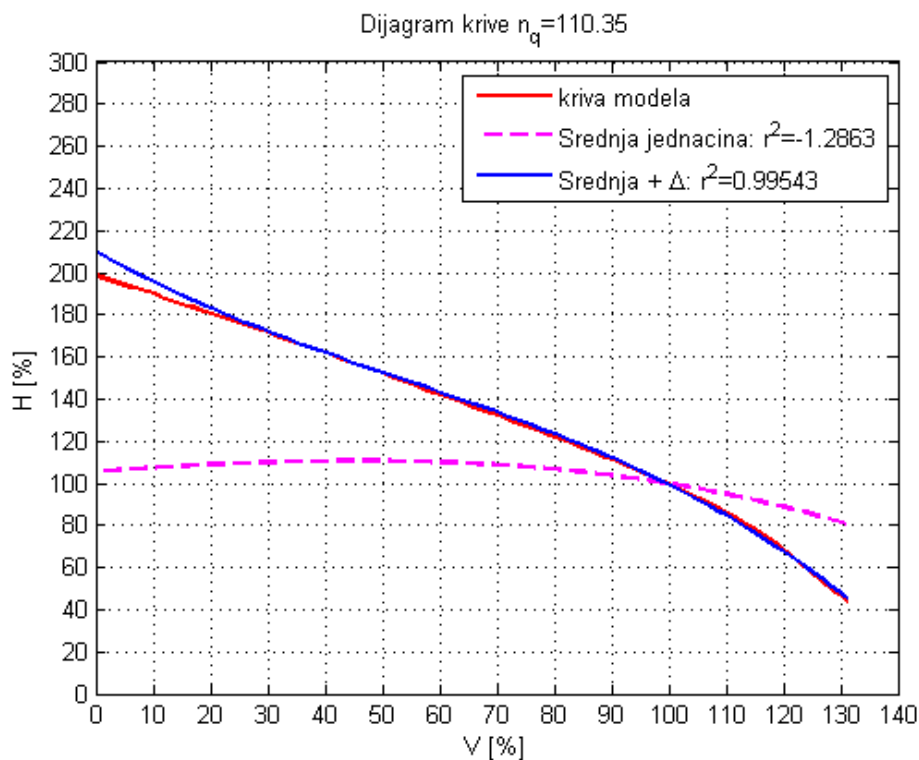
Slika 61. Dijagram sa krivom modela pumpe (krive 3 (η_q 30.11) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (η_q 30.11) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (2) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



Slika 62. Dijagram sa krivom modela pumpe (krive 4 (η_q 41.07) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (η_q 41.07) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (2) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



Slika 63. Dijagram sa krivom modela pumpe (krive 5 (n_q 54.76) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 54.76) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (2) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .



Slika 64. Dijagram sa krivom modela pumpe (krive 6 (n_q 110.35) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Stepanoff, A. J. (1957) - *Radial and Axial pump*, i upoređena sa krivom (n_q 110.35) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (2) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .

Prilog za poglavlje - 5.4.1 Numerički model (3) razvijen postupkom regresije u programu Matlab za krive poznate iz klasične literature – primjer Pfleiderer, C. (1961)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela (3) u programu Matlab:

```
close all, clear all, clc

%% Podaci koji se mogu mijenjati
% Definisanje polinoma u Delta
W = 3; % polinom Delte
Ww = 3; % polinom koeficijenta
% Novi nq-ovi za testiranje
nqNew = [25 40 65 70 75 85 95 100]; % Ubaciti zeljeni nq

%% Importovanje podataka iz Excel fajla
[~, ~, raw] = xlsread('C:\Users\zdravko.giljen\Documents\MATLAB\13.11.2016
Srednja jednacina Prva1\09.11.2016 Konacni Dijagrami Krive b c d e f
produzene.xlsx', 'krive 1', 'A3:J137');
raw(cellfun(@(x) ~isempty(x) && isnumeric(x) && isnan(x), raw)) = {' '};
R = cellfun(@(x) ~isnumeric(x) && ~islogical(x), raw); % Find non-numeric
cells
raw(R) = {NaN}; % Replace non-numeric cells
data = reshape([raw{:}], size(raw));
V = data(:,1);
H = data(:,2);
V1 = data(:,3);
H1 = data(:,4);
V2 = data(:,5);
H2 = data(:,6);
V3 = data(:,7);
H3 = data(:,8);
V4 = data(:,9);
H4 = data(:,10);
clearvars data raw R;

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
warning off
%% Podaci za srednju jednacinu
Vp = 0:1:134; % opseg V za srednju jednacinu
p1 = -1.4191e-06;
p2 = -0.007035;
p3 = 0.42745;
p4 = 127.07;
Srednja = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;

%% Crtanje krivih zajedno sa srednjom krivom
figure(1)
plot(V,H, 'k', V1,H1, 'b', V2,H2, 'g', V3,H3, 'c', V4,H4, 'm', 'LineWidth',1) % Krive
sa dijagrama 1
hold on
plot(Vp,Srednja, '-r', 'LineWidth',2)
grid on
title('Dijagram krivih sa srednjom'), xlabel('V [%]'), ylabel('H [%]')
legend('b', 'c', 'd', 'e', 'f', 'srednja')
xlim([0 140]), ylim([0 300])
set(gca, 'xTick', 0:10:150)
set(gca, 'yTick', 0:20:300)
```



```

%% Pronalazenje Delte za svaku liniju
VV = [V V1 V2 V3 V4]; % broj linija 5
HH = [H H1 H2 H3 H4];
krive = {'b', 'c', 'd', 'e', 'f'};
nq = [21 34 71 110 220]; % dobijeni nq-ovi
o = [134 133 135 133 115]; % redovi u krivima
for i = 1:5
    t1 = size(HH(:,i));
    t2 = t1(1);
    Hnew = HH(:,i);
    X = VV(:,i);
    Sred = p1*X.^3 + p2*X.^2 + p3*X + p4;
    Razl = Hnew - Sred;
    Raz(:,i) = Razl;
    %clear t1 t2 Hnew Sred Razl X
    figure(i+1)
    plot(VV(:,i),Raz(:,i),'-b'), grid on
    title(['Dijagram razlike srednje krive i krive ',krive(i)])
    xlabel('V [%]'), ylabel('\deltaH [%]')
    xlim([0 150])
end
%% Pravljenje opsega i matrice kapaciteta
dV1 = max(min(VV));
gV1 = min(max(VV));
dV = max(dV1);
gV = min(gV1);
opseg = dV:1:gV;
for i = 1:length(opseg)
    for j = 1:5
        U = find(VV(:,j) == opseg(i));
        vr1(i,j) = Raz(U,j);
    end
end
vr = [vr1];

%% Rjesavanje koeficijenata

for i = 1:length(opseg)
    koefD(i,:) = polyfit(nq,vr(i,:),W);
    figure(100+i)

plot(nq,vr(i,:), 'xr',min(nq):1:max(nq),polyval(koefD(i,:),min(nq):1:max(nq)),
'-b'), grid on
    xlabel('n_{q}'), ylabel('\Delta H'), title(['Vrijednosti za
V=',num2str(opseg(i))])
    legend('\Delta', ['Polinom ',num2str(W), ' stepena'])
    set(gca,'xTick',[sort(nq)])
    set(gca,'xTickLabel',{'21','34','71','110','220'})
    %set(gca,'xTickLabelRotation',90)
end

for i = 1:W+1
    KoefV(i,:) = polyfit(opseg',koefD(:,i),Ww);
    figure(300+i)

plot(opseg',koefD(:,i), 'xr',opseg(1):1:opseg(length(opseg)),polyval(KoefV(i,:),
opseg(1):1:opseg(length(opseg))), '-b'), grid on
    xlabel('Kapacitet V'), ylabel('Koeficijent'), title(['Koeficijent
P=',num2str(i)])

```

```

legend('Koeficijenti', ['Polinom ', num2str(Ww), ' stepena'])
xlim([0 140])
end
clc
%% Ispisivanje izgleda konacne jednacine
ispis = 'D%.0d*V^%1.0d + '; % oblik ispisa koeficijenata u polinom reda Ww1
BB = sprintf(ispis, [ 1:1:Ww+1 ; Ww:-1:0]); % ispis koeficijenata u
tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-7);
BB = strrep(BB, 'V^1 ', 'V '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB, 'D', 'D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:W+1
    for j = 1:Ww+1
        A(i,j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
end
B = [W:-1:0]; % Matrica za stepen uz polinom reda Ww
C = [A B']; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed ']nq^%.0d + ']; % Izgled polinoma
Kon = sprintf(BBa,C'); % ispisivanje jednacine
Jednacina = Kon(1:end-7); % izgled polinoma reda Ww (sa polinomom reda Ww1
kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina, 'nq^1 ', 'nq '); % Izbacivanje stepena 1 uz theta
IsS = 'S1*V^3 + S2*V^2 + S3*V + S4'; % izgled jednacine srednje krive u
tekstualnom obliku
Del = '+ Delta';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['Delta = ', Jednacina]) % opis jednacine Delta
disp(' ')
disp('Izgled cijele jednacine je:')
disp([IsS ' + ' Jednacina]) % ispis cijele jednacine u tekstualnom obliku
disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ', num2str(p1)])
disp([' S2 = ', num2str(p2)])
disp([' S3 = ', num2str(p3)])
disp([' S4 = ', num2str(p4)])
% ispis koeficijenata u polinom reda Ww1
for i = 1:W+1
    for j = 1:Ww+1
        TtT = KoefV(i,j);
        Tttt = sprintf([' D', num2str(i), num2str(j), ' = %.15e'], TtT);
        disp(Tttt)
    end
end
end
Vnew = Vp;

for i = 1:length(nqNew) % opseg novih nq-ova
    for oo = 1:length(Vnew) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:W+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(KoefV(j,:), Vnew(oo)); % Racunanje polinoma reda
Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta

            end
            Do(oo) = polyval(TTr, nqNew(i)); % Racunanje Delte za svako Theta
koraka 1

            end
            D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta

```

```

    WHnew(:,i) = Srednja' + D(:,i); % Zbir Srednje jednacine i jednacine
Delta
    % Srednja jednacina je ista

    % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako nq
    figure(400+i)
    plot(Vnew',WHnew(:,i),'-o'), grid on
    xlabel('V'), ylabel('H'), title('Dijagram V - H za novi n_{q}')
    legend(['n_{q}=',num2str(nqNew(i))])
end
% Crtanje svih novih krivih na jednom dijagramu
figure(500)
plot(Vnew',WHnew), grid on
xlabel('V'), ylabel('H'), title('Dijagram V - H za nove n_{q}-ove'), hold on
legendCell = cellstr(num2str(nqNew', 'n_{q}=%-d'));
legend(legendCell)

% Crtanje svih novih kao i realnih dijagrama
figure(501)
plot(Vnew',WHnew,'LineWidth',1), grid on
xlabel('V'), ylabel('H'), title('Dijagram V - H za nove n_{q}-ove'), hold on
legendCell = cellstr(num2str(nqNew', 'n_{q}=%-d'));
hold on
plot(V,H,':k',V1,H1,':b',V2,H2,':g',V3,H3,':c',V4,H4,':m') % Krive sa
dijagrama 1
hold on
title('Dijagram krivih'), xlabel('V [%]'), ylabel('H [%]')
legendCell1 = {'n_{q}=21';'n_{q}=34';'n_{q}=71';'n_{q}=110';'n_{q}=220'};
legend([legendCell; legendCell1])
xlim([0 140]), ylim([0 200])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:200)

% Crtanje svih novih krivih pojedinačno sa dvije krive modela koje se
% nalaze blizu
nqs = sort(nq);
for i = 1:length(nqNew)
    br1 = find(nqNew(i) <= nqs); % traženje nq-a koji je veći
    br1 = br1(1);
    br2 = find(nqs(br1) == nq);
    brv = br2(1); % veći nq od zadatog
    br3 = find(nqs(br1-1) == nq);
    brm = br3(1);
    figure(502+i)
    % uslov za crtanje nq-a koji je veći
    if brv <= 5
        plot(VV(:,brv),HH(:,brv),'-b'), hold on
    elseif brv >= 6
        plot(VV1(:,brv-5),HH1(:,brv-5),'-b'), hold on
    end
    % uslov za crtanje nq-a koji je manji
    if brm <= 5
        plot(VV(:,brm),HH(:,brm),'-r'), hold on
    elseif brm >= 6
        plot(VV1(:,brm-5),HH1(:,brm-5),'-r'), hold on
    end
    % crtaje zadatog nq-a
    plot(Vnew',WHnew(:,i),'-g','LineWidth',2), grid on
    xlabel('V'), ylabel('H'), title('Dijagram V - H za novi n_{q}')

```

```

    legend(['n_{q}=', num2str(nqs(br1))], ['n_{q}=', num2str(nqs(br1-
1))], ['n_{q}=', num2str(nqNew(i))])
    xlim([0 140]), ylim([0 300])
    set(gca, 'xTick', 0:10:150)
    set(gca, 'yTick', 0:20:300)
end

%% Crtanje dijagrama sa jednacynom i r^2
clear Vp oo j

for i = 1:length(nq)
    % Racunanje r^2 za svako nq provuceno kroz jednacynu
    % Racunanje jednacine kada ubacimo vrijednosti V i nq u jednacynu

    if i <= 5
        Vp = VV(1:o(i), i); % opseg
        Horg = HH(1:o(i), i);
        for oo = 1:length(Vp) % opseg Theta (od 45 do 270 koraka 1)
            for j = 1:W+1 % opseg koeficijenata u polinomu Ww reda
                TTr(j) = polyval(KoefV(j,:), Vp(oo)); % Racunanje polinoma
reda Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od
Theta
            end
            Dor(oo) = polyval(TTr, nq(i)); % Racunanje Delte za svako Theta
koraka 1
            end
            Dpr = Dor'; % Pretvaranje matrice Delta u inverznu matricu Delta
            Srn = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;
            Htest = Srn + Dpr; % Zbir Srednje jednacine i jednacine Delta

            SStot1 = sum((Srn-mean(Horg)).^2);
            SSres1 = sum((Srn-Horg).^2);
            R2s(i) = 1-SSres1/SStot1;

            SStot = sum((Htest-mean(Horg)).^2);
            SSres = sum((Htest-Horg).^2);
            R2(i) = 1-SSres/SStot;

        elseif i >= 6
            Vp = VV1(1:o(i), i-5); % opseg
            Horg = HH1(1:o(i), i-5);
            for oo = 1:length(Vp) % opseg Theta (od 45 do 270 koraka 1)
                for j = 1:W+1 % opseg koeficijenata u polinomu Ww reda
                    TTr(j) = polyval(KoefV(j,:), Vp(oo)); % Racunanje polinoma
reda Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od
Theta
                end
                Dor(oo) = polyval(TTr, nq(i)); % Racunanje Delte za svako Theta
koraka 1
                end
                Dpr = Dor'; % Pretvaranje matrice Delta u inverznu matricu Delta
                Srn = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;
                Htest = Srn + Dpr; % Zbir Srednje jednacine i jednacine Delta

                SStot1 = sum((Srn-mean(Horg)).^2);
                SSres1 = sum((Srn-Horg).^2);
                R2s(i) = 1-SSres1/SStot1;

                SStot = sum((Htest-mean(Horg)).^2);
                SSres = sum((Htest-Horg).^2);

```

```

R2(i) = 1-SSres/SStot;

end

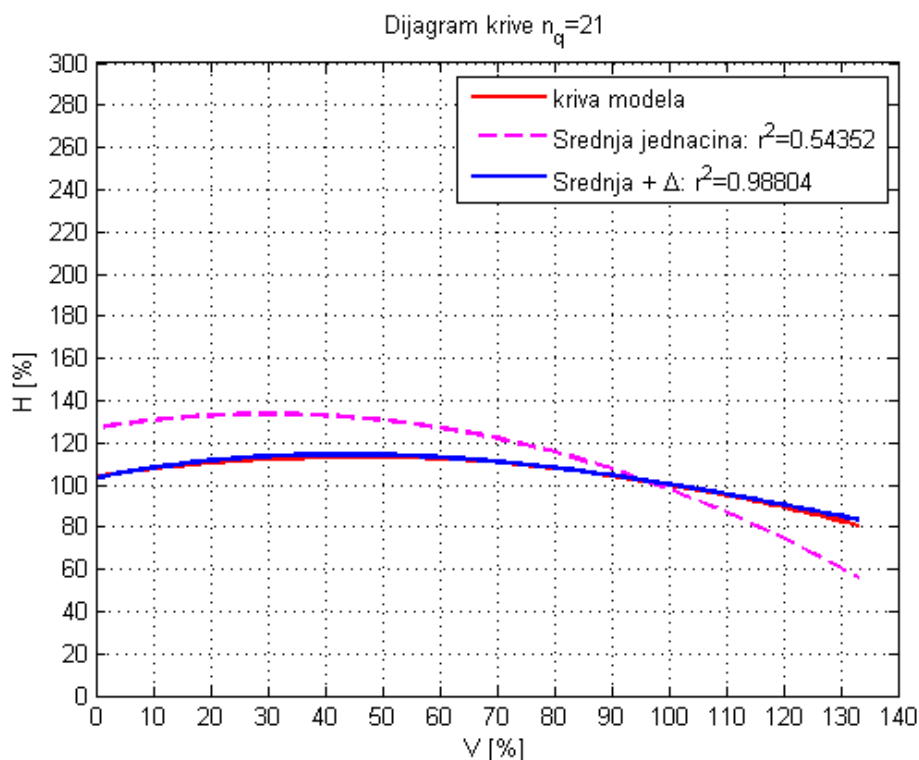
figure(600+i)
plot(Vp,Horg,'-r',Vp,Srn,'--m',Vp,Htest,'-b','LineWidth',2), grid on
title(['Dijagram krive n_q=' num2str(nq(i))]), xlabel('V [%]'),
ylabel('H [%]')
legend('kriva modela', ['Srednja jednacina:
r^{2}=', num2str(R2s(i))], ['Srednja + \Delta: r^{2}=', num2str(R2(i))])
xlim([0 140]), ylim([0 300])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:300)

clear Htest Horg Vp oo Dpr Dor TTr Srn r21 r22 SStot SSres SStot1 SSres1
end

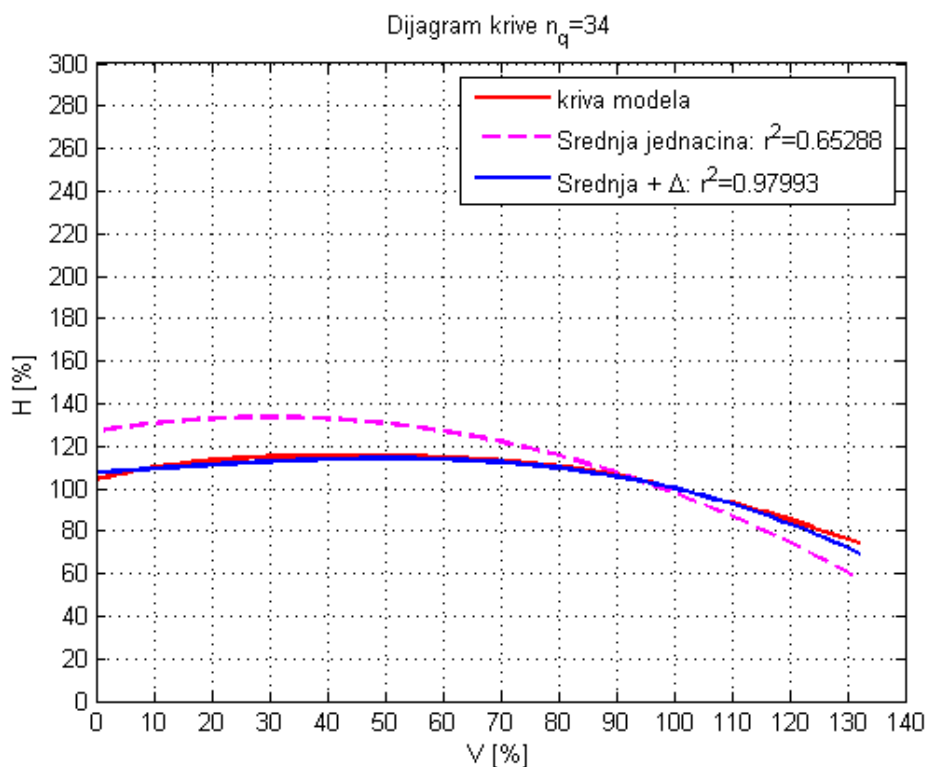
% ispis podataka r^2 za svako nq vezano za srednju krivu i konacnu
% jednacinu
disp(' ')
disp(table(nq',R2s',R2', 'VariableNames', {'nq' 'r2Srednje' 'r2Final'}))

```

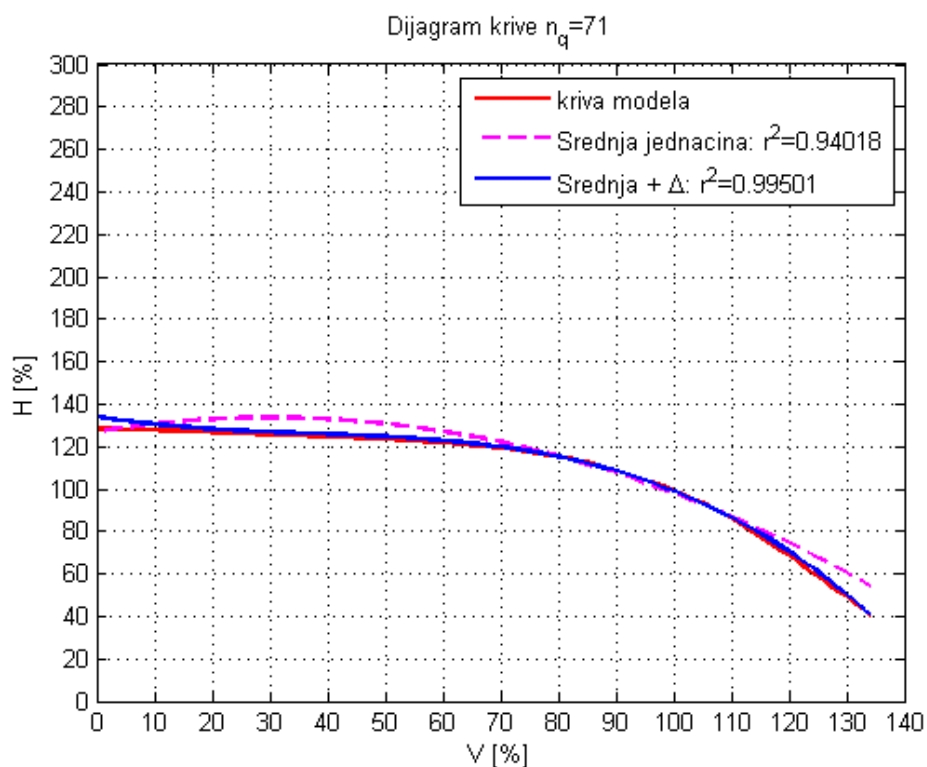
U narednom dijelu teksta prikazan je dio rezultata razvijenog numeričkog modela (3) u programu Matlab na dijagramima sa Slika 67, 68, 69, 70. I može se izvesti sledeći zaključak: da su rezultati dobri i da ohrabljaju da postoji univerzalna analitička zavisnost kojom bi se mogle opisati sve krive sa različitim n_q , da te zavisnosti ne zavise od referentne krive i da je potvrđeno jasno postojanje zavisnosti od n_q .



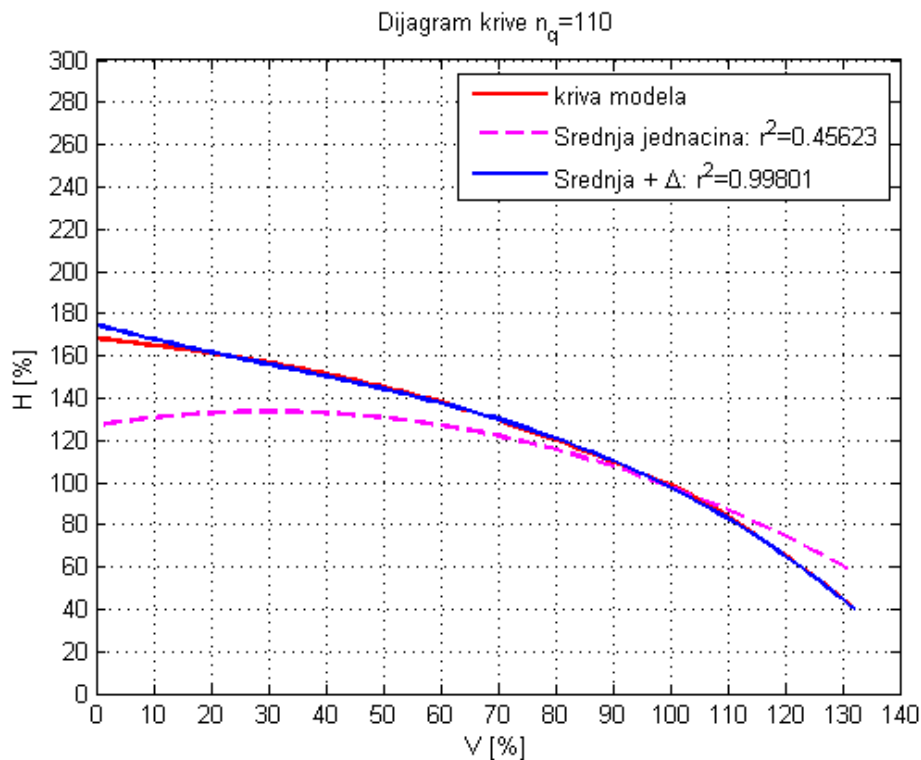
Slika 67. Dijagram sa krivom modela pumpe (krive b (n_q 21) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Pfeleiderer, C. (1961) – *Die Kreiselpumpen für Flüssigkeiten und Gase*, i upoređena sa krivom (n_q 21) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (3) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .



Slika 68. Dijagram sa krivom modela pumpe (krive c (n_q 34) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Pfleiderer, C. (1961) – *Die Kreiselpumpen für Flüssigkeiten und Gase*, i upoređena sa krivom (n_q 34) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (3) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



Slika 69. Dijagram sa krivom modela pumpe (krive d (n_q 71) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Pfleiderer, C. (1961) – *Die Kreiselpumpen für Flüssigkeiten und Gase*, i upoređena sa krivom (n_q 71) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (3) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



Slika 70. Dijagram sa krivom modela pumpe (krive e (n_q 110) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Pfeleiderer, C. (1961) – *Die Kreiselpumpen für Flüssigkeiten und Gase*, i upoređena sa krivom (n_q 110) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (3) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .

Prilog za poglavlje - 5.4.3 Numerički model (4) razvijen postupkom regresije u programu Matlab za krive poznate iz klasične literature – primjer Pfeleiderer, C. (1961).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela (4) u programu Matlab:

```
close all, clear all, clc

%% Podaci koji se mogu mijenjati
% Definisavanje polinoma u Delta
W = 3; % polinom Delte
Ww = 3; % polinom koeficijenta
% Novi nq-ovi za testiranje
nqNew = [25 40 65 70 75 85 95 100]; % Ubaciti zeljeni nq

%% Importovanje podataka iz Excel fajla
[~, ~, raw] = xlsread('C:\Users\zdravko.giljen\Documents\MATLAB\13.11.2016
Srednja jednacina Prva2\09.11.2016 Konacni Dijagrami Krive b c d e f
produzene.xlsx', 'krive 1', 'A3:J137');
raw(cellfun(@(x) ~isempty(x) && isnumeric(x) && isnan(x), raw)) = {''};
R = cellfun(@(x) ~isnumeric(x) && ~islogical(x), raw); % Find non-numeric
cells
raw(R) = {NaN}; % Replace non-numeric cells
data = reshape([raw{:}], size(raw));
V = data(:,1);
H = data(:,2);
V1 = data(:,3);
H1 = data(:,4);
V2 = data(:,5);
```

```

H2 = data(:,6);
V3 = data(:,7);
H3 = data(:,8);
V4 = data(:,9);
H4 = data(:,10);
clearvars data raw R;

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
warning off
%% Podaci za srednju jednacinu
Vp = 0:1:134; % opseg V za srednju jednacinu
p1 = 3.6172e-06;
p2 = -0.0050125;
p3 = 0.42792;
p4 = 103.87;
Srednja = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;

%% Crtanje krivih zajedno sa srednjom krivom
figure(1)
plot(V,H,'k',V1,H1,'b',V2,H2,'g',V3,H3,'c',V4,H4,'m','LineWidth',1) % Krive
sa dijagrama 1
hold on
plot(Vp,Srednja,'-r','LineWidth',2)
grid on
title('Dijagram krivih sa srednjom'), xlabel('V [%]'), ylabel('H [%]')
legend('b','c','d','e','f','srednja')
xlim([0 140]), ylim([0 300])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:300)

%% Pronalazenje Delte za svaku liniju
VV = [V V1 V2 V3 V4]; % broj linija 5
HH = [H H1 H2 H3 H4];
krive = {'b','c','d','e','f'};
nq = [21 34 71 110 220]; % dobijeni nq-ovi
o = [134 133 135 133 115]; % redovi u krivima
for i = 1:5
    t1 = size(HH(:,i));
    t2 = t1(1);
    Hnew = HH(:,i);
    X = VV(:,i);
    Sred = p1*X.^3 + p2*X.^2 + p3*X + p4;
    Razl = Hnew - Sred;
    Raz(:,i) = Razl;
    %clear t1 t2 Hnew Sred Razl X
    figure(i+1)
    plot(VV(:,i),Raz(:,i),'-b'), grid on
    title(['Dijagram razlike srednje krive i krive ',krive(i)])
    xlabel('V [%]'), ylabel('\deltaH [%]')
    xlim([0 150])
end
%% Pravljenje opsega i matrice kapaciteta
dV1 = max(min(VV));
gV1 = min(max(VV));
dV = max(dV1);
gV = min(gV1);
opseg = dV:1:gV;
for i = 1:length(opseg)
    for j = 1:5
        U = find(VV(:,j) == opseg(i));
    end
end

```



```

        vr1(i,j) = Raz(U,j);
    end
end

vr = [vr1];

%% Rjesavanje koeficijenata

for i = 1:length(opseg)
    koefD(i,:) = polyfit(nq,vr(i,:),W);
    figure(100+i)

plot(nq,vr(i,:), 'xr',min(nq):1:max(nq),polyval(koefD(i,:),min(nq):1:max(nq)),
'-b'), grid on
    xlabel('n_{q}'), ylabel('\Delta H'), title(['Vrijednosti za
V=',num2str(opseg(i))])
    legend('\Delta', ['Polinom ',num2str(W), ' stepena'])
    set(gca, 'xTick', [sort(nq)])
    set(gca, 'xTickLabel', {'21', '34', '71', '110', '220'})
    %set(gca, 'xTickLabelRotation', 90)
end

for i = 1:W+1
    KoefV(i,:) = polyfit(opseg',koefD(:,i),Ww);
    figure(300+i)

plot(opseg',koefD(:,i), 'xr',opseg(1):1:opseg(length(opseg)),polyval(KoefV(i,:),
opseg(1):1:opseg(length(opseg))), '-b'), grid on
    xlabel('Kapacitet V'), ylabel('Koeficijent'), title(['Koeficijent
P=',num2str(i)])
    legend('Koeficijenti', ['Polinom ',num2str(Ww), ' stepena'])
    xlim([0 140])
end
clc
%% Ispisivanje izgleda konacne jednacine
ispis = 'D%.0d*V^%1.0d + '; % oblik ispisa koeficijenata u polinom reda Ww1
BB = sprintf(ispis, [ 1:1:Ww+1 ; Ww:-1:0]); % ispis koeficijenata u
tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-7);
BB = strrep(BB, 'V^1 ', 'V '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB, 'D', 'D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:W+1
    for j = 1:Ww+1
        A(i,j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
B = [W:-1:0]; % Matrica za stepen uz polinom reda Ww
C = [A B']; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed ']nq^%.0d + ']; % Izgled polinoma
Kon = sprintf(BBa,C'); % ispisivanje jednacine
Jednacina = Kon(1:end-7); % izgled polinoma reda Ww (sa polinomom reda Ww1
kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina, 'nq^1 ', 'nq '); % Izbacivanje stepena 1 uz theta
IsS = 'S1*V^3 + S2*V^2 + S3*V + S4'; % izgled jednacine srednje krive u
tekstualnom obliku
Del = ' + Delta';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['Delta = ', Jednacina]) % opis jednacine Delta
disp(' ')

```

```

disp('Izgled cijele jednacine je:')
disp([IsS ' + ' Jednacina]) % ispis cijele jednacine u tekstualnom obliku
disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ',num2str(p1)])
disp([' S2 = ',num2str(p2)])
disp([' S3 = ',num2str(p3)])
disp([' S4 = ',num2str(p4)])
% ispis koeficijenata u polinom reda Ww1
for i = 1:W+1
    for j = 1:Ww+1
        TtT = KoefV(i,j);
        Tttt = sprintf([' D',num2str(i),num2str(j), ' = %.15e'],TtT);
        disp(Tttt)
    end
end
Vnew = Vp;
for i = 1:length(nqNew) % opseg novih nq-ova
    for oo = 1:length(Vnew) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:W+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(KoefV(j,:),Vnew(oo)); % Racunanje polinoma reda
            Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta

            end
            Do(oo) = polyval(TTr,nqNew(i)); % Racunanje Delte za svako Theta
            koraka 1

            end
            D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta

            WHnew(:,i) = Srednja' + D(:,i); % Zbir Srednje jednacine i jednacine
            Delta
            % Srednja jednacina je ista

            % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
            svako nq
            figure(400+i)
            plot(Vnew',WHnew(:,i),'-o'), grid on
            xlabel('V'), ylabel('H'), title('Dijagram V - H za novi n_{q}')
            legend(['n_{q}=',num2str(nqNew(i))])
        end
        % Crtanje svih novih krivih na jednom dijagramu
        figure(500)
        plot(Vnew',WHnew), grid on
        xlabel('V'), ylabel('H'), title('Dijagram V - H za nove n_{q}-ove'), hold on
        legendCell = cellstr(num2str(nqNew', 'n_{q}=%-d'));
        legend(legendCell)

        % Crtanje svih novih kao i realnih dijagrama
        figure(501)
        plot(Vnew',WHnew,'LineWidth',1), grid on
        xlabel('V'), ylabel('H'), title('Dijagram V - H za nove n_{q}-ove'), hold on
        legendCell = cellstr(num2str(nqNew', 'n_{q}=%-d'));
        hold on
        plot(V,H,':k',V1,H1,':b',V2,H2,':g',V3,H3,':c',V4,H4,':m') % Krive sa
        dijagrama 1
        hold on
        title('Dijagram krivih'), xlabel('V [%]'), ylabel('H [%]')
        legendCell1 = {'n_{q}=21';'n_{q}=34';'n_{q}=71';'n_{q}=110';'n_{q}=220'};
        legend([legendCell1; legendCell1])
        xlim([0 140]), ylim([0 200])
        set(gca,'xTick',0:10:150)

```

```

set(gca,'yTick',0:20:200)

% Crtanje svih novih krivih pojedinačno sa dvije krive modela koje se
% nalaze blizu
nqs = sort(nq);
for i = 1:length(nqNew)
    br1 = find(nqNew(i) <= nqs); % traženje nq-a koji je veći
    br1 = br1(1);
    br2 = find(nqs(br1) == nq);
    brv = br2(1); % veći nq od zadatak
    br3 = find(nqs(br1-1) == nq);
    brm = br3(1);
    figure(502+i)
    % uslov za crtanje nq-a koji je veći
    if brv <= 5
        plot(VV(:,brv),HH(:,brv),'-b'), hold on
    elseif brv >= 6
        plot(VV1(:,brv-5),HH1(:,brv-5),'-b'), hold on
    end
    % uslov za crtanje nq-a koji je manji
    if brm <= 5
        plot(VV(:,brm),HH(:,brm),'-r'), hold on
    elseif brm >= 6
        plot(VV1(:,brm-5),HH1(:,brm-5),'-r'), hold on
    end
    % crtaje zadatak nq-a
    plot(Vnew',WHnew(:,i),'-g','LineWidth',2), grid on
    xlabel('V'), ylabel('H'), title('Dijagram V - H za novi n_{q}')
    legend(['n_{q}=',num2str(nqs(br1))],[ 'n_{q}=',num2str(nqs(br1-
1))],[ 'n_{q}=',num2str(nqNew(i))])
    xlim([0 140]), ylim([0 300])
    set(gca,'xTick',0:10:150)
    set(gca,'yTick',0:20:300)
end

%% Crtanje dijagrama sa jednacnom i r^2
clear Vp oo j

for i = 1:length(nq)
    % Racunanje r^2 za svako nq provuceno kroz jednacnu
    % Racunanje jednacine kada ubacimo vrijednosti V i nq u jednacnu

    if i <= 5
        Vp = VV(1:o(i),i); % opseg
        Horg = HH(1:o(i),i);
        for oo = 1:length(Vp) % opseg Theta (od 45 do 270 koraka 1)
            for j = 1:W+1 % opseg koeficijenata u polinomu Ww reda
                TTr(j) = polyval(KoefV(j,:),Vp(oo)); % Racunanje polinoma
                % Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od
                % Theta
            end
            Dor(oo) = polyval(TTr,nq(i)); % Racunanje Delte za svako Theta
        end
        % koraka 1
        Dpr = Dor'; % Pretvaranje matrice Delta u inverznu matricu Delta
        Srn = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;
        Htest = Srn + Dpr; % Zbir Srednje jednacine i jednacine Delta

        SStot1 = sum((Srn-mean(Horg)).^2);
        SSres1 = sum((Srn-Horg).^2);
        R2s(i) = 1-SSres1/SStot1;
    end
end

```

```

    SStot = sum((Htest-mean(Horg)).^2);
    SSres = sum((Htest-Horg).^2);
    R2(i) = 1-SSres/SStot;

elseif i >= 6
    Vp = VV1(1:o(i),i-5); % opseg
    Horg = HH1(1:o(i),i-5);
    for oo = 1:length(Vp) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:W+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(KoefV(j,:),Vp(oo)); % Racunanje polinoma
reda Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od
Theta
        end
        Dor(oo) = polyval(TTr,nq(i)); % Racunanje Delte za svako Theta
koraka 1
    end
    Dpr = Dor'; % Pretvaranje matrice Delta u inverznu matricu Delta
    Srn = p1*Vp.^3 + p2*Vp.^2 + p3*Vp + p4;
    Htest = Srn + Dpr; % Zbir Srednje jednacine i jednacine Delta

    SStot1 = sum((Srn-mean(Horg)).^2);
    SSres1 = sum((Srn-Horg).^2);
    R2s(i) = 1-SSres1/SStot1;

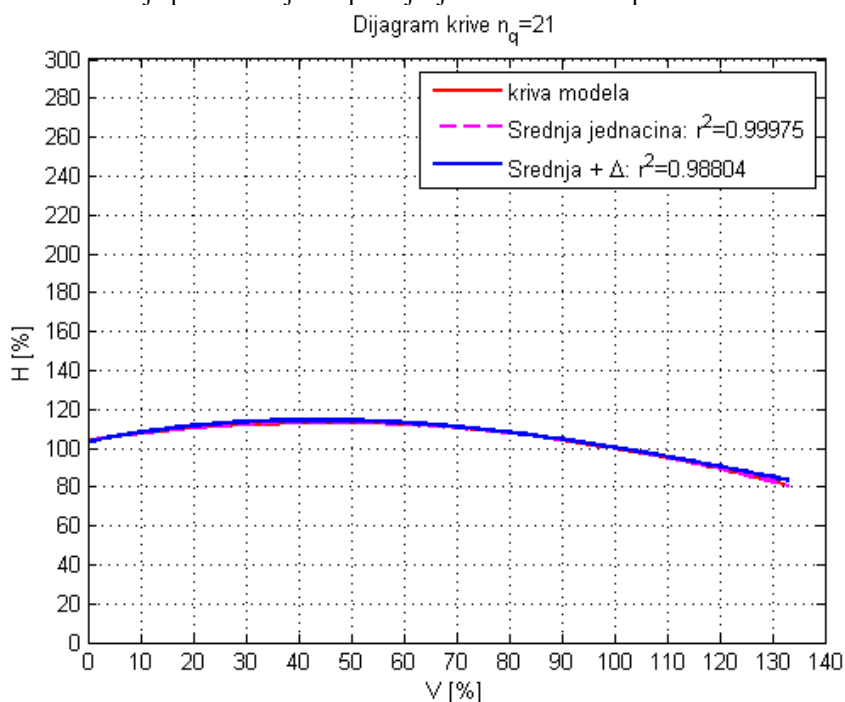
    SStot = sum((Htest-mean(Horg)).^2);
    SSres = sum((Htest-Horg).^2);
    R2(i) = 1-SSres/SStot;
end
figure(600+i)
plot(Vp,Horg,'-r',Vp,Srn,'--m',Vp,Htest,'-b','LineWidth',2), grid on
title(['Dijagram krive n_{q}=',num2str(nq(i))]), xlabel('V [%]'),
ylabel('H [%]')
legend('kriva modela',['Srednja jednacina:
r^{2}=',num2str(R2s(i))],['Srednja + \Delta: r^{2}=',num2str(R2(i))])
xlim([0 140]), ylim([0 300])
set(gca,'xTick',0:10:150)
set(gca,'yTick',0:20:300)

clear Htest Horg Vp oo Dpr Dor TTr Srn r21 r22 SStot SSres SStot1 SSres1
end

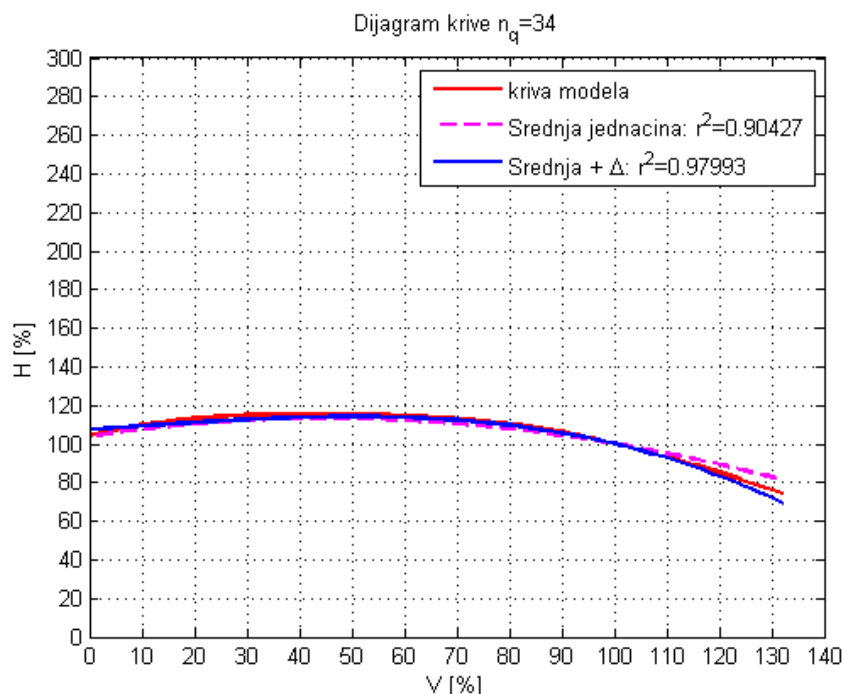
% ispis podataka r^2 za svako nq vezano za srednju krivu i konacnu
% jednacinu
disp(' ')
disp(table(nq',R2s',R2', 'VariableNames',{'nq' 'r2Srednje' 'r2Final'}))

```

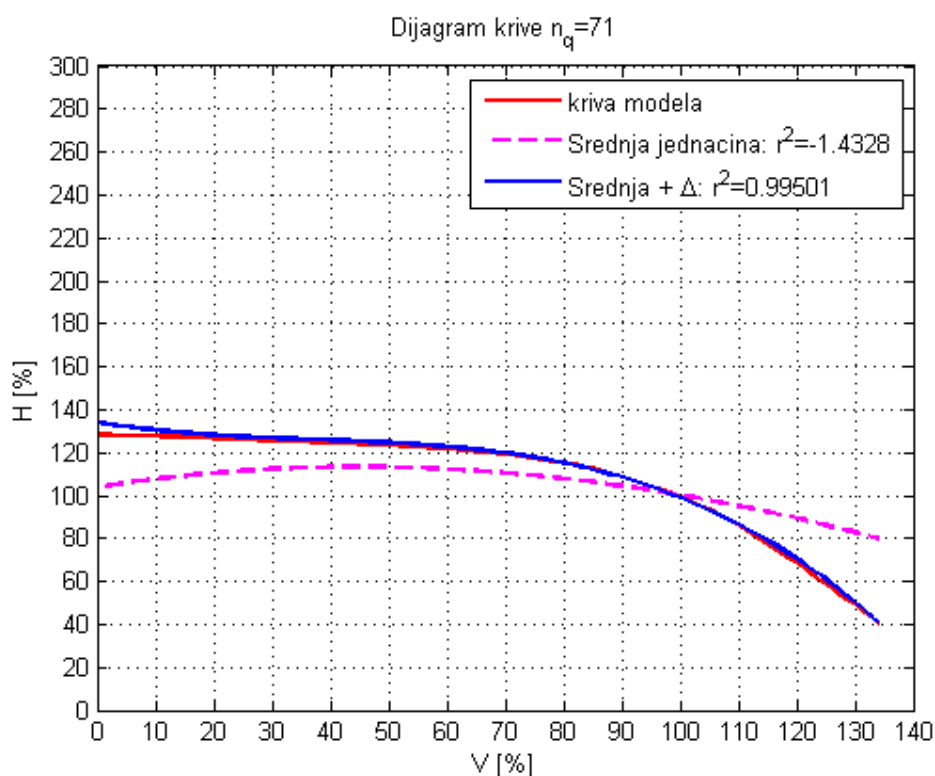
U narednom dijelu teksta prikazan je dio rezultata razvijenog numeričkog modela (4) u programu Matlab na dijagramima sa Slika 73, 74, 75, 76. I može se izvesti sledeći zaključak: da su rezultati dobri i da ohrabljaju da postoji univerzalna analitička zavisnost kojom bi se mogle opisati sve krive sa različitim n_q , da te zavisnosti ne zavise od referentne krive i da je potvrđeno jasno postojanje zavisnosti od n_q .



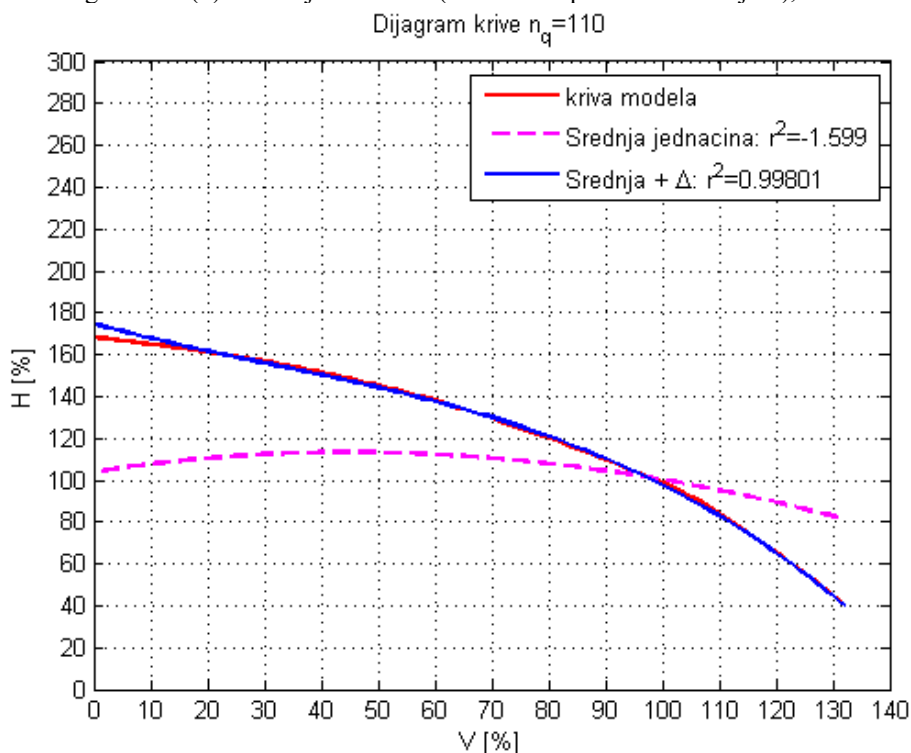
Slika 73. Dijagram sa krivom modela pumpe (krive b (n_q 21) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Pfeleiderer, C. (1961) – *Die Kreiselpumpen für Flüssigkeiten und Gase*, i upoređena sa krivom (n_q 21) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (4) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .



Slika 74. Dijagram sa krivom modela pumpe (krive c (n_q 34) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Pfeleiderer, C. (1961) – *Die Kreiselpumpen für Flüssigkeiten und Gase*, i upoređena sa krivom (n_q 34) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (4) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnošću r^2 .



Slika 75. Dijagram sa krivom modela pumpe (krive d (n_q 71) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Pfeleiderer, C. (1961) – *Die Kreiselpumpen für Flüssigkeiten und Gase*, i upoređena sa krivom (n_q 71) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (4) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .



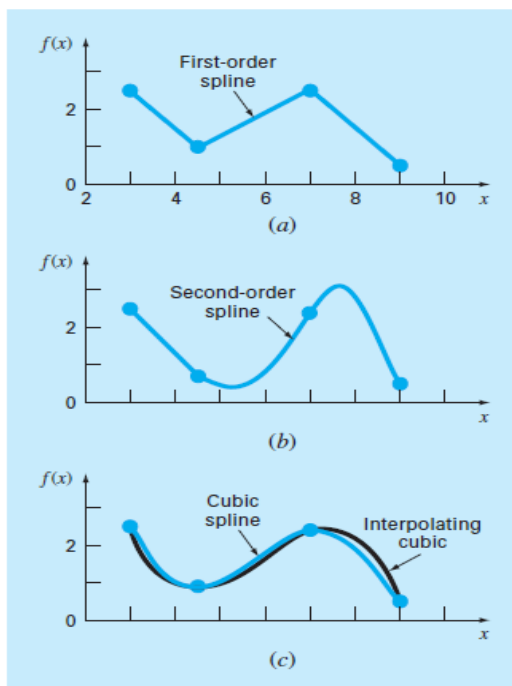
Slika 76. Dijagram sa krivom modela pumpe (krive e (n_q 110) (označena na dijagramu crvenom linijom) dobijena očitavanjem podataka sa originalnog dijagrama iz knjige Pfeleiderer, C. (1961) – *Die Kreiselpumpen für Flüssigkeiten und Gase*, i upoređena sa krivom (n_q 110) (označena plavom linijom) dobijenom iz univerzalne jednačine numeričkog modela (4) i srednjom krivom (označena isprekidanom linijom), sa izračunatom tačnosti r^2 .

Prilozi

Prilog – P5 Interpolacija (splajn)

Kvadratni splajn

Kako bi se osiguralo da su m -ti izvodi neprekidni na čvorovima, mora se koristiti splajn najmanje od $m + 1$ reda. Polinomi trećeg reda ili kubni splajn koje obezbeđuju kontinuirani prvi i drugi izvod se najčešće koriste u praksi. Iako izvodi trećeg i višeg reda mogu biti isprekidani kada se koriste kubni splajnovi, oni obično ne mogu se otkriti vizuelno i samim tim se ignorišu.



Slika 1. Splajn fitovanje - uklapanje kompleta od četiri tačke. (a) Linearni splajn, (b) Kvadratni splajn, i (c) Kubni splajn, sa kubnom interpolacijom polinoma je iscrtan.

Pošto je izvod kubnih splajnova donekle uključen, izabrali smo da ih uključimo u narednom dijelu. Mi smo se odlučili da prvo ilustrujemo koncept interpolacije pomoću splajna drugog reda. Ovi "kvadratni splajnovi" imaju stalne prve izvode na čvorovima. Iako kvadratni splajnovi ne obezbeđuju jednake druge izvode na čvorovima, oni lijepo posluže da se pokaže opšta procedura za razvoj splajnova višeg reda.

Cilj kvadratnog splajna je izvod polinoma drugog reda za svaki interval između podataka tačaka. Polinomi za svaki interval mogu biti predstavljeni generalno kao

$$f_i(x) = a_i x^2 + b_i x + c_i \quad (1)$$

Sl.2 - uključena je da pomogne da se razjasni zapis. Za $n + 1$ podataka tačaka ($i = 0, 1, 2, \dots, n$), nalazi se n intervala i shodno tome, $3n$ nepoznatih konstanti (a 's, b 's, c 's) da se procijene. Stoga, $3n$ jednačina ili uslova koji su propisani za procjenu nepoznatih. Su:

1. Vrijednosti funkcija susjednih polinoma moraju biti jednake na unutrašnjim čvorovima. Ovo stanje se može predstaviti kao

$$a_{i-1}x_{i-1}^2 + b_{i-1}x_{i-1} + c_{i-1} = f(x_{i-1}) \quad (2)$$

$$a_i x_{i-1}^2 + b_i x_{i-1} + c_i = f(x_{i-1}) \quad (3)$$

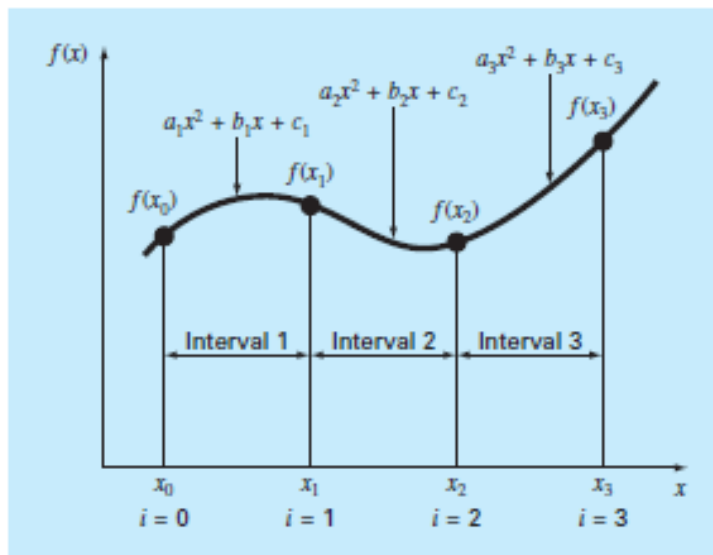
za $i = 2$ do n . Pošto se samo unutrašnji čvorovi koriste, jednačine (2) i (3) svaka pruža $n - 1$ uslova za ukupno $2n - 2$ uslova.

2. Prva i poslednja funkcija moraju da prođu kroz krajnje tačke. Ovo dodaje još dvije dodatne jednačine:

$$a_1x_0^2 + b_1x_0 + c_1 = f(x_0) \quad (4)$$

$$a_nx_n^2 + b_nx_n + c_n = f(x_n) \quad (5)$$

za ukupno $2n - 2 + 2 = 2n$ uslova.



Slika 2. Notacija se koristi za izvođenje kvadratnog splajna. Vidi se da postoji n intervala i $n + 1$ podataka tačaka. Prikazan je primjer za $n = 3$.

3. Prvi izvodi na unutrašnjim čvorovima moraju biti jednaki. Prvi izvod jednačine (1) je

$$f'(x) = 2ax + b$$

Dakle, stanje može biti predstavljeno generalno kao

$$2a_{i-1}x_{i-1} + b_{i-1} = 2a_ix_{i-1} + b_i \quad (6)$$

za $i = 2$ do n . Ovo obezbeđuje druge $n - 1$ uslove za ukupno $2n + n - 1 = 3n - 1$. Zato što imamo $3n$ nepoznatih, mi smo jedan uslov kratki. Osim ako imamo neke dodatne informacije u vezi sa funkcijama ili njihovih izvodima, moramo napraviti proizvoljan izbor za uspješno izračunavanje konstanti. Iako postoji veliki broj različitih izbora koji se mogu napraviti, izdvajamo sledeće:

4. *Pretpostavimo da je drugi izvod nula na prvoj tački.* Pošto je drugi izvod jednačine (1), $2a_i$, ovo stanje može biti izražena matematički kao

$$a_1 = 0 \quad (7)$$

Vizuelno tumačenje ovog stanja je da će prve dve tačke biti povezane pravom linijom.

17 Modela Pumpnih Turbina - Wh i Wm

Klna - nq=17.53 - Otvor - 26.8 °

Theta	Wh	Theta	Wm
37.31148	0.295564	37.31148	0.427432
41.74067	0.396368	41.74067	0.475641
45	0.5	45	0.5
63.22059	0.875669	63.22059	0.552345
75.67185	1.056729	75.67185	0.471464
85.39445	1.175031	85.39445	0.451935
109.3482	1.107526	109.3482	0.340777
119.8481	1.068513	119.8481	0.394528
130.0848	0.986998	130.0848	0.516276
138.4366	0.925444	138.4366	0.626454
142.1935	0.940221	142.1935	0.708782
147.1152	0.892524	147.1152	0.768944
154.8995	0.851285	154.8995	0.890575
159.6836	0.789312	159.6836	0.910745
162.201	0.785829	162.201	0.967174
168.853	0.707235	168.853	0.979248
170.6378	0.693075	170.6378	0.980967
174.6275	0.663553	174.6275	0.974912
177.4247	0.61124	177.4247	0.940369
179.492	0.595055	179.492	0.933779
180.508	0.595055	180.508	0.933779
184.9271	0.558351	184.9271	0.884771
187.747	0.537252	187.747	0.851337
189.5229	0.51793	189.5229	0.812752
191.8429	0.510077	191.8429	0.792581
195.2208	0.509478	195.2208	0.775975
200.5115	0.480011	200.5115	0.731094
203.3177	0.474367	203.3177	0.686008
205.7693	0.456184	205.7693	0.638657
207.3499	0.443773	207.3499	0.600801
210.7299	0.427414	210.7299	0.52276
213.7005	0.414257	213.7005	0.465243
216.6129	0.4004	216.6129	0.41272
218.7844	0.392366	218.7844	0.36822
220.6859	0.388448	220.6859	0.340639
222.5664	0.383756	222.5664	0.309957
224.2231	0.383369	224.2231	0.289001
225.8477	0.386548	225.8477	0.270584
229.0577	0.399292	229.0577	0.215003
231.6787	0.414633	231.6787	0.159474

235.5415	0.441175	235.5415	0.122172
237.5609	0.453766	237.5609	0.090753
241.4144	0.487635	241.4144	0.03751
245.9885	0.53649	245.9885	0
250.1316	0.584745	250.1316	-0.03823
253.8921	0.621784	253.8921	-0.07174
260.4197	0.667515	260.4197	-0.11296
264.7099	0.688541	264.7099	-0.1536
271.7918	0.712753	271.7918	-0.24124
276.2849	0.713185	276.2849	-0.30722
277.1671	0.709214	277.1671	-0.3437
278.4522	0.698037	278.4522	-0.38661
284.7692	0.584885	284.7692	-0.53989
285.9988	0.5023	285.9988	-0.61049
285.5939	0.435368	285.5939	-0.6631

Kina - nq=20.73 - Otvor - 24 mm

Theta	Wh	Theta	Wm
33.10718	0.226375	33.10718	0.362608
35.22942	0.270203	35.22942	0.400182
36.98839	0.308307	36.98839	0.432602
38.96204	0.35337	38.96204	0.467271
40.8988	0.400096	40.8988	0.489616
42.76508	0.446304	42.76508	0.496065
45	0.5	45	0.5
48.30985	0.575185	48.30985	0.521272
53.26504	0.681924	53.26504	0.578033
58.99428	0.798062	58.99428	0.622425
64.24354	0.896777	64.24354	0.609107
71.09365	0.993381	71.09365	0.589537
78.5828	1.053545	78.5828	0.533176
84.60549	1.102874	84.60549	0.435746
91.98234	1.171716	91.98234	0.361622
102.1065	1.182531	102.1065	0.384142
111.7348	1.09627	111.7348	0.40388
120.5018	0.96593	120.5018	0.392001
126.8815	0.921008	126.8815	0.44901
132.4299	0.872333	132.4299	0.506078
137.3053	0.820709	137.3053	0.557796
141.4826	0.778967	141.4826	0.611726
145.1271	0.752092	145.1271	0.672339
148.4993	0.739928	148.4993	0.740499
151.8192	0.741017	151.8192	0.815991
155.2298	0.744487	155.2298	0.890285
158.7844	0.737478	158.7844	0.949402
162.5291	0.72307	162.5291	0.990484
166.5039	0.709166	166.5039	1.016961
170.565	0.692351	170.565	1.027873
174.5649	0.669906	174.5649	1.025161
178.4282	0.645669	178.4282	1.017504
182.1336	0.619469	182.1336	1.00539
185.6924	0.589647	185.6924	0.983431
189.1679	0.556549	189.1679	0.944521
192.4191	0.521445	192.4191	0.900171
195.3996	0.488588	195.3996	0.864629
198.5624	0.47346	198.5624	0.826139
201.2237	0.478889	201.2237	0.788753
203.8281	0.484438	203.8281	0.748172
206.6357	0.483177	206.6357	0.701801
209.5428	0.475746	209.5428	0.65197
212.4491	0.464421	212.4491	0.60091
215.2951	0.451892	215.2951	0.549917
218.0487	0.441184	218.0487	0.49966

220.6925	0.434968	220.6925	0.450563
223.289	0.43309	223.289	0.402951
225.9361	0.434641	225.9361	0.356748
228.6852	0.441292	228.6852	0.312052
231.531	0.456037	231.531	0.268499
234.3557	0.474819	234.3557	0.221683
237.0047	0.490734	237.0047	0.167529
239.6141	0.505369	239.6141	0.108347
242.6275	0.527146	242.6275	0.047783
246.5995	0.566039	246.5995	-0.01087
251.5879	0.621935	251.5879	-0.06774
256.7592	0.676272	256.7592	-0.13669
261.1575	0.713741	261.1575	-0.22523
264.9081	0.738088	264.9081	-0.32416
268.6795	0.756433	268.6795	-0.42639
273.1678	0.771389	273.1678	-0.52579
278.2822	0.775751	278.2822	-0.61531
283.3887	0.761645	283.3887	-0.6894
287.7391	0.728746	287.7391	-0.74591
290.8681	0.686293	290.8681	-0.78846
292.8742	0.645027	292.8742	-0.82461
294.0015	0.609767	294.0015	-0.86014
294.7411	0.579206	294.7411	-0.89417
295.3858	0.551634	295.3858	-0.92532
295.8456	0.527058	295.8456	-0.95476
296.0335	0.505511	296.0335	-0.98354
296.1077	0.485825	296.1077	-1.01056

Kina - nq=24.34 - Otvor - 24 mm

Theta	Wh	Theta	Wm
32.49468	0.206636	32.49468	0.344393
36.50612	0.297388	36.50612	0.416343
45	0.5	45	0.5
86.66713	1.20591	86.66713	0.643152
125.2854	0.995368	125.2854	0.530863
137.3644	0.867384	137.3644	0.607169
146.2655	0.761583	146.2655	0.685424
153.1824	0.684115	153.1824	0.752526
158.7924	0.63337	158.7924	0.785378
163.6181	0.601562	163.6181	0.822135
168.0617	0.575287	168.0617	0.843754
172.2845	0.545236	172.2845	0.854204
180	0.477005	180	0.810909
186.7906	0.422931	186.7906	0.747178
193.1996	0.394316	193.1996	0.688739
199.5096	0.374873	199.5096	0.624789
205.1304	0.34098	205.1304	0.534201
211.2184	0.32505	211.2184	0.444235
214.8343	0.326275	214.8343	0.38283
222.2184	0.323284	222.2184	0.269403
240.6219	0.443095	240.6219	0
274.8562	0.649508	274.8562	-0.32908
283.9423	0.581507	283.9423	-0.54274
292.5857	0.402937	292.5857	-0.73872
297.8331	0.327415	297.8331	-0.80762

USA - nq=24.8 - Otvor - 26 mm

Theta	Wh	Theta	Wm
30	0.1039	30	0.289
31	0.1323	31	0.3158
32	0.1601	32	0.3386
33	0.1873	33	0.3591
34	0.215	34	0.3778
35	0.2392	35	0.3966
36	0.2644	36	0.4147
37	0.2911	37	0.4321
38	0.317	38	0.4491
39	0.3413	39	0.4689
40	0.3653	40	0.4868
41	0.3902	41	0.4958
42	0.4171	42	0.4976
43	0.4454	43	0.4989
44	0.4735	44	0.4997
45	0.5	45	0.5
46	0.5246	46	0.479
47	0.5476	47	0.4474
48	0.5688	48	0.4339
49	0.5887	49	0.4229
50	0.608	50	0.4145
51	0.6272	51	0.4098
52	0.6468	52	0.4094
53	0.6667	53	0.4116
54	0.6867	54	0.4157
55	0.7066	55	0.421
56	0.7263	56	0.4272
57	0.7457	57	0.4336
58	0.7645	58	0.44
59	0.7829	59	0.447
60	0.801	60	0.4551
61	0.8188	61	0.4641
62	0.8363	62	0.4738
63	0.8538	63	0.4842
64	0.871	64	0.495
65	0.8883	65	0.5061
66	0.9054	66	0.5173
67	0.9227	67	0.5286
68	0.9399	68	0.5397
69	0.9574	69	0.5506
70	0.975	70	0.5612
71	0.9923	71	0.5721
72	1.0109	72	0.5839
73	1.0309	73	0.5966
74	1.0513	74	0.6096

75	1.0714	75	0.6226
76	1.0904	76	0.635
77	1.1074	77	0.6464
78	1.1216	78	0.6561
79	1.1321	79	0.6638
80	1.1382	80	0.6689
81	1.1403	81	0.6717
82	1.1421	82	0.6742
83	1.1438	83	0.6767
84	1.1454	84	0.679
85	1.1469	85	0.6813
86	1.1484	86	0.6834
87	1.1497	87	0.6854
88	1.1509	88	0.6873
89	1.1521	89	0.6891
90	1.1532	90	0.6907
91	1.1541	91	0.6923
92	1.1551	92	0.6937
93	1.1559	93	0.6951
94	1.1566	94	0.6963
95	1.1573	95	0.6974
96	1.1579	96	0.6984
97	1.1584	97	0.6993
98	1.1588	98	0.7
99	1.1592	99	0.7007
100	1.1595	100	0.7012
101	1.1598	101	0.7017
102	1.1599	102	0.702
103	1.16	103	0.7022
104	1.1601	104	0.7022
105	1.1596	105	0.7022
106	1.1576	106	0.702
107	1.1543	107	0.7018
108	1.1498	108	0.7014
109	1.1442	109	0.701
110	1.1378	110	0.7005
111	1.1307	111	0.7
112	1.1231	112	0.6995
113	1.115	113	0.699
114	1.1068	114	0.6986
115	1.0985	115	0.6982
116	1.0903	116	0.6978
117	1.0824	117	0.6976
118	1.075	118	0.6975
119	1.0678	119	0.6976
120	1.0604	120	0.6983
121	1.0526	121	0.6994

122	1.0446	122	0.7009
123	1.0365	123	0.7028
124	1.0284	124	0.7049
125	1.0204	125	0.7073
126	1.0125	126	0.7098
127	1.0048	127	0.7124
128	0.9975	128	0.7163
129	0.9903	129	0.7212
130	0.9832	130	0.7267
131	0.9758	131	0.7324
132	0.968	132	0.7378
133	0.9595	133	0.7426
134	0.9499	134	0.7467
135	0.9396	135	0.7506
136	0.9291	136	0.7546
137	0.9193	137	0.7592
138	0.9106	138	0.7649
139	0.9035	139	0.773
140	0.8974	140	0.7843
141	0.8915	141	0.7966
142	0.8851	142	0.8076
143	0.877	143	0.8156
144	0.8668	144	0.8219
145	0.8562	145	0.8277
146	0.847	146	0.8343
147	0.8408	147	0.8432
148	0.8364	148	0.8557
149	0.8327	149	0.8697
150	0.8287	150	0.8829
151	0.8246	151	0.8949
152	0.8204	152	0.9066
153	0.8159	153	0.9178
154	0.8107	154	0.9286
155	0.8049	155	0.9388
156	0.7987	156	0.9493
157	0.7922	157	0.9605
158	0.7853	158	0.9723
159	0.7782	159	0.9838
160	0.7708	160	0.9939
161	0.7627	161	1.0028
162	0.7558	162	1.0119
163	0.7517	163	1.0231
164	0.7488	164	1.0359
165	0.7456	165	1.0452
166	0.7411	166	1.0506
167	0.736	167	1.0545
168	0.7317	168	1.0554

169	0.728	169	1.0554
170	0.7243	170	1.0554
171	0.7201	171	1.0538
172	0.7156	172	1.0488
173	0.7107	173	1.0433
174	0.7052	174	1.0371
175	0.6993	175	1.0304
176	0.6931	176	1.0237
177	0.6864	177	1.0168
178	0.6793	178	1.0097
179	0.6719	179	1.0023
180	0.6641	180	0.9943
181	0.656	181	0.9851
182	0.6475	182	0.975
183	0.6385	183	0.9642
184	0.629	184	0.9527
185	0.6196	185	0.9409
186	0.6102	186	0.9289
187	0.6	187	0.9159
188	0.5885	188	0.9011
189	0.5778	189	0.8881
190	0.5679	190	0.8768
191	0.5601	191	0.87
192	0.5549	192	0.8672
193	0.5496	193	0.864
194	0.5433	194	0.8579
195	0.5367	195	0.8499
196	0.531	196	0.8402
197	0.5253	197	0.8291
198	0.5193	198	0.8155
199	0.513	199	0.8005
200	0.5064	200	0.7844
201	0.4998	201	0.7679
202	0.4933	202	0.7512
203	0.4865	203	0.7336
204	0.4791	204	0.7149
205	0.4714	205	0.695
206	0.4632	206	0.674
207	0.4547	207	0.6532
208	0.4463	208	0.6332
209	0.4386	209	0.6157
210	0.4301	210	0.5967
211	0.4204	211	0.5752
212	0.4141	212	0.556
213	0.4106	213	0.5379
214	0.4104	214	0.5203
215	0.4102	215	0.5024

216	0.4091	216	0.4815
217	0.4069	217	0.4594
218	0.4047	218	0.441
219	0.4022	219	0.4241
220	0.3988	220	0.405
221	0.3949	221	0.3848
222	0.3925	222	0.3665
223	0.3907	223	0.3493
224	0.3888	224	0.3324
225	0.3867	225	0.3158
226	0.3845	226	0.2966
227	0.3841	227	0.2784
228	0.39	228	0.2674
229	0.3986	229	0.256
230	0.4057	230	0.2334
231	0.4124	231	0.2032
232	0.4202	232	0.185
233	0.4287	233	0.17
234	0.4377	234	0.1574
235	0.4471	235	0.1466
236	0.4566	236	0.1367
237	0.4661	237	0.1272
238	0.4755	238	0.1172
239	0.4846	239	0.1061
240	0.4932	240	0.0932
241	0.5014	241	0.078
242	0.5094	242	0.0618
243	0.5169	243	0.0463
244	0.5239	244	0.0322
245	0.5306	245	0.0184
246	0.5372	246	0.0048
247	0.5436	247	-0.0085
248	0.5498	248	-0.0215
249	0.5558	249	-0.0342
250	0.5617	250	-0.0465
251	0.5674	251	-0.0583
252	0.573	252	-0.0698
253	0.5784	253	-0.0808
254	0.5837	254	-0.0913
255	0.5888	255	-0.1013
256	0.594	256	-0.1108
257	0.5994	257	-0.1198
258	0.6048	258	-0.1285
259	0.6101	259	-0.1369
260	0.6153	260	-0.145
261	0.6202	261	-0.1529
262	0.6248	262	-0.1606

263	0.6289	263	-0.1683
264	0.6325	264	-0.1759
265	0.6354	265	-0.1836
266	0.6376	266	-0.1913
267	0.6391	267	-0.1986
268	0.6406	268	-0.2047
269	0.6419	269	-0.2105
270	0.6429	270	-0.2168
271	0.6437	271	-0.2247
272	0.644	272	-0.2351
273	0.6437	273	-0.2546
274	0.6425	274	-0.2925
275	0.6405	275	-0.3401
276	0.6381	276	-0.3877
277	0.6354	277	-0.4259
278	0.6326	278	-0.4489
279	0.6292	279	-0.4653
280	0.6247	280	-0.4803
281	0.6191	281	-0.4987
282	0.6095	282	-0.5266
283	0.5959	283	-0.5538
284	0.5803	284	-0.5793
285	0.5633	285	-0.6047
286	0.5456	286	-0.6314
287	0.5264	287	-0.6598
288	0.5054	288	-0.6889
289	0.4828	289	-0.7182
290	0.4579	290	-0.7477
291	0.4299	291	-0.7777
292	0.3845	292	-0.8366
293	0.3358	293	-0.9151
294	0.279	294	-0.9706
295	0.2089	295	-1.012
296	0.0658	296	-1.0447
297	0.011	297	-1.0724
298	-0.0906	298	-1.0973
299	-0.1347	299	-1.1206
300	-0.1584	300	-1.1431

Kina - nq=26.24 - Otvor - 17.5°

Theta	Wh	Theta	Wm
41.73644	0.380027	41.73644	0.458759
43.12756	0.435401	43.12756	0.47947
43.90289	0.467668	43.90289	0.490104
45	0.5	45	0.5
46.456	0.538132	46.456	0.511481
48.03568	0.580127	48.03568	0.522478
49.74962	0.625003	49.74962	0.531882
51.67059	0.672047	51.67059	0.538842
53.87671	0.719647	53.87671	0.545967
56.32001	0.754528	56.32001	0.557326
59.08353	0.799926	59.08353	0.564158
61.58734	0.85693	61.58734	0.558363
64.31589	0.909889	64.31589	0.550292
67.42633	0.963882	67.42633	0.536188
70.8377	1.009072	70.8377	0.51448
74.2808	1.042081	74.2808	0.485876
77.75987	1.066202	77.75987	0.448958
81.27481	1.082695	81.27481	0.406129
84.97681	1.092516	84.97681	0.361942
89.29054	1.097264	89.29054	0.331657
93.08363	1.100583	93.08363	0.328422
96.15931	1.101526	96.15931	0.334847
99.99172	1.102839	99.99172	0.342698
103.3009	1.105455	103.3009	0.355183
107.0268	1.110528	107.0268	0.379703
110.5687	1.108263	110.5687	0.401223
114.0746	1.098149	114.0746	0.42138
117.7017	1.08326	117.7017	0.448781
121.1129	1.068138	121.1129	0.484561
124.3137	1.05567	124.3137	0.527784
127.3885	1.048427	127.3885	0.579564
130.5542	1.047742	130.5542	0.643865
133.6483	1.052814	133.6483	0.715116
136.3634	1.060089	136.3634	0.781235
139.3431	1.068979	139.3431	0.854229
141.9468	1.076495	141.9468	0.916873
144.7847	1.083418	144.7847	0.981994
147.5249	1.088206	147.5249	1.040416
150.4018	1.093401	150.4018	1.098531
153.0751	1.099434	153.0751	1.151705
155.7562	1.107259	155.7562	1.204083
158.4169	1.113411	158.4169	1.250849
161.073	1.116471	161.073	1.289342
163.9379	1.114292	163.9379	1.319273
166.6194	1.108145	166.6194	1.336919

169.2798	1.097532	169.2798	1.345611
171.9032	1.084038	171.9032	1.347244
174.4824	1.06877	174.4824	1.343444
177.0168	1.052446	177.0168	1.335284
179.5068	1.036408	179.5068	1.324441
182.0883	1.020254	182.0883	1.310902
184.564	1.005137	184.564	1.295752
187.0061	0.988855	187.0061	1.277217
189.4062	0.969832	189.4062	1.254038
191.7447	0.94637	191.7447	1.224909
193.8225	0.919839	193.8225	1.192189
195.9441	0.887281	195.9441	1.152123
197.973	0.85283	197.973	1.108732
199.9272	0.818863	199.9272	1.063845
201.8406	0.787745	201.8406	1.019119
203.8335	0.76005	203.8335	0.973059
205.9588	0.735912	205.9588	0.92486
207.9024	0.716724	207.9024	0.880147
209.7366	0.698907	209.7366	0.835879
211.7581	0.677193	211.7581	0.784879
213.4634	0.654685	213.4634	0.740807
215.1249	0.629029	215.1249	0.6976
216.7959	0.606004	216.7959	0.655763
218.5173	0.592449	218.5173	0.614676
220.4359	0.579197	220.4359	0.567318
222.0514	0.562183	222.0514	0.525073
223.9671	0.551309	223.9671	0.479985
225.8834	0.538872	225.8834	0.435692
227.616	0.527593	227.616	0.397463
229.4078	0.51538	229.4078	0.357236
231.193	0.503687	231.193	0.318321
233.3707	0.508653	233.3707	0.273013
235.5894	0.523472	235.5894	0.229221
237.9565	0.530565	237.9565	0.185597
240.3948	0.538553	240.3948	0.14433
242.8887	0.551909	242.8887	0.107795
245.3966	0.565748	245.3966	0.077418
247.9508	0.581586	247.9508	0.048462
250.5572	0.599034	250.5572	0.023145
253.0637	0.616267	253.0637	0.000519
255.6947	0.640057	255.6947	-0.0206
258.2073	0.662187	258.2073	-0.04164
261.1577	0.685778	261.1577	-0.06964
263.7912	0.703481	263.7912	-0.10142
266.5718	0.724015	266.5718	-0.13283
269.6105	0.744086	269.6105	-0.16766
272.7865	0.754379	272.7865	-0.21715

275.6705	0.746332	275.6705	-0.27585
278.3382	0.72151	278.3382	-0.34202
280.6251	0.688468	280.6251	-0.40683
282.8641	0.649294	282.8641	-0.47771
284.3779	0.608639	284.3779	-0.53221
285.4155	0.569134	285.4155	-0.57832
286.1011	0.528323	286.1011	-0.6137
286.5346	0.495961	286.5346	-0.63857
286.8314	0.466903	286.8314	-0.65767
286.8865	0.441433	286.8865	-0.66088
287.1504	0.329428	287.1504	-0.65936

Srbija - nq=27 - Otvor - 24 mm

Theta	Wh	Theta	Wm
30	0.0907	30	0.2536
31	0.1115	31	0.2734
32	0.1354	32	0.2984
33	0.1586	33	0.3205
34	0.1806	34	0.3436
35	0.2055	35	0.3671
36	0.234	36	0.3953
37	0.2649	37	0.4136
38	0.3027	38	0.4256
39	0.3381	39	0.4361
40	0.3721	40	0.4465
41	0.3989	41	0.4613
42	0.423	42	0.477
43	0.4479	43	0.4879
44	0.474	44	0.4942
45	0.5	45	0.5
46	0.5251	46	0.5081
47	0.5499	47	0.5164
48	0.5759	48	0.5207
49	0.6041	49	0.5024
50	0.6372	50	0.4618
51	0.6701	51	0.4214
52	0.7001	52	0.3908
53	0.7275	53	0.3687
54	0.7505	54	0.3674
55	0.7733	55	0.3684
56	0.7961	56	0.3703
57	0.8189	57	0.3728
58	0.8414	58	0.3759
59	0.8637	59	0.3795
60	0.8854	60	0.3835
61	0.9065	61	0.3878
62	0.9269	62	0.3923
63	0.9464	63	0.3968
64	0.965	64	0.4013
65	0.9824	65	0.4058
66	0.9985	66	0.41
67	1.0133	67	0.4139
68	1.0266	68	0.4174
69	1.0382	69	0.4205
70	1.0481	70	0.4229
71	1.056	71	0.4246
72	1.0619	72	0.4256
73	1.0659	73	0.4257
74	1.0694	74	0.4257

75	1.0729	75	0.4256
76	1.0762	76	0.4254
77	1.0795	77	0.4253
78	1.0826	78	0.4251
79	1.0856	79	0.4248
80	1.0885	80	0.4245
81	1.0913	81	0.4242
82	1.0941	82	0.4238
83	1.0966	83	0.4234
84	1.0991	84	0.4229
85	1.1015	85	0.4224
86	1.1038	86	0.4219
87	1.1059	87	0.4213
88	1.1079	88	0.4207
89	1.1099	89	0.42
90	1.1117	90	0.4193
91	1.1133	91	0.4185
92	1.1149	92	0.4178
93	1.1164	93	0.4169
94	1.1177	94	0.4161
95	1.1189	95	0.4151
96	1.12	96	0.4142
97	1.121	97	0.4132
98	1.1218	98	0.4122
99	1.1225	99	0.4111
100	1.1231	100	0.41
101	1.1236	101	0.4088
102	1.124	102	0.4076
103	1.1242	103	0.4064
104	1.1243	104	0.4051
105	1.1241	105	0.4032
106	1.1234	106	0.3997
107	1.1221	107	0.395
108	1.1203	108	0.3899
109	1.1183	109	0.385
110	1.116	110	0.381
111	1.1136	111	0.3786
112	1.1111	112	0.3782
113	1.1078	113	0.3785
114	1.1038	114	0.3792
115	1.0991	115	0.3802
116	1.094	116	0.3814
117	1.0886	117	0.3828
118	1.0831	118	0.3843
119	1.0777	119	0.3858
120	1.0725	120	0.3874
121	1.0673	121	0.3893

122	1.0622	122	0.3915
123	1.0569	123	0.3941
124	1.0515	124	0.397
125	1.0457	125	0.4002
126	1.0396	126	0.4038
127	1.033	127	0.4077
128	1.0259	128	0.4119
129	1.018	129	0.4171
130	1.0092	130	0.4236
131	0.9998	131	0.431
132	0.9897	132	0.4391
133	0.9792	133	0.4477
134	0.9682	134	0.4566
135	0.957	135	0.4654
136	0.9456	136	0.4739
137	0.9333	137	0.4824
138	0.9199	138	0.491
139	0.9061	139	0.5
140	0.8922	140	0.5093
141	0.879	141	0.5191
142	0.8667	142	0.5296
143	0.8549	143	0.5416
144	0.8435	144	0.5542
145	0.8324	145	0.5664
146	0.8215	146	0.577
147	0.8108	147	0.5862
148	0.8002	148	0.5945
149	0.7899	149	0.6024
150	0.7802	150	0.6104
151	0.7711	151	0.6187
152	0.7624	152	0.6272
153	0.7538	153	0.6355
154	0.7459	154	0.6442
155	0.7391	155	0.6534
156	0.7338	156	0.6636
157	0.7299	157	0.6759
158	0.7269	158	0.6896
159	0.7238	159	0.7033
160	0.72	160	0.7156
161	0.7148	161	0.7265
162	0.708	162	0.7381
163	0.7	163	0.7482
164	0.6912	164	0.7544
165	0.682	165	0.7556
166	0.6715	166	0.7558
167	0.6599	167	0.756
168	0.6478	168	0.7561

169	0.6354	169	0.7561
170	0.6229	170	0.7556
171	0.6098	171	0.7526
172	0.5962	172	0.7476
173	0.5826	173	0.7415
174	0.5694	174	0.7354
175	0.5567	175	0.7297
176	0.5439	176	0.7234
177	0.5313	177	0.7166
178	0.519	178	0.7095
179	0.5075	179	0.7025
180	0.4969	180	0.6957
181	0.4871	181	0.6892
182	0.4777	182	0.6828
183	0.4687	183	0.6765
184	0.4601	184	0.6702
185	0.4519	185	0.6639
186	0.4441	186	0.6574
187	0.4367	187	0.6509
188	0.4296	188	0.6441
189	0.4232	189	0.6372
190	0.4174	190	0.6301
191	0.4117	191	0.6227
192	0.4057	192	0.6148
193	0.3989	193	0.6061
194	0.393	194	0.5971
195	0.3881	195	0.5884
196	0.3837	196	0.5795
197	0.3795	197	0.5703
198	0.3755	198	0.5608
199	0.3717	199	0.5511
200	0.3681	200	0.5414
201	0.3646	201	0.5313
202	0.3611	202	0.5208
203	0.3574	203	0.5098
204	0.3536	204	0.4981
205	0.3492	205	0.4854
206	0.3438	206	0.4708
207	0.3384	207	0.4553
208	0.3341	208	0.44
209	0.3317	209	0.426
210	0.33	210	0.4126
211	0.329	211	0.3997
212	0.3291	212	0.3874
213	0.3299	213	0.3758
214	0.3305	214	0.3637
215	0.33	215	0.3501

216	0.3291	216	0.3359
217	0.329	217	0.3232
218	0.3293	218	0.3122
219	0.3296	219	0.3002
220	0.3294	220	0.2833
221	0.3292	221	0.2645
222	0.3304	222	0.251
223	0.3333	223	0.2392
224	0.3365	224	0.2269
225	0.3406	225	0.2144
226	0.3451	226	0.2025
227	0.3502	227	0.1917
228	0.3559	228	0.1805
229	0.362	229	0.1666
230	0.3689	230	0.1524
231	0.3767	231	0.1442
232	0.3859	232	0.1397
233	0.3955	233	0.1361
234	0.4047	234	0.1303
235	0.4124	235	0.1153
236	0.4193	236	0.0782
237	0.4295	237	0.0642
238	0.4411	238	0.0545
239	0.4526	239	0.0445
240	0.4636	240	0.0332
241	0.4746	241	0.022
242	0.4857	242	0.0113
243	0.497	243	0.0014
244	0.5084	244	-0.0073
245	0.5199	245	-0.0152
246	0.5314	246	-0.0224
247	0.5431	247	-0.0294
248	0.5549	248	-0.0364
249	0.5669	249	-0.0439
250	0.5789	250	-0.0521
251	0.5911	251	-0.0613
252	0.6037	252	-0.0713
253	0.6166	253	-0.0819
254	0.6295	254	-0.0935
255	0.6425	255	-0.1062
256	0.6552	256	-0.1202
257	0.6676	257	-0.1358
258	0.6806	258	-0.1573
259	0.6934	259	-0.1823
260	0.7043	260	-0.2049
261	0.7121	261	-0.2209
262	0.7195	262	-0.2348

263	0.7266	263	-0.2474
264	0.7331	264	-0.2589
265	0.7387	265	-0.2694
266	0.7431	266	-0.2792
267	0.7462	267	-0.2883
268	0.7477	268	-0.2968
269	0.7477	269	-0.3047
270	0.7477	270	-0.3113
271	0.7477	271	-0.3168
272	0.7476	272	-0.3217
273	0.7476	273	-0.3261
274	0.7475	274	-0.3306
275	0.7475	275	-0.3354
276	0.7474	276	-0.3408
277	0.7474	277	-0.3472
278	0.7473	278	-0.3549
279	0.7473	279	-0.3643
280	0.7473	280	-0.3757
281	0.7475	281	-0.3934
282	0.7478	282	-0.4255
283	0.7467	283	-0.5173
284	0.7418	284	-0.5611
285	0.7347	285	-0.5872
286	0.7273	286	-0.609
287	0.719	287	-0.637
288	0.7094	288	-0.7192
289	0.6959	289	-0.7334
290	0.6815	290	-0.7405
291	0.6692	291	-0.7479
292	0.6583	292	-0.7536
293	0.6476	293	-0.7593
294	0.636	294	-0.7672
295	0.6237	295	-0.7785
296	0.6097	296	-0.7991
297	0.5905	297	-0.843
298	0.5628	298	-0.862
299	0.5288	299	-0.8828
300	0.2942	300	-0.90545

USA - nq=28.6 - Otvor - 18°

Theta	Wh	Theta	Wm
30	0.127	30	0.2608
31	0.1472	31	0.2915
32	0.169	32	0.3392
33	0.1947	33	0.3633
34	0.2176	34	0.3814
35	0.2413	35	0.3911
36	0.2575	36	0.4013
37	0.2846	37	0.4118
38	0.3105	38	0.4226
39	0.3359	39	0.4335
40	0.3629	40	0.4444
41	0.3906	41	0.4573
42	0.4178	42	0.4691
43	0.4452	43	0.4798
44	0.4726	44	0.4901
45	0.5	45	0.5
46	0.5272	46	0.5096
47	0.5543	47	0.5187
48	0.5813	48	0.5275
49	0.6084	49	0.536
50	0.6345	50	0.5426
51	0.6596	51	0.5465
52	0.6834	52	0.5496
53	0.7054	53	0.5541
54	0.7263	54	0.5606
55	0.7465	55	0.5686
56	0.7662	56	0.5777
57	0.7853	57	0.5873
58	0.804	58	0.5971
59	0.8223	59	0.6064
60	0.8402	60	0.6148
61	0.858	61	0.6218
62	0.8756	62	0.627
63	0.8932	63	0.6299
64	0.9109	64	0.6296
65	0.9293	65	0.6244
66	0.9481	66	0.6153
67	0.9667	67	0.6031
68	0.9845	68	0.5893
69	1.0011	69	0.5748
70	1.0159	70	0.5608
71	1.0284	71	0.5485
72	1.0385	72	0.5382
73	1.0482	73	0.5277
74	1.0578	74	0.5167

75	1.0671	75	0.5054
76	1.0761	76	0.4938
77	1.0849	77	0.482
78	1.0934	78	0.4702
79	1.1016	79	0.4584
80	1.1095	80	0.4468
81	1.117	81	0.4355
82	1.1241	82	0.4244
83	1.1308	83	0.4139
84	1.1371	84	0.4038
85	1.1429	85	0.3945
86	1.1483	86	0.3858
87	1.1532	87	0.378
88	1.1575	88	0.3712
89	1.1614	89	0.3654
90	1.1646	90	0.3608
91	1.1673	91	0.3574
92	1.1693	92	0.3554
93	1.1708	93	0.3548
94	1.1717	94	0.3556
95	1.1724	95	0.3576
96	1.1729	96	0.3602
97	1.1736	97	0.3633
98	1.1746	98	0.3664
99	1.1766	99	0.3698
100	1.1796	100	0.3739
101	1.1815	101	0.3779
102	1.1827	102	0.3816
103	1.1834	103	0.3852
104	1.1832	104	0.3887
105	1.182	105	0.3921
106	1.1804	106	0.3955
107	1.1783	107	0.3988
108	1.1755	108	0.4022
109	1.1724	109	0.4054
110	1.1686	110	0.4086
111	1.1645	111	0.4118
112	1.1603	112	0.4151
113	1.1557	113	0.4184
114	1.1509	114	0.4218
115	1.146	115	0.4254
116	1.141	116	0.4294
117	1.1361	117	0.4337
118	1.1312	118	0.4385
119	1.1263	119	0.4438
120	1.1214	120	0.4498
121	1.1166	121	0.4565

122	1.1119	122	0.4639
123	1.1073	123	0.4722
124	1.1029	124	0.4814
125	1.0989	125	0.4914
126	1.095	126	0.5021
127	1.0904	127	0.5123
128	1.0849	128	0.5221
129	1.0796	129	0.5324
130	1.074	130	0.5432
131	1.07	131	0.5555
132	1.0679	132	0.5705
133	1.0661	133	0.5864
134	1.0644	134	0.6025
135	1.062	135	0.618
136	1.0587	136	0.6328
137	1.0553	137	0.6477
138	1.0519	138	0.663
139	1.0491	139	0.6792
140	1.0461	140	0.6954
141	1.043	141	0.7115
142	1.0399	142	0.728
143	1.0366	143	0.7445
144	1.0331	144	0.7611
145	1.0293	145	0.7775
146	1.0253	146	0.7938
147	1.0211	147	0.8098
148	1.0178	148	0.827
149	1.0148	149	0.8443
150	1.0119	150	0.8616
151	1.0092	151	0.8792
152	1.0061	152	0.8961
153	1.0038	153	0.9131
154	1.0022	154	0.9302
155	1.0012	155	0.9467
156	1.0015	156	0.9643
157	1.0012	157	0.9809
158	1.0001	158	0.996
159	0.9981	159	1.0098
160	0.9951	160	1.0224
161	0.991	161	1.0338
162	0.986	162	1.0442
163	0.9808	163	1.0546
164	0.9749	164	1.0646
165	0.9682	165	1.0742
166	0.9611	166	1.0833
167	0.953	167	1.0912
168	0.9441	168	1.0976

169	0.9344	169	1.102
170	0.9236	170	1.1033
171	0.9113	171	1.1026
172	0.8992	172	1.1017
173	0.8896	173	1.102
174	0.882	174	1.1026
175	0.876	175	1.1028
176	0.87	176	1.1018
177	0.8641	177	1.1004
178	0.8569	178	1.0962
179	0.8489	179	1.0904
180	0.8398	180	1.0825
181	0.83	181	1.0727
182	0.8194	182	1.0612
183	0.8095	183	1.0506
184	0.8008	184	1.0419
185	0.7932	185	1.0358
186	0.785	186	1.0298
187	0.7765	187	1.0228
188	0.766	188	1.0115
189	0.7552	189	0.9994
190	0.7446	190	0.9872
191	0.7359	191	0.977
192	0.7279	192	0.9665
193	0.7204	193	0.9563
194	0.713	194	0.946
195	0.7059	195	0.9358
196	0.6991	196	0.9257
197	0.6925	197	0.9159
198	0.6865	198	0.9066
199	0.6804	199	0.8968
200	0.6742	200	0.8855
201	0.6673	201	0.8721
202	0.6599	202	0.8572
203	0.6524	203	0.8414
204	0.6449	204	0.8251
205	0.6379	205	0.809
206	0.6306	206	0.7924
207	0.6229	207	0.7751
208	0.6145	208	0.7554
209	0.6058	209	0.7338
210	0.5973	210	0.7117
211	0.5897	211	0.6905
212	0.5827	212	0.6704
213	0.5756	213	0.6498
214	0.5684	214	0.6285
215	0.5609	215	0.6067

216	0.5536	216	0.585
217	0.5471	217	0.5647
218	0.5418	218	0.5458
219	0.5372	219	0.5277
220	0.5331	220	0.5096
221	0.5287	221	0.4907
222	0.5244	222	0.4709
223	0.5208	223	0.451
224	0.5175	224	0.4305
225	0.5145	225	0.4092
226	0.5116	226	0.3872
227	0.5086	227	0.3641
228	0.5052	228	0.3396
229	0.5022	229	0.3137
230	0.501	230	0.2883
231	0.5023	231	0.2665
232	0.5052	232	0.2464
233	0.5093	233	0.2278
234	0.5142	234	0.2103
235	0.5195	235	0.1935
236	0.525	236	0.177
237	0.531	237	0.1609
238	0.5372	238	0.1453
239	0.5439	239	0.1301
240	0.5508	240	0.1152
241	0.5576	241	0.1
242	0.5644	242	0.0841
243	0.5711	243	0.0667
244	0.5784	244	0.0499
245	0.5862	245	0.0388
246	0.5943	246	0.0285
247	0.6024	247	0.013
248	0.6104	248	-0.0062
249	0.6184	249	-0.0278
250	0.6265	250	-0.0501
251	0.6345	251	-0.0718
252	0.6425	252	-0.0915
253	0.6505	253	-0.1077
254	0.6586	254	-0.1189
255	0.6667	255	-0.1255
256	0.6753	256	-0.1343
257	0.6844	257	-0.145
258	0.6942	258	-0.1565
259	0.7047	259	-0.1707
260	0.7153	260	-0.1868
261	0.726	261	-0.2033
262	0.7362	262	-0.2193

263	0.7463	263	-0.2342
264	0.7562	264	-0.2488
265	0.7656	265	-0.263
266	0.7741	266	-0.2769
267	0.782	267	-0.2906
268	0.7896	268	-0.3041
269	0.7964	269	-0.3171
270	0.8021	270	-0.3297
271	0.8063	271	-0.3414
272	0.809	272	-0.352
273	0.8101	273	-0.3598
274	0.8099	274	-0.3642
275	0.8092	275	-0.3728
276	0.8065	276	-0.4036
277	0.8026	277	-0.4192
278	0.7971	278	-0.4227
279	0.7904	279	-0.4295
280	0.7818	280	-0.4414
281	0.7713	281	-0.4597
282	0.7591	282	-0.4837
283	0.7455	283	-0.5109
284	0.7308	284	-0.5392
285	0.714	285	-0.5691
286	0.6954	286	-0.6012
287	0.6756	287	-0.6349
288	0.6544	288	-0.6699
289	0.6318	289	-0.7056
290	0.6087	290	-0.7335
291	0.5845	291	-0.7636
292	0.5452	292	-0.9226
293	0.5047	293	-0.9752
294	0.4615	294	-1.0201
295	0.4129	295	-1.0646
296	0.3545	296	-1.1128
297	0.2881	297	-1.1692
298	0.2229	298	-1.2223
299	0.1546	299	-1.2552
300	0.0925	300	-1.277

Kina - nq=30.95 - Otvor - 20°

Theta	Wh	Theta	Wm
28.45026	0.080601	28.45026	0.230652
35.60986	0.252872	35.60986	0.384852
36.40193	0.27884	36.40193	0.405733
38.36114	0.331813	38.36114	0.43514
41.08762	0.401539	41.08762	0.479026
45	0.5	45	0.5
50.75332	0.62266	50.75332	0.595347
58.41068	0.753334	58.41068	0.703767
66.99322	0.890825	66.99322	0.718909
75.18373	1.001671	75.18373	0.571126
86.335	1.074251	86.335	0.546547
95.29605	1.097519	95.29605	0.409161
105.2741	1.100667	105.2741	0.376542
109.457	1.102893	109.457	0.430513
115.454	1.07721	115.454	0.458285
121.7528	1.042493	121.7528	0.516672
128.5251	1.00552	128.5251	0.613012
134.0344	0.984778	134.0344	0.704027
140.0698	0.956328	140.0698	0.81791
146.1575	0.925323	146.1575	0.868499
152.9141	0.900302	152.9141	0.967429
159.369	0.899467	159.369	1.065152
165.7094	0.922739	165.7094	1.165558
171.5311	0.905117	171.5311	1.175061
178.1853	0.864642	178.1853	1.164226
183.2051	0.815351	183.2051	1.127866
184.9217	0.799102	184.9217	1.114535
186.6285	0.788058	186.6285	1.102588
189.3535	0.7655	189.3535	1.081094
191.8458	0.741505	191.8458	1.043953
194.4016	0.71511	194.4016	1.003662
196.7822	0.693371	196.7822	0.964027
199.0171	0.676116	199.0171	0.934105
201.1935	0.65757	201.1935	0.896945
202.9681	0.636366	202.9681	0.856856
204.7673	0.618924	204.7673	0.822512
207.1277	0.594596	207.1277	0.771929
209.6032	0.571843	209.6032	0.719816
211.5327	0.553775	211.5327	0.680073
213.2983	0.532518	213.2983	0.637617
215.099	0.510248	215.099	0.590813
217.2425	0.494424	217.2425	0.546466
219.0315	0.48195	219.0315	0.505201
221.207	0.47421	221.207	0.461729
223.5201	0.462653	223.5201	0.405834

226.14	0.4557	226.14	0.351767
228.7153	0.447076	228.7153	0.296089
232.9523	0.467601	232.9523	0.205087
236.513	0.489584	236.513	0.154605
241.371	0.525756	241.371	0.08532
244.9645	0.554525	244.9645	0.014593
249.6831	0.597092	249.6831	0
253.6492	0.638091	253.6492	-0.01959
257.8398	0.679668	257.8398	-0.0626
260.6199	0.707024	260.6199	-0.09923
264.3657	0.734744	264.3657	-0.13212
274.5199	0.800008	274.5199	-0.29474
281.9742	0.733237	281.9742	-0.47918
285.4929	0.653635	285.4929	-0.56189
287.6288	0.583467	287.6288	-0.62697
290.0923	0.51184	290.0923	-0.69817
292.4308	0.430573	292.4308	-0.78858
294.1301	0.367885	294.1301	-0.85132
295.4182	0.320891	295.4182	-0.88754
296.8385	0.270639	296.8385	-0.91333

Kina - nq=35.89 - Otvor - 33 mm

Theta	Wh	Theta	Wm
30.41389	0.11323	30.41389	0.243953
38.04442	0.295982	38.04442	0.390835
39.0241	0.324976	39.0241	0.408521
40.27214	0.360044	40.27214	0.430217
41.66599	0.398458	41.66599	0.451534
43.30925	0.445888	43.30925	0.474626
45	0.5	45	0.5
47.35201	0.570562	47.35201	0.528102
56.35578	0.737899	56.35578	0.59222
57.98617	0.773356	57.98617	0.60197
53.8126	0.703594	53.8126	0.579994
60.0894	0.813736	60.0894	0.610509
55.18753	0.731896	55.18753	0.584816
62.26217	0.857386	62.26217	0.616673
63.39676	0.881783	63.39676	0.617989
63.88125	0.892704	63.88125	0.625674
66.24939	0.934387	66.24939	0.614362
70.71819	0.996889	70.71819	0.594949
71.52901	1.011834	71.52901	0.592819
89.80252	1.203432	89.80252	0.518631
100.5747	1.280527	100.5747	0.579819
109.2787	1.300936	109.2787	0.628075
116.6625	1.267254	116.6625	0.651005
123.8601	1.184805	123.8601	0.657748
128.1297	1.168456	128.1297	0.712432
136.1686	1.146194	136.1686	0.845191
143.3567	1.116337	143.3567	0.954064
149.9639	1.093857	149.9639	1.061481
156.3381	1.057513	156.3381	1.133511
162.5598	1.018628	162.5598	1.186444
168.3579	1.012283	168.3579	1.22219
197.2233	0.653808	197.2233	0.930909
200.0172	0.631262	200.0172	0.899115
202.5081	0.606041	202.5081	0.847362
204.6282	0.569166	204.6282	0.791383
206.0521	0.559239	206.0521	0.768033
208.8421	0.532318	208.8421	0.70375
211.1749	0.507265	211.1749	0.650595
212.6845	0.492058	212.6845	0.616534
213.2948	0.476547	213.2948	0.588569
214.5188	0.466451	214.5188	0.565229
215.9694	0.460795	215.9694	0.539548
217.5186	0.454366	217.5186	0.504581
219.4551	0.442179	219.4551	0.459028
221.4182	0.430298	221.4182	0.417388

222.4129	0.42287	222.4129	0.394821
223.0541	0.418496	223.0541	0.381145
225.2814	0.412503	225.2814	0.338801
229.0298	0.403067	229.0298	0.258551
229.7233	0.403521	229.7233	0.24296
232.3827	0.416968	232.3827	0.196275
239.7488	0.4792	239.7488	0.08278
248.8982	0.558631	248.8982	-0.03225
260.1349	0.651953	260.1349	-0.15849
261.7349	0.665515	261.7349	-0.34662
265.4451	0.682739	265.4451	-0.22827
267.9806	0.696577	267.9806	-0.25896
271.4196	0.709362	271.4196	-0.30302
275.2905	0.706691	275.2905	-0.36933
278.4387	0.674588	278.4387	-0.44155
285.9844	0.533664	285.9844	-0.63921
287.5405	0.487864	287.5405	-0.6864
288.1915	0.480581	288.1915	-0.69249
288.4448	0.475508	288.4448	-0.697
288.6955	0.470496	288.6955	-0.70136
293.8731	0.36945	293.8731	-0.76571

Kina - nq=38 - Otvor - 24°

Theta	Wh	Theta	Wm
30	0.0341	30	0.2479
31	0.0614	31	0.2643
32	0.0921	32	0.2834
33	0.1586	33	0.3173
34	0.1986	34	0.3428
35	0.229	35	0.362
36	0.2569	36	0.3796
37	0.2836	37	0.3965
38	0.3108	38	0.4125
39	0.3381	39	0.4276
40	0.3652	40	0.442
41	0.3923	41	0.4559
42	0.4189	42	0.4686
43	0.4449	43	0.4795
44	0.4719	44	0.4899
45	0.5	45	0.5
46	0.5278	46	0.5097
47	0.554	47	0.5185
48	0.5784	48	0.5264
49	0.6011	49	0.5336
50	0.622	50	0.5405
51	0.6424	51	0.5471
52	0.6627	52	0.5536
53	0.6833	53	0.5584
54	0.7044	54	0.5618
55	0.7249	55	0.5628
56	0.7448	56	0.5632
57	0.7641	57	0.563
58	0.7827	58	0.5623
59	0.8007	59	0.5615
60	0.8181	60	0.5605
61	0.8351	61	0.5592
62	0.8516	62	0.5575
63	0.8678	63	0.5553
64	0.8839	64	0.5526
65	0.9	65	0.5492
66	0.9162	66	0.5453
67	0.9327	67	0.5406
68	0.9488	68	0.5352
69	0.9644	69	0.5291
70	0.9793	70	0.5222
71	0.9925	71	0.5149
72	1.0043	72	0.5069
73	1.0151	73	0.4986
74	1.0251	74	0.4908

75	1.0342	75	0.483
76	1.0429	76	0.4759
77	1.0517	77	0.4698
78	1.0603	78	0.4643
79	1.0689	79	0.4595
80	1.0777	80	0.4556
81	1.0873	81	0.4529
82	1.0965	82	0.4502
83	1.1042	83	0.4463
84	1.1113	84	0.4395
85	1.1174	85	0.4303
86	1.1213	86	0.4202
87	1.1231	87	0.4073
88	1.1243	88	0.3923
89	1.1258	89	0.381
90	1.1296	90	0.3765
91	1.1358	91	0.374
92	1.14	92	0.3705
93	1.139	93	0.3583
94	1.1348	94	0.3331
95	1.13	95	0.3128
96	1.1262	96	0.3072
97	1.1224	97	0.3036
98	1.1188	98	0.3012
99	1.1154	99	0.3006
100	1.1119	100	0.3018
101	1.1084	101	0.3044
102	1.1059	102	0.3076
103	1.1048	103	0.3113
104	1.104	104	0.3162
105	1.1035	105	0.3221
106	1.1033	106	0.3283
107	1.1038	107	0.3354
108	1.1046	108	0.3431
109	1.1051	109	0.3506
110	1.1046	110	0.3575
111	1.103	111	0.3642
112	1.1006	112	0.3705
113	1.0979	113	0.3762
114	1.0938	114	0.3813
115	1.0888	115	0.3862
116	1.0836	116	0.3915
117	1.0779	117	0.3971
118	1.0719	118	0.403
119	1.0658	119	0.4097
120	1.0598	120	0.4179
121	1.0538	121	0.4273

122	1.0479	122	0.437
123	1.0421	123	0.4466
124	1.0363	124	0.4565
125	1.0307	125	0.4667
126	1.0252	126	0.4773
127	1.0198	127	0.4883
128	1.0151	128	0.5003
129	1.0112	129	0.5138
130	1.0077	130	0.5284
131	1.0042	131	0.5434
132	1.0007	132	0.5588
133	0.9973	133	0.5746
134	0.9941	134	0.591
135	0.9911	135	0.6078
136	0.9879	136	0.6244
137	0.9842	137	0.6406
138	0.9803	138	0.6566
139	0.9762	139	0.6724
140	0.972	140	0.688
141	0.9676	141	0.7034
142	0.9629	142	0.7183
143	0.9579	143	0.7329
144	0.9528	144	0.7474
145	0.9477	145	0.7616
146	0.9425	146	0.7757
147	0.9372	147	0.7896
148	0.932	148	0.8033
149	0.9268	149	0.817
150	0.9218	150	0.8307
151	0.917	151	0.8446
152	0.9127	152	0.8589
153	0.9086	153	0.8733
154	0.9046	154	0.8876
155	0.9008	155	0.902
156	0.8971	156	0.9163
157	0.8937	157	0.9306
158	0.8903	158	0.9446
159	0.8868	159	0.9582
160	0.8834	160	0.9714
161	0.8796	161	0.9836
162	0.8757	162	0.9952
163	0.8715	163	1.0059
164	0.8673	164	1.0161
165	0.8627	165	1.0251
166	0.8573	166	1.032
167	0.8512	167	1.0379
168	0.8446	168	1.0419

169	0.8374	169	1.0447
170	0.8299	170	1.0465
171	0.8222	171	1.0466
172	0.8144	172	1.0463
173	0.8064	173	1.0457
174	0.7978	174	1.0434
175	0.789	175	1.0395
176	0.7806	176	1.0357
177	0.7724	177	1.0315
178	0.7644	178	1.0271
179	0.7568	179	1.0226
180	0.7493	180	1.0178
181	0.7408	181	1.0124
182	0.731	182	1.0062
183	0.7205	183	0.9994
184	0.7091	184	0.9914
185	0.6974	185	0.9825
186	0.6866	186	0.9731
187	0.6762	187	0.9632
188	0.6669	188	0.9533
189	0.6585	189	0.9433
190	0.651	190	0.9334
191	0.6446	191	0.9241
192	0.6389	192	0.9151
193	0.6338	193	0.9059
194	0.6292	194	0.8969
195	0.6241	195	0.8869
196	0.6178	196	0.875
197	0.6107	197	0.8615
198	0.6027	198	0.8466
199	0.5939	199	0.8301
200	0.5853	200	0.8134
201	0.5769	201	0.7963
202	0.5696	202	0.7799
203	0.5636	203	0.7644
204	0.5569	204	0.7482
205	0.5492	205	0.7307
206	0.5402	206	0.7119
207	0.5288	207	0.691
208	0.5171	208	0.6698
209	0.5053	209	0.6482
210	0.4968	210	0.6291
211	0.4907	211	0.612
212	0.4868	212	0.5952
213	0.4837	213	0.5778
214	0.4796	214	0.5556
215	0.4747	215	0.531

216	0.4698	216	0.5069
217	0.468	217	0.4925
218	0.4661	218	0.4788
219	0.4631	219	0.4631
220	0.4589	220	0.4442
221	0.4537	221	0.4221
222	0.4487	222	0.4003
223	0.4445	223	0.3803
224	0.4408	224	0.3618
225	0.4366	225	0.3438
226	0.4318	226	0.3264
227	0.4267	227	0.3094
228	0.4221	228	0.2924
229	0.4217	229	0.2755
230	0.4254	230	0.2587
231	0.4336	231	0.2419
232	0.442	232	0.2245
233	0.4496	233	0.2069
234	0.4565	234	0.1898
235	0.4632	235	0.1736
236	0.4703	236	0.1587
237	0.4781	237	0.1456
238	0.4868	238	0.1339
239	0.4958	239	0.1225
240	0.5047	240	0.1111
241	0.5134	241	0.0989
242	0.5217	242	0.0869
243	0.5295	243	0.0753
244	0.5371	244	0.0644
245	0.5446	245	0.0544
246	0.5527	246	0.0448
247	0.5612	247	0.0356
248	0.5705	248	0.0264
249	0.5807	249	0.0172
250	0.59	250	0.0088
251	0.5985	251	0.0009
252	0.6068	252	-0.0065
253	0.6146	253	-0.0135
254	0.6236	254	-0.0208
255	0.6363	255	-0.0289
256	0.6503	256	-0.038
257	0.6628	257	-0.0494
258	0.6743	258	-0.0624
259	0.6837	259	-0.0758
260	0.6919	260	-0.0896
261	0.7001	261	-0.1022
262	0.7084	262	-0.1139

263	0.7153	263	-0.1241
264	0.7204	264	-0.1321
265	0.725	265	-0.1395
266	0.7305	266	-0.1492
267	0.737	267	-0.1617
268	0.7438	268	-0.173
269	0.751	269	-0.1801
270	0.7584	270	-0.1866
271	0.7664	271	-0.1992
272	0.7756	272	-0.2324
273	0.7794	273	-0.2579
274	0.7813	274	-0.2778
275	0.7812	275	-0.2978
276	0.7782	276	-0.3179
277	0.774	277	-0.3381
278	0.7676	278	-0.3586
279	0.7595	279	-0.3817
280	0.7491	280	-0.408
281	0.7371	281	-0.4363
282	0.7238	282	-0.4666
283	0.7096	283	-0.4983
284	0.6945	284	-0.5304
285	0.6782	285	-0.5621
286	0.6602	286	-0.5935
287	0.6399	287	-0.6244
288	0.6169	288	-0.6553
289	0.5908	289	-0.6851
290	0.5586	290	-0.7167
291	0.5172	291	-0.751
292	0.4762	292	-0.7837
293	0.442	293	-0.8116
294	0.3677	294	-0.8567
295	0.2943	295	-0.9026
296	0.2225	296	-0.9503
297	0.1529	297	-1.0012
298	0.0868	298	-1.0577
299	0.0273	299	-1.1249
300	-0.0248	300	-1.2081

Austrija - nq=41.6 - Otvor - 36 mm

Theta	Wh	Theta	Wm
30	0.0635	30	0.2282
31	0.0871	31	0.2492
32	0.1107	32	0.2724
33	0.1332	33	0.2959
34	0.1524	34	0.3165
35	0.1751	35	0.336
36	0.1986	36	0.357
37	0.2221	37	0.3796
38	0.2456	38	0.4025
39	0.2691	39	0.4211
40	0.2944	40	0.4377
41	0.3201	41	0.454
42	0.3973	42	0.4741
43	0.4298	43	0.4793
44	0.4775	44	0.4886
45	0.5	45	0.5
46	0.5239	46	0.5091
47	0.5524	47	0.5175
48	0.5832	48	0.5262
49	0.6137	49	0.5363
50	0.6424	50	0.5483
51	0.6694	51	0.5605
52	0.6947	52	0.5726
53	0.7185	53	0.5853
54	0.7411	54	0.5983
55	0.7626	55	0.6111
56	0.7833	56	0.6234
57	0.8034	57	0.6349
58	0.8231	58	0.6453
59	0.8426	59	0.6541
60	0.862	60	0.6615
61	0.8816	61	0.6687
62	0.9011	62	0.6758
63	0.9206	63	0.6827
64	0.9399	64	0.6892
65	0.9591	65	0.6952
66	0.978	66	0.7005
67	0.9966	67	0.705
68	1.0149	68	0.7085
69	1.0327	69	0.7108
70	1.05	70	0.7119
71	1.0668	71	0.7118
72	1.083	72	0.7113
73	1.0986	73	0.7103
74	1.1137	74	0.7089

75	1.1282	75	0.7072
76	1.1422	76	0.705
77	1.1556	77	0.7026
78	1.1685	78	0.6998
79	1.1809	79	0.6966
80	1.1927	80	0.6932
81	1.204	81	0.6895
82	1.2148	82	0.683
83	1.2253	83	0.6715
84	1.2356	84	0.6564
85	1.246	85	0.6391
86	1.2567	86	0.6211
87	1.2678	87	0.6037
88	1.2795	88	0.5885
89	1.292	89	0.5735
90	1.3045	90	0.5574
91	1.3164	91	0.5435
92	1.3267	92	0.5349
93	1.3348	93	0.5325
94	1.341	94	0.5309
95	1.3461	95	0.5296
96	1.3509	96	0.5287
97	1.3565	97	0.5282
98	1.3635	98	0.5292
99	1.3719	99	0.5377
100	1.3807	100	0.5504
101	1.3888	101	0.5621
102	1.3953	102	0.5716
103	1.4004	103	0.5807
104	1.4046	104	0.5898
105	1.4081	105	0.599
106	1.4115	106	0.6088
107	1.4149	107	0.6194
108	1.4189	108	0.6311
109	1.4235	109	0.6452
110	1.4283	110	0.6612
111	1.4326	111	0.6776
112	1.4361	112	0.6933
113	1.4382	113	0.7068
114	1.4385	114	0.7178
115	1.4372	115	0.7274
116	1.435	116	0.7362
117	1.4323	117	0.7448
118	1.4297	118	0.7538
119	1.4279	119	0.7637
120	1.4267	120	0.776
121	1.4255	121	0.7895

122	1.4231	122	0.8023
123	1.4185	123	0.8122
124	1.4108	124	0.8176
125	1.3996	125	0.8207
126	1.3861	126	0.8227
127	1.3714	127	0.8245
128	1.3565	128	0.8264
129	1.3427	129	0.8292
130	1.3309	130	0.8336
131	1.3216	131	0.8426
132	1.3138	132	0.8549
133	1.3067	133	0.8679
134	1.2995	134	0.8796
135	1.2914	135	0.8911
136	1.2823	136	0.9026
137	1.2721	137	0.9133
138	1.2606	138	0.9223
139	1.248	139	0.9299
140	1.235	140	0.9369
141	1.2221	141	0.9442
142	1.2097	142	0.9522
143	1.198	143	0.9606
144	1.1867	144	0.9696
145	1.1754	145	0.9795
146	1.164	146	0.9909
147	1.1526	147	1.0029
148	1.1411	148	1.0142
149	1.1295	149	1.0251
150	1.118	150	1.0355
151	1.1064	151	1.045
152	1.095	152	1.0538
153	1.0836	153	1.062
154	1.0721	154	1.0698
155	1.0609	155	1.0773
156	1.0505	156	1.0824
157	1.0408	157	1.0863
158	1.0299	158	1.0885
159	1.0164	159	1.0885
160	1.003	160	1.0883
161	0.9937	161	1.09
162	0.989	162	1.1022
163	0.9856	163	1.1149
164	0.9811	164	1.1276
165	0.9751	165	1.1351
166	0.9679	166	1.1384
167	0.9603	167	1.1411
168	0.9524	168	1.1441

169	0.9428	169	1.145
170	0.9316	170	1.1414
171	0.9218	171	1.1394
172	0.9144	172	1.1395
173	0.9054	173	1.1388
174	0.8928	174	1.1307
175	0.8789	175	1.1214
176	0.8654	176	1.112
177	0.8521	177	1.1024
178	0.8392	178	1.0927
179	0.8266	179	1.0817
180	0.8142	180	1.0701
181	0.8012	181	1.0599
182	0.7877	182	1.0486
183	0.7738	183	1.035
184	0.7605	184	1.0206
185	0.7475	185	1.0056
186	0.734	186	0.9905
187	0.7203	187	0.9759
188	0.7078	188	0.9623
189	0.6977	189	0.9509
190	0.6885	190	0.9394
191	0.6781	191	0.9271
192	0.666	192	0.9124
193	0.6554	193	0.9001
194	0.6454	194	0.8895
195	0.6325	195	0.8726
196	0.6212	196	0.858
197	0.6101	197	0.8434
198	0.5963	198	0.8254
199	0.5823	199	0.8062
200	0.5705	200	0.7896
201	0.558	201	0.772
202	0.5431	202	0.7517
203	0.5291	203	0.7314
204	0.517	204	0.7137
205	0.5035	205	0.6925
206	0.4908	206	0.6721
207	0.4783	207	0.6511
208	0.4654	208	0.6289
209	0.4534	209	0.6085
210	0.4424	210	0.585
211	0.4384	211	0.5695
212	0.4327	212	0.5489
213	0.4266	213	0.5275
214	0.4216	214	0.5085
215	0.4171	215	0.4897

216	0.412	216	0.4697
217	0.4066	217	0.4497
218	0.4016	218	0.4309
219	0.3962	219	0.4096
220	0.3906	220	0.3878
221	0.3854	221	0.367
222	0.3805	222	0.3464
223	0.3756	223	0.3264
224	0.3706	224	0.3075
225	0.3667	225	0.2891
226	0.3662	226	0.2676
227	0.3682	227	0.2478
228	0.3722	228	0.2319
229	0.379	229	0.2205
230	0.3876	230	0.2107
231	0.397	231	0.2001
232	0.4061	232	0.1875
233	0.4148	233	0.1737
234	0.4234	234	0.1594
235	0.4319	235	0.1456
236	0.4405	236	0.1329
237	0.4493	237	0.1221
238	0.4584	238	0.1132
239	0.4676	239	0.1054
240	0.477	240	0.0975
241	0.4863	241	0.0886
242	0.4957	242	0.0776
243	0.505	243	0.0626
244	0.5141	244	0.0386
245	0.5232	245	0.0087
246	0.5323	246	-0.0229
247	0.5413	247	-0.0519
248	0.5504	248	-0.0741
249	0.5594	249	-0.0903
250	0.5683	250	-0.104
251	0.5768	251	-0.1155
252	0.5853	252	-0.1269
253	0.5939	253	-0.1406
254	0.6025	254	-0.1542
255	0.6108	255	-0.1674
256	0.6187	256	-0.1795
257	0.6259	257	-0.1897
258	0.6325	258	-0.1994
259	0.639	259	-0.2098
260	0.6457	260	-0.2219
261	0.6525	261	-0.2361
262	0.6588	262	-0.2502

263	0.6646	263	-0.2672
264	0.6695	264	-0.2772
265	0.6732	265	-0.2834
266	0.6759	266	-0.2891
267	0.6774	267	-0.2955
268	0.6777	268	-0.3011
269	0.677	269	-0.3071
270	0.6752	270	-0.3146
271	0.6723	271	-0.3248
272	0.6684	272	-0.3469
273	0.6636	273	-0.3793
274	0.6584	274	-0.3979
275	0.6527	275	-0.4118
276	0.6468	276	-0.4229
277	0.6403	277	-0.4314
278	0.6329	278	-0.4416
279	0.6241	279	-0.4578
280	0.6134	280	-0.5041
281	0.6001	281	-0.5657
282	0.5824	282	-0.6269
283	0.5557	283	-0.6745
284	0.5185	284	-0.7063
285	0.4583	285	-0.7402
286	0.4086	286	-0.8521
287	0.3828	287	-0.8904
288	0.3522	288	-0.9255
289	0.3174	289	-0.9709
290	0.2675	290	-1.0176
291	0.2447	291	-1.0675
292	0.2002	292	-1.11
293	0.1687	293	-1.1376
294	0.1201	294	-1.1615
295	0.0685	295	-1.2048
296	0.024	296	-1.245
297	-0.0048	297	-1.2817
298	-0.0422	298	-1.3205
299	-0.0829	299	-1.3493
300	-0.1116	300	-1.367

Kina - nq=41.9 (42.19) - Otvor - 20°

Theta	Wh	Theta	Wm
34.10192	0.124199	34.10192	0.308103
34.03346	0.125548	34.03346	0.308372
33.96724	0.126939	33.96724	0.308675
33.90333	0.128372	33.90333	0.309014
33.84186	0.129851	33.84186	0.309391
33.78295	0.131378	33.78295	0.309809
33.7267	0.132955	33.7267	0.310268
33.67327	0.134585	33.67327	0.310772
33.62276	0.13627	33.62276	0.311323
33.5754	0.138015	33.5754	0.311926
33.53129	0.139821	33.53129	0.312581
33.49067	0.141694	33.49067	0.313293
33.45371	0.143636	33.45371	0.314066
33.42064	0.145652	33.42064	0.314903
33.39171	0.147747	33.39171	0.315808
33.36717	0.149925	33.36717	0.31678
33.3473	0.152193	33.3473	0.31782
33.33247	0.154556	33.33247	0.318927
33.32297	0.157021	33.32297	0.320103
33.31924	0.159595	33.31924	0.321354
33.32169	0.162287	33.32169	0.322694
33.33082	0.165106	33.33082	0.324135
33.34718	0.168062	33.34718	0.325694
33.37135	0.171167	33.37135	0.327389
33.40407	0.174432	33.40407	0.329255
33.4461	0.177874	33.4461	0.331337
33.49832	0.181508	33.49832	0.333684
33.56179	0.185354	33.56179	0.336288
33.63769	0.189432	33.63769	0.339082
33.72741	0.193769	33.72741	0.341991
33.83256	0.198394	33.83256	0.344924
33.95509	0.203341	33.95509	0.347913
34.09728	0.208652	34.09728	0.351173
34.26195	0.214378	34.26195	0.354867
34.45249	0.220577	34.45249	0.359042
34.67318	0.227327	34.67318	0.363752
34.92944	0.234721	34.92944	0.36907
35.22833	0.242882	35.22833	0.375095
35.5986	0.252211	35.5986	0.382328
35.99519	0.262216	35.99519	0.389886
36.40676	0.272789	36.40676	0.397493
36.8336	0.283964	36.8336	0.405073
37.27601	0.295777	37.27601	0.412533
37.73487	0.308274	37.73487	0.419766
38.21723	0.321592	38.21723	0.426771

38.73531	0.335956	38.73531	0.433689
39.30494	0.351667	39.30494	0.440732
39.94845	0.369149	39.94845	0.448214
40.70062	0.389069	40.70062	0.456659
41.6041	0.41228	41.6041	0.466687
42.64376	0.438752	42.64376	0.477807
43.75665	0.467618	43.75665	0.488651
45	0.5	45	0.5
46.77116	0.543167	46.77116	0.518273
50.37348	0.621149	50.37348	0.561209
55.21674	0.723016	55.21674	0.600511
61.53406	0.848172	61.53406	0.564257
70.36777	0.997217	70.36777	0.55242
82.20329	1.1305	82.20329	0.594124
88.02301	1.178903	88.02301	0.619321
91.52302	1.209145	91.52302	0.649113
93.33074	1.236638	93.33074	0.684537
95.10803	1.262757	95.10803	0.723268
97.16965	1.285777	97.16965	0.762173
99.20686	1.306398	99.20686	0.799391
100.9647	1.326905	100.9647	0.835111
102.5077	1.347843	102.5077	0.869811
103.9482	1.368748	103.9482	0.903304
105.3494	1.389157	105.3494	0.935293
106.7565	1.408514	106.7565	0.965363
108.2108	1.426057	108.2108	0.992931
109.7596	1.440644	109.7596	1.017161
111.4343	1.451091	111.4343	1.037589
113.2308	1.456715	113.2308	1.054378
115.1336	1.457074	115.1336	1.067868
117.1167	1.4521	117.1167	1.078686
119.1443	1.442208	119.1443	1.087789
121.1742	1.428311	121.1742	1.095826
123.1649	1.411681	123.1649	1.103238
125.0814	1.393699	125.0814	1.110547
126.9003	1.375615	126.9003	1.118217
128.6098	1.358386	128.6098	1.126594
130.2118	1.342494	130.2118	1.13572
131.732	1.327407	131.732	1.144792
133.1942	1.31247	133.1942	1.153026
134.6158	1.297164	134.6158	1.159986
135.9879	1.282065	135.9879	1.166233
137.2027	1.272543	137.2027	1.176792
138.4155	1.261633	138.4155	1.185417
139.6458	1.248302	139.6458	1.191129
140.8924	1.23248	140.8924	1.193827
142.0494	1.219823	142.0494	1.199039

143.0459	1.214745	143.0459	1.211369
143.9376	1.214807	143.9376	1.228745
144.8208	1.214784	144.8208	1.246095
145.7377	1.212073	145.7377	1.260768
146.7017	1.205597	146.7017	1.27158
147.6946	1.196229	147.6946	1.27936
148.6826	1.186051	148.6826	1.286215
149.6352	1.177189	149.6352	1.29434
150.5473	1.170184	150.5473	1.304294
151.5064	1.158732	151.5064	1.308935
152.5693	1.138119	152.5693	1.302576
153.6004	1.118295	153.6004	1.296251
154.481	1.109002	154.481	1.301346
155.2695	1.106396	155.2695	1.31367
156.0478	1.104088	156.0478	1.325738
156.8111	1.102575	156.8111	1.33808
157.5514	1.102712	157.5514	1.351689
158.2706	1.104511	158.2706	1.366564
158.9777	1.107292	158.9777	1.381842
159.6797	1.110453	159.6797	1.396779
160.3803	1.113645	160.3803	1.411055
161.0821	1.1166	161.0821	1.424444
161.7872	1.119048	161.7872	1.436697
162.4975	1.120698	162.4975	1.447536
163.2138	1.12135	163.2138	1.456783
163.9325	1.121368	163.9325	1.464998
164.6488	1.121354	164.6488	1.473022
165.3605	1.121668	165.3605	1.481359
166.0721	1.121656	166.0721	1.489173
166.7891	1.120388	166.7891	1.495234
167.5158	1.116903	167.5158	1.498252
168.2516	1.110931	168.2516	1.497836
168.992	1.102927	168.992	1.494577
169.7328	1.093431	169.7328	1.489192
170.4701	1.083011	170.4701	1.482469
171.2015	1.072087	171.2015	1.475058
171.9255	1.060981	171.9255	1.467495
172.6409	1.05001	172.6409	1.460305
173.347	1.039457	173.347	1.453983
174.0436	1.029511	174.0436	1.448901
174.7319	1.020076	174.7319	1.444992
175.4125	1.011014	175.4125	1.441712
176.0861	1.002194	176.0861	1.438249
176.7534	0.993502	176.7534	1.433833
177.4146	0.984828	177.4146	1.427753
178.0699	0.976076	178.0699	1.41966
178.7193	0.967151	178.7193	1.409968

179.3627	0.958037	179.3627	1.399264
180	0.948792	180	1.388199
180.6311	0.939476	180.6311	1.376952
181.256	0.930146	181.256	1.3632
181.8747	0.92086	181.8747	1.344969
182.4874	0.911663	182.4874	1.325794
183.0944	0.902642	183.0944	1.308572
183.696	0.893899	183.696	1.293217
184.2929	0.885532	184.2929	1.279452
184.8854	0.877584	184.8854	1.26696
185.474	0.870012	185.474	1.255335
186.0589	0.86276	186.0589	1.244367
186.6403	0.855774	186.6403	1.234027
187.2182	0.849012	187.2182	1.224306
187.7927	0.842418	187.7927	1.215167
188.3637	0.835939	188.3637	1.206586
188.9311	0.829528	188.9311	1.198541
189.4948	0.823138	189.4948	1.190926
190.0545	0.816742	190.0545	1.183513
190.6104	0.810349	190.6104	1.176107
191.1626	0.803978	191.1626	1.168529
191.7112	0.797641	191.7112	1.160604
192.2564	0.791356	192.2564	1.152206
192.7983	0.785129	192.7983	1.143337
193.3368	0.77895	193.3368	1.134021
193.872	0.772808	193.872	1.124279
194.4038	0.766696	194.4038	1.114136
194.9321	0.760603	194.9321	1.103604
195.4568	0.754522	195.4568	1.092711
195.9779	0.748443	195.9779	1.081467
196.4955	0.74237	196.4955	1.069914
197.0096	0.736324	197.0096	1.058177
197.5206	0.730328	197.5206	1.046438
198.029	0.724406	198.029	1.034881
198.5351	0.718583	198.5351	1.023679
199.0391	0.712869	199.0391	1.012983
199.5412	0.707266	199.5412	1.002924
200.0417	0.701775	200.0417	0.993558
200.5407	0.696401	200.5407	0.984519
201.0383	0.691145	201.0383	0.975282
201.5348	0.686004	201.5348	0.965468
202.0283	0.680857	202.0283	0.954965
202.5141	0.67545	202.5141	0.94355
202.9874	0.669533	202.9874	0.931019
203.4439	0.662932	203.4439	0.917278
203.8854	0.655803	203.8854	0.902692
204.3158	0.648399	204.3158	0.887756

204.7397	0.640965	204.7397	0.872938
205.1615	0.63372	205.1615	0.85864
205.586	0.626871	205.586	0.845143
206.0153	0.620488	206.0153	0.832501
206.4466	0.614405	206.4466	0.82045
206.8759	0.60844	206.8759	0.80871
207.2995	0.60243	207.2995	0.797037
207.7158	0.596323	207.7158	0.785335
208.1257	0.590161	208.1257	0.773631
208.53	0.583986	208.53	0.761962
208.9297	0.577838	208.9297	0.750361
209.3257	0.571752	209.3257	0.73886
209.7191	0.56576	209.7191	0.727489
210.1109	0.559895	210.1109	0.716275
210.5021	0.554184	210.5021	0.705237
210.8939	0.548659	210.8939	0.694403
211.2876	0.543346	211.2876	0.68379
211.6844	0.538269	211.6844	0.673412
212.0854	0.53345	212.0854	0.66328
212.4919	0.528907	212.4919	0.653396
212.9027	0.524588	212.9027	0.643643
213.3141	0.520381	213.3141	0.633836
213.7226	0.516182	213.7226	0.623794
214.1243	0.511892	214.1243	0.613351
214.518	0.507484	214.518	0.602424
214.9088	0.503098	214.9088	0.591176
215.3031	0.498895	215.3031	0.579838
215.7078	0.495026	215.7078	0.568631
216.1296	0.491629	216.1296	0.557754
216.569	0.488686	216.569	0.547219
217.022	0.486079	217.022	0.536932
217.4841	0.483687	217.4841	0.526793
217.9506	0.481393	217.9506	0.51667
218.4161	0.479081	218.4161	0.506432
218.8767	0.476668	218.8767	0.495988
219.3327	0.474165	219.3327	0.485352
219.7852	0.471604	219.7852	0.474559
220.2358	0.469015	220.2358	0.463642
220.6858	0.466425	220.6858	0.452638
221.1366	0.463863	221.1366	0.441578
221.5897	0.461352	221.5897	0.430487
222.0456	0.458898	222.0456	0.419372
222.5026	0.456468	222.5026	0.40822
222.9591	0.454032	222.9591	0.397058
223.4131	0.451558	223.4131	0.385924
223.8622	0.449011	223.8622	0.374854
224.3038	0.446351	224.3038	0.363884

224.7353	0.443546	224.7353	0.353048
225.1545	0.44057	225.1545	0.342393
225.5626	0.437456	225.5626	0.331982
225.9635	0.434267	225.9635	0.32189
226.3607	0.431059	226.3607	0.312176
226.7578	0.427888	226.7578	0.302897
227.1586	0.424802	227.1586	0.294227
227.5671	0.421851	227.5671	0.286493
227.9793	0.418974	227.9793	0.279888
228.3735	0.415888	228.3735	0.274393
228.728	0.412334	228.728	0.269303
229.0577	0.408524	229.0577	0.262103
229.5159	0.406334	229.5159	0.24945
230.2959	0.407949	230.2959	0.220535
232.1965	0.426235	232.1965	0.194609
234.6615	0.450102	234.6615	0.16143
237.6881	0.474227	237.6881	0.1092
242.1257	0.509322	242.1257	0.043357
247.3294	0.544923	247.3294	-0.02704
252.4705	0.581939	252.4705	-0.07691
257.8607	0.622973	257.8607	-0.13452
261.8871	0.6507	261.8871	-0.17839
265.3953	0.672032	265.3953	-0.20991
267.8688	0.68826	267.8688	-0.23609
270.2586	0.702389	270.2586	-0.27053
272.5344	0.707755	272.5344	-0.32881
273.9445	0.705786	273.9445	-0.35907
275.9817	0.694776	275.9817	-0.38173
277.5208	0.677406	277.5208	-0.41963
278.6149	0.661214	278.6149	-0.44992
279.2832	0.646646	279.2832	-0.47537
279.8874	0.632578	279.8874	-0.49709
280.4868	0.618798	280.4868	-0.51629
281.0804	0.605306	281.0804	-0.53395
281.6667	0.592102	281.6667	-0.55086
282.2437	0.579194	282.2437	-0.56739
282.8087	0.566589	282.8087	-0.58312
283.3589	0.554298	283.3589	-0.5976
283.8927	0.542327	283.8927	-0.61108
284.4093	0.530678	284.4093	-0.62508
284.9083	0.51935	284.9083	-0.64134
285.3891	0.508343	285.3891	-0.65926
285.8517	0.497654	285.8517	-0.67653
286.2958	0.487281	286.2958	-0.69095
286.7215	0.477219	286.7215	-0.70243
287.1289	0.467463	287.1289	-0.71229
287.5186	0.458007	287.5186	-0.72154

287.8908	0.448843	287.8908	-0.7311
288.2458	0.439964	288.2458	-0.74155
288.5842	0.431363	288.5842	-0.7529
288.9061	0.423033	288.9061	-0.76507
289.2121	0.414966	289.2121	-0.77793
289.5025	0.407154	289.5025	-0.79129
289.7777	0.399589	289.7777	-0.80493
290.038	0.392265	290.038	-0.81854
290.2839	0.385173	290.2839	-0.83182
290.5156	0.378305	290.5156	-0.84444
290.7337	0.371655	290.7337	-0.85611
290.9384	0.365215	290.9384	-0.86659
291.1302	0.358978	291.1302	-0.87572
291.3092	0.352937	291.3092	-0.88344
291.4762	0.347083	291.4762	-0.88977
291.6332	0.341403	291.6332	-0.89513
291.7838	0.335874	291.7838	-0.90031
291.9313	0.330476	291.9313	-0.90583
292.0786	0.325194	292.0786	-0.91164
292.2268	0.320018	292.2268	-0.91765
292.3764	0.314944	292.3764	-0.92371
292.5276	0.309968	292.5276	-0.92969
292.6808	0.305085	292.6808	-0.93544
292.8364	0.300291	292.8364	-0.94081
292.9946	0.295583	292.9946	-0.94567
293.156	0.290956	293.156	-0.95009
293.3201	0.28641	293.3201	-0.9543
293.4846	0.281952	293.4846	-0.95852
293.6465	0.277593	293.6465	-0.96278
293.803	0.273343	293.803	-0.967
293.9513	0.26921	293.9513	-0.9711
294.0892	0.2652	294.0892	-0.97502
294.2148	0.261318	294.2148	-0.97881
294.329	0.257557	294.329	-0.98244
294.4341	0.253905	294.4341	-0.98589
294.532	0.250351	294.532	-0.9892
294.6245	0.246886	294.6245	-0.99251
294.7134	0.2435	294.7134	-0.99595
294.8001	0.240186	294.8001	-0.99962
294.8863	0.236936	294.8863	-1.00326
294.9726	0.233745	294.9726	-1.00651
295.059	0.230613	295.059	-1.00912
295.1453	0.227538	295.1453	-1.01115
295.2312	0.22452	295.2312	-1.0127
295.3168	0.221558	295.3168	-1.01387
295.4017	0.218652	295.4017	-1.01475
295.4858	0.215801	295.4858	-1.01543

295.5682	0.213006	295.5682	-1.01597
295.6454	0.210278	295.6454	-1.01643
295.7195	0.20761	295.7195	-1.01679
295.7906	0.204999	295.7906	-1.01706
295.8586	0.202443	295.8586	-1.01723
295.9238	0.199941	295.9238	-1.01732
295.9861	0.197491	295.9861	-1.01732
296.0457	0.195093	296.0457	-1.01724
296.1026	0.192744	296.1026	-1.01709

Rusija - nq=43.83 - Otvor - 28 mm

Theta	Wh	Theta	Wm
30	0.1104	30	0.1754
31	0.1308	31	0.2008
32	0.1513	32	0.2295
33	0.1717	33	0.2607
34	0.1921	34	0.2864
35	0.2181	35	0.3076
36	0.2472	36	0.3263
37	0.2747	37	0.3437
38	0.3023	38	0.3608
39	0.3298	39	0.3787
40	0.3574	40	0.3971
41	0.3843	41	0.4142
42	0.41	42	0.4356
43	0.4389	43	0.4608
44	0.475	44	0.4824
45	0.4993	45	0.5
46	0.533	46	0.514
47	0.5589	47	0.531
48	0.5763	48	0.5488
49	0.5972	49	0.565
50	0.6211	50	0.5798
51	0.6474	51	0.5931
52	0.6754	52	0.605
53	0.7084	53	0.6149
54	0.7443	54	0.6236
55	0.7723	55	0.6339
56	0.7978	56	0.6453
57	0.8215	57	0.6575
58	0.8438	58	0.67
59	0.865	59	0.6827
60	0.8855	60	0.6951
61	0.9055	61	0.707
62	0.9256	62	0.718
63	0.946	63	0.7278
64	0.9671	64	0.7362
65	0.9881	65	0.7446
66	1.0091	66	0.7531
67	1.0299	67	0.7614
68	1.0505	68	0.7691
69	1.0708	69	0.776
70	1.0908	70	0.7817
71	1.1104	71	0.786
72	1.1296	72	0.7885
73	1.1483	73	0.7893
74	1.1661	74	0.7898

75	1.1832	75	0.7902
76	1.1999	76	0.7905
77	1.2166	77	0.7908
78	1.2336	78	0.791
79	1.2512	79	0.7911
80	1.2698	80	0.7912
81	1.2899	81	0.7848
82	1.3117	82	0.7538
83	1.3344	83	0.7118
84	1.3569	84	0.6762
85	1.3783	85	0.6599
86	1.399	86	0.6485
87	1.4194	87	0.6395
88	1.4398	88	0.6343
89	1.4604	89	0.6342
90	1.481	90	0.6401
91	1.5017	91	0.6499
92	1.5231	92	0.6609
93	1.5457	93	0.672
94	1.5694	94	0.6853
95	1.5932	95	0.7005
96	1.6165	96	0.7179
97	1.6398	97	0.7383
98	1.6628	98	0.7594
99	1.6859	99	0.7796
100	1.709	100	0.7998
101	1.7309	101	0.8198
102	1.7507	102	0.8391
103	1.769	103	0.8579
104	1.7869	104	0.8772
105	1.8049	105	0.8982
106	1.823	106	0.9209
107	1.8402	107	0.9438
108	1.856	108	0.9661
109	1.8712	109	0.9885
110	1.8849	110	1.0099
111	1.8966	111	1.0292
112	1.9086	112	1.0473
113	1.9182	113	1.0639
114	1.9215	114	1.0787
115	1.9213	115	1.0939
116	1.9206	116	1.1088
117	1.9196	117	1.1198
118	1.9182	118	1.1233
119	1.9103	119	1.1229
120	1.8947	120	1.1221
121	1.8746	121	1.1211

122	1.8533	122	1.1203
123	1.8339	123	1.1197
124	1.8193	124	1.1203
125	1.8074	125	1.125
126	1.796	126	1.1313
127	1.783	127	1.1359
128	1.7662	128	1.1356
129	1.7443	129	1.1309
130	1.7194	130	1.1237
131	1.6938	131	1.116
132	1.67	132	1.1099
133	1.6464	133	1.1053
134	1.6218	134	1.1009
135	1.6021	135	1.0978
136	1.5931	136	1.098
137	1.5895	137	1.1103
138	1.5861	138	1.1253
139	1.5817	139	1.1378
140	1.5767	140	1.15
141	1.5708	141	1.1618
142	1.5638	142	1.1724
143	1.5554	143	1.1798
144	1.5456	144	1.1854
145	1.5365	145	1.1908
146	1.5279	146	1.1959
147	1.5202	147	1.2021
148	1.5134	148	1.2096
149	1.5069	149	1.2179
150	1.5006	150	1.227
151	1.4943	151	1.236
152	1.4881	152	1.2449
153	1.4822	153	1.2538
154	1.4764	154	1.2626
155	1.4704	155	1.2709
156	1.4644	156	1.2791
157	1.4585	157	1.2872
158	1.4549	158	1.2973
159	1.4525	159	1.3088
160	1.4506	160	1.3201
161	1.4487	161	1.3304
162	1.4467	162	1.3395
163	1.4449	163	1.3482
164	1.443	164	1.3563
165	1.4409	165	1.364
166	1.4384	166	1.3714
167	1.4357	167	1.3789
168	1.433	168	1.3868

169	1.4298	169	1.3945
170	1.4259	170	1.4016
171	1.4211	171	1.4075
172	1.4154	172	1.4124
173	1.4087	173	1.4157
174	1.4004	174	1.4175
175	1.3906	175	1.4173
176	1.3785	176	1.4159
177	1.3631	177	1.4105
178	1.3456	178	1.403
179	1.3275	179	1.3949
180	1.3098	180	1.387
181	1.2908	181	1.3776
182	1.2698	182	1.3652
183	1.2457	183	1.3484
184	1.2177	184	1.326
185	1.1858	185	1.2989
186	1.1518	186	1.2688
187	1.1184	187	1.239
188	1.0853	188	1.2092
189	1.0495	189	1.1759
190	1.0119	190	1.1402
191	0.9795	191	1.1098
192	0.949	192	1.081
193	0.9179	193	1.0512
194	0.8899	194	1.0242
195	0.8638	195	0.999
196	0.8381	196	0.9738
197	0.8126	197	0.9483
198	0.7869	198	0.922
199	0.7617	199	0.8958
200	0.737	200	0.8692
201	0.7131	201	0.8427
202	0.6898	202	0.8155
203	0.6657	203	0.7867
204	0.6459	204	0.7627
205	0.6298	205	0.7433
206	0.614	206	0.724
207	0.5983	207	0.7047
208	0.5831	208	0.6847
209	0.5684	209	0.6634
210	0.5544	210	0.6426
211	0.5408	211	0.622
212	0.5273	212	0.6004
213	0.515	213	0.5783
214	0.5036	214	0.5553
215	0.4925	215	0.5319

216	0.4827	216	0.5108
217	0.4753	217	0.4904
218	0.4702	218	0.4689
219	0.4645	219	0.4473
220	0.459	220	0.4281
221	0.4536	221	0.4098
222	0.4479	222	0.3908
223	0.4412	223	0.3698
224	0.435	224	0.3499
225	0.4289	225	0.3301
226	0.4226	226	0.31
227	0.4159	227	0.289
228	0.4096	228	0.2677
229	0.4042	229	0.2468
230	0.3998	230	0.224
231	0.3986	231	0.192
232	0.4007	232	0.1807
233	0.4076	233	0.1747
234	0.4172	234	0.1704
235	0.4272	235	0.1651
236	0.4353	236	0.1558
237	0.4425	237	0.1362
238	0.4494	238	0.1083
239	0.4563	239	0.0763
240	0.4633	240	0.0449
241	0.4706	241	0.0185
242	0.4782	242	0.0016
243	0.4863	243	-0.0078
244	0.4948	244	-0.0144
245	0.5036	245	-0.0209
246	0.5126	246	-0.0299
247	0.522	247	-0.0483
248	0.5313	248	-0.0738
249	0.5391	249	-0.0852
250	0.5465	250	-0.0942
251	0.5534	251	-0.1014
252	0.5598	252	-0.1074
253	0.5656	253	-0.1128
254	0.571	254	-0.118
255	0.5762	255	-0.1228
256	0.5811	256	-0.1267
257	0.5854	257	-0.1306
258	0.589	258	-0.1348
259	0.5915	259	-0.1401
260	0.5939	260	-0.1468
261	0.5959	261	-0.1543
262	0.5974	262	-0.1619

263	0.5981	263	-0.1688
264	0.5979	264	-0.1742
265	0.5969	265	-0.1785
266	0.5952	266	-0.183
267	0.5929	267	-0.1893
268	0.5868	268	-0.201
269	0.5773	269	-0.2172
270	0.5566	270	-0.2521
271	0.5099	271	-0.2823
272	0.4711	272	-0.3634
273	0.4407	273	-0.5359
274	0.4158	274	-0.5722
275	0.394	275	-0.6061
276	0.3741	276	-0.6402
277	0.3555	277	-0.6746
278	0.3376	278	-0.7098
279	0.3204	279	-0.7461
280	0.3035	280	-0.7836
281	0.2869	281	-0.8211
282	0.2705	282	-0.8571
283	0.2543	283	-0.8906
284	0.2382	284	-0.9227
285	0.2221	285	-0.9956
286	0.206	286	-1.1358
287	0.1899	287	-1.1735
288	0.1635	288	-1.2043
289	0.1315	289	-1.2339
290	0.0865	290	-1.2631
291	0.043	291	-1.291
292	0.0088	292	-1.3173
293	-0.031	293	-1.3418
294	-0.0661	294	-1.3657
295	-0.1067	295	-1.39
296	-0.1456	296	-1.4161
297	-0.1804	297	-1.4447
298	-0.2152	298	-1.471
299	-0.2547	299	-1.4914
300	-0.2849	300	-1.5066

Kina - nq=44.93 - Otvor - 40 mm

Theta	Wh	Theta	Wm
40.4587	0.212092	40.4587	0.346774
40.38287	0.222679	40.38287	0.356061
40.48613	0.234596	40.48613	0.365401
40.5473	0.249879	40.5473	0.375321
40.53894	0.263193	40.53894	0.382126
40.5201	0.280986	40.5201	0.389266
40.45934	0.309181	40.45934	0.400329
40.72398	0.333149	40.72398	0.414174
41.20674	0.360213	41.20674	0.42991
41.96436	0.391457	41.96436	0.447439
43.20361	0.436547	43.20361	0.471154
44.08194	0.468083	44.08194	0.485966
45	0.5	45	0.5
45.87605	0.526183	45.87605	0.513086
47.12053	0.556308	47.12053	0.532541
48.19096	0.582953	48.19096	0.548459
48.84977	0.600318	48.84977	0.557454
50.83414	0.647579	50.83414	0.584905
52.76563	0.689973	52.76563	0.611638
56.0251	0.758669	56.0251	0.654633
60.05565	0.839539	60.05565	0.702923
65.30862	0.945861	65.30862	0.745022
71.35961	1.056623	71.35961	0.770056
76.03704	1.123842	76.03704	0.778536
81.02077	1.180383	81.02077	0.765077
85.40603	1.218652	85.40603	0.702907
87.92078	1.242739	87.92078	0.633021
90	1.26867	90	0.617214
92.78519	1.320312	92.78519	0.657668
94.8499	1.357882	94.8499	0.698591
97.19864	1.410418	97.19864	0.758745
99.01691	1.453988	99.01691	0.81073
101.2	1.519974	101.2	0.888623
103.799	1.61286	103.799	0.992908
105.6027	1.666756	105.6027	1.052377
107.6205	1.73384	107.6205	1.124704
108.9751	1.776023	108.9751	1.17118
110.34	1.80807	110.34	1.208975
112.0375	1.838261	112.0375	1.247882
113.7081	1.855293	113.7081	1.27525
115.7373	1.859957	115.7373	1.294595
118.8176	1.836184	118.8176	1.296968
121.7387	1.791367	121.7387	1.280132
123.7829	1.752907	123.7829	1.262623
125.621	1.741554	125.621	1.269882

128.234	1.737338	128.234	1.293801
130.6551	1.737944	130.6551	1.32357
134.4945	1.737313	134.4945	1.376963
140.4353	1.714672	140.4353	1.452136
144.8614	1.681708	144.8614	1.496645
150.1634	1.619713	150.1634	1.526856
155.7375	1.509127	155.7375	1.51223
161.0111	1.358918	161.0111	1.440739
163.6726	1.309204	163.6726	1.426523
169.3175	1.242335	169.3175	1.422917
175.0136	1.162093	175.0136	1.386844
180	1.126541	180	1.379984
185.6025	1.038555	185.6025	1.233541
190.3117	0.938164	190.3117	1.115681
195.0039	0.836369	195.0039	1.013187
198.3688	0.767159	198.3688	0.93396
202.0076	0.688784	202.0076	0.842784
205.3293	0.621685	205.3293	0.76021
208.4113	0.571413	208.4113	0.687858
211.3624	0.528341	211.3624	0.621123
214.306	0.494087	214.306	0.548876
217.2338	0.456906	217.2338	0.467881
221.6164	0.3904	221.6164	0.345442
224.5582	0.354264	224.5582	0.284027
226.3435	0.337771	226.3435	0.242975
228.4302	0.329883	228.4302	0.198124
230.6094	0.335148	230.6094	0.168284
232.3302	0.342811	232.3302	0.120004
233.7404	0.358674	233.7404	0.090022
235.7332	0.380199	235.7332	0.071265
237.5349	0.397528	237.5349	0.047931
239.4096	0.416042	239.4096	0.022242
241.1515	0.432798	241.1515	0
244.3834	0.464857	244.3834	-0.03817
247.9744	0.501747	247.9744	-0.08208
251.2138	0.534957	251.2138	-0.11909
253.4776	0.557127	253.4776	-0.14169
256.4502	0.579257	256.4502	-0.15837
260.3886	0.615067	260.3886	-0.19511
265.8806	0.661711	265.8806	-0.26381
270	0.679698	270	-0.32321
272.2653	0.681345	272.2653	-0.35507
274.7301	0.672718	274.7301	-0.41446
277.8296	0.646993	277.8296	-0.49003
280.2524	0.610361	280.2524	-0.56749
281.6701	0.579335	281.6701	-0.61252
282.5752	0.55881	282.5752	-0.64191

283.122	0.543885	283.122	-0.66458
283.6791	0.528656	283.6791	-0.68941
284.1032	0.51561	284.1032	-0.71159
284.7298	0.49748	284.7298	-0.75223
285.3842	0.479051	285.3842	-0.77974
286.5273	0.44811	286.5273	-0.81637
287.4449	0.415334	287.4449	-0.8729
288.4542	0.381278	288.4542	-0.91081
289.9539	0.329946	289.9539	-0.96852
290.8448	0.299808	290.8448	-1.0036
291.7804	0.272327	291.7804	-1.0255

Kina - nq=50 - Otvor - 20.03°

Theta	Wh	Theta	Wm
30	0.074	30	0.2046
31	0.095	31	0.224
32	0.117	32	0.248
33	0.1392	33	0.2774
34	0.1563	34	0.3095
35	0.1741	35	0.3388
36	0.1937	36	0.3628
37	0.2233	37	0.3843
38	0.2886	38	0.409
39	0.3185	39	0.4264
40	0.3487	40	0.4422
41	0.3793	41	0.4562
42	0.4104	42	0.4687
43	0.442	43	0.4802
44	0.4719	44	0.4905
45	0.5	45	0.5
46	0.5258	46	0.5092
47	0.5495	47	0.5186
48	0.5712	48	0.5289
49	0.5917	49	0.5397
50	0.6114	50	0.5506
51	0.6308	51	0.5611
52	0.6499	52	0.5722
53	0.6686	53	0.5836
54	0.6869	54	0.5946
55	0.7049	55	0.6045
56	0.7225	56	0.6125
57	0.7399	57	0.6187
58	0.7571	58	0.6248
59	0.7743	59	0.6307
60	0.7912	60	0.6362
61	0.8079	61	0.6412
62	0.8243	62	0.6456
63	0.8404	63	0.6492
64	0.8559	64	0.652
65	0.871	65	0.6538
66	0.8856	66	0.6546
67	0.8998	67	0.6549
68	0.9139	68	0.6552
69	0.9277	69	0.6555
70	0.9412	70	0.6558
71	0.9544	71	0.656
72	0.9674	72	0.6562
73	0.9799	73	0.6563
74	0.9921	74	0.6565

75	1.0038	75	0.6566
76	1.0151	76	0.6566
77	1.0259	77	0.6566
78	1.0362	78	0.6552
79	1.0459	79	0.6501
80	1.0551	80	0.6422
81	1.064	81	0.6324
82	1.0727	82	0.6217
83	1.0812	83	0.6109
84	1.0897	84	0.6003
85	1.0979	85	0.5861
86	1.1058	86	0.5695
87	1.1136	87	0.5528
88	1.1214	88	0.538
89	1.1295	89	0.5276
90	1.1379	90	0.5236
91	1.1478	91	0.5265
92	1.1589	92	0.534
93	1.1699	93	0.544
94	1.1795	94	0.5544
95	1.1863	95	0.5631
96	1.19	96	0.5691
97	1.1927	97	0.5742
98	1.1949	98	0.5789
99	1.1968	99	0.5833
100	1.1985	100	0.5877
101	1.2004	101	0.5925
102	1.2026	102	0.5979
103	1.2056	103	0.6042
104	1.209	104	0.6113
105	1.2123	105	0.6187
106	1.2147	106	0.6258
107	1.2156	107	0.6321
108	1.2148	108	0.6377
109	1.213	109	0.6429
110	1.2103	110	0.6479
111	1.2073	111	0.6528
112	1.2039	112	0.658
113	1.1991	113	0.6634
114	1.193	114	0.6689
115	1.186	115	0.6741
116	1.1783	116	0.679
117	1.1702	117	0.6833
118	1.16	118	0.6867
119	1.1482	119	0.6895
120	1.1357	120	0.6922
121	1.1236	121	0.6953

122	1.113	122	0.6992
123	1.1049	123	0.7043
124	1.0983	124	0.7133
125	1.0923	125	0.7257
126	1.0872	126	0.7401
127	1.0829	127	0.7547
128	1.0796	128	0.7684
129	1.0771	129	0.7827
130	1.0749	130	0.7974
131	1.0724	131	0.8123
132	1.0693	132	0.8269
133	1.0655	133	0.8414
134	1.0615	134	0.8561
135	1.0577	135	0.8712
136	1.0541	136	0.887
137	1.0505	137	0.9034
138	1.0471	138	0.9202
139	1.044	139	0.9371
140	1.0414	140	0.954
141	1.0388	141	0.971
142	1.0367	142	0.9882
143	1.0357	143	1.0052
144	1.035	144	1.0218
145	1.0344	145	1.0384
146	1.0341	146	1.0557
147	1.0341	147	1.0742
148	1.0352	148	1.0942
149	1.0375	149	1.1154
150	1.0403	150	1.1375
151	1.0432	151	1.1603
152	1.0468	152	1.1848
153	1.0512	153	1.2103
154	1.0557	154	1.2353
155	1.06	155	1.2589
156	1.0645	156	1.2818
157	1.0688	157	1.3031
158	1.0724	158	1.3217
159	1.0758	159	1.3388
160	1.0784	160	1.3535
161	1.0798	161	1.3652
162	1.0808	162	1.375
163	1.0811	163	1.3823
164	1.0806	164	1.388
165	1.0794	165	1.3916
166	1.0777	166	1.3925
167	1.0752	167	1.3929
168	1.0722	168	1.3929

169	1.0687	169	1.3907
170	1.0647	170	1.387
171	1.0603	171	1.3831
172	1.0555	172	1.3782
173	1.0502	173	1.3727
174	1.0447	174	1.3668
175	1.0387	175	1.3605
176	1.0323	176	1.3538
177	1.0256	177	1.3469
178	1.0185	178	1.3395
179	1.011	179	1.3318
180	1.0031	180	1.3238
181	0.9949	181	1.3154
182	0.9863	182	1.3065
183	0.9773	183	1.2972
184	0.9679	184	1.2873
185	0.9581	185	1.2769
186	0.948	186	1.2658
187	0.9374	187	1.2541
188	0.9265	188	1.2416
189	0.9151	189	1.2284
190	0.9034	190	1.2143
191	0.8912	191	1.1993
192	0.8787	192	1.1834
193	0.866	193	1.1666
194	0.8531	194	1.1489
195	0.8401	195	1.1304
196	0.8271	196	1.111
197	0.8141	197	1.0907
198	0.8013	198	1.0695
199	0.7886	199	1.0476
200	0.776	200	1.025
201	0.7636	201	1.0019
202	0.7513	202	0.9785
203	0.739	203	0.955
204	0.7268	204	0.9317
205	0.7146	205	0.9086
206	0.7023	206	0.8858
207	0.6901	207	0.8628
208	0.6777	208	0.8394
209	0.6653	209	0.8154
210	0.6527	210	0.7905
211	0.6401	211	0.7647
212	0.6273	212	0.7379
213	0.6143	213	0.71
214	0.6013	214	0.6812
215	0.5885	215	0.6523

216	0.5763	216	0.6244
217	0.565	217	0.5982
218	0.5547	218	0.5743
219	0.5456	219	0.5525
220	0.5379	220	0.5317
221	0.5315	221	0.5105
222	0.5263	222	0.4874
223	0.5218	223	0.4623
224	0.517	224	0.4363
225	0.5113	225	0.4107
226	0.5039	226	0.3861
227	0.4955	227	0.3624
228	0.4876	228	0.3395
229	0.4813	229	0.3173
230	0.4775	230	0.2951
231	0.4765	231	0.2724
232	0.4769	232	0.2489
233	0.4781	233	0.2262
234	0.481	234	0.2041
235	0.4844	235	0.1839
236	0.4885	236	0.1657
237	0.4928	237	0.1477
238	0.4969	238	0.1284
239	0.5013	239	0.1097
240	0.5068	240	0.0943
241	0.5133	241	0.0815
242	0.5207	242	0.0701
243	0.5286	243	0.0589
244	0.5368	244	0.0468
245	0.5449	245	0.0326
246	0.5531	246	0.0126
247	0.5614	247	-0.0051
248	0.5694	248	-0.0172
249	0.5774	249	-0.0276
250	0.5853	250	-0.0365
251	0.5931	251	-0.0445
252	0.6009	252	-0.052
253	0.6085	253	-0.0596
254	0.6161	254	-0.0675
255	0.6236	255	-0.0764
256	0.631	256	-0.0865
257	0.6384	257	-0.0976
258	0.6458	258	-0.1092
259	0.6531	259	-0.121
260	0.6601	260	-0.1328
261	0.6667	261	-0.1442
262	0.6727	262	-0.1547

263	0.6779	263	-0.1634
264	0.6829	264	-0.1718
265	0.6881	265	-0.1818
266	0.6943	266	-0.1952
267	0.7027	267	-0.2179
268	0.7122	268	-0.2507
269	0.7214	269	-0.2903
270	0.7284	270	-0.332
271	0.7305	271	-0.3587
272	0.7285	272	-0.3987
273	0.724	273	-0.4434
274	0.7186	274	-0.4758
275	0.7109	275	-0.4977
276	0.7024	276	-0.517
277	0.6928	277	-0.5354
278	0.6812	278	-0.5621
279	0.6666	279	-0.5946
280	0.6471	280	-0.6331
281	0.6241	281	-0.7217
282	0.5996	282	-0.7734
283	0.5755	283	-0.8178
284	0.5501	284	-0.8568
285	0.5144	285	-0.893
286	0.4032	286	-0.9251
287	0.351	287	-0.957
288	0.3022	288	-0.9918
289	0.2586	289	-1.0335
290	0.2197	290	-1.0875
291	0.1826	291	-1.1402
292	0.141	292	-1.1795
293	0.1002	293	-1.212
294	0.064	294	-1.248
295	0.035	295	-1.3306
296	0.01	296	-1.379
297	-0.0117	297	-1.4121
298	-0.0337	298	-1.4352
299	-0.058	299	-1.4524
300	-0.0856	300	-1.4656

Kina - nq=56 - Opening - 40 mm

Theta	Wh	Theta	Wm
30	0.0314	30	0.1889
31	0.0562	31	0.2139
32	0.0837	32	0.2413
33	0.1144	33	0.2703
34	0.1404	34	0.2953
35	0.1685	35	0.3123
36	0.1976	36	0.3343
37	0.2256	37	0.3524
38	0.253	38	0.3725
39	0.2845	39	0.3877
40	0.3175	40	0.405
41	0.3521	41	0.4251
42	0.3928	42	0.4482
43	0.4292	43	0.4675
44	0.4652	44	0.4846
45	0.5	45	0.5
46	0.5295	46	0.515
47	0.5534	47	0.5307
48	0.5781	48	0.5457
49	0.6041	49	0.5595
50	0.6283	50	0.5733
51	0.6513	51	0.5872
52	0.6734	52	0.6011
53	0.695	53	0.6148
54	0.7164	54	0.6283
55	0.7374	55	0.6415
56	0.7582	56	0.6543
57	0.7785	57	0.6671
58	0.7985	58	0.6797
59	0.8184	59	0.6917
60	0.8384	60	0.7024
61	0.8587	61	0.7119
62	0.8793	62	0.7209
63	0.8998	63	0.7293
64	0.9201	64	0.7368
65	0.9399	65	0.7433
66	0.9592	66	0.7487
67	0.9784	67	0.7538
68	0.9974	68	0.7584
69	1.016	69	0.7625
70	1.0338	70	0.7661
71	1.0508	71	0.7691
72	1.0667	72	0.7717
73	1.082	73	0.7742
74	1.0965	74	0.7764

75	1.1103	75	0.7779
76	1.1234	76	0.7785
77	1.1358	77	0.7779
78	1.1478	78	0.7761
79	1.1592	79	0.7732
80	1.17	80	0.7695
81	1.1802	81	0.7652
82	1.1895	82	0.7577
83	1.1981	83	0.7453
84	1.2064	84	0.7291
85	1.215	85	0.7107
86	1.2241	86	0.6876
87	1.2334	87	0.6545
88	1.2436	88	0.6321
89	1.2552	89	0.6217
90	1.2687	90	0.6172
91	1.2857	91	0.6252
92	1.3052	92	0.643
93	1.3242	93	0.6614
94	1.3419	94	0.6804
95	1.3609	95	0.702
96	1.3827	96	0.7266
97	1.4058	97	0.7534
98	1.4289	98	0.7807
99	1.4535	99	0.8102
100	1.482	100	0.8441
101	1.5135	101	0.8811
102	1.548	102	0.9205
103	1.5851	103	0.962
104	1.6192	104	1
105	1.6487	105	1.0326
106	1.6796	106	1.0663
107	1.7133	107	1.1025
108	1.7462	108	1.1381
109	1.7767	109	1.1719
110	1.8009	110	1.2002
111	1.8212	111	1.2253
112	1.8378	112	1.2472
113	1.85	113	1.2651
114	1.8564	114	1.2789
115	1.8592	115	1.2904
116	1.8597	116	1.295
117	1.8544	117	1.2961
118	1.8449	118	1.2968
119	1.8342	119	1.2969
120	1.8206	120	1.2929
121	1.8041	121	1.2857

122	1.7865	122	1.278
123	1.7651	123	1.2671
124	1.751	124	1.2628
125	1.744	125	1.2665
126	1.7406	126	1.2722
127	1.7385	127	1.2809
128	1.7374	128	1.2913
129	1.7375	129	1.3025
130	1.7378	130	1.315
131	1.7379	131	1.3281
132	1.7379	132	1.3419
133	1.7377	133	1.3562
134	1.7375	134	1.3703
135	1.7369	135	1.3837
136	1.7349	136	1.397
137	1.7315	137	1.4101
138	1.7271	138	1.423
139	1.7221	139	1.4354
140	1.7169	140	1.4472
141	1.7116	141	1.4585
142	1.7051	142	1.4696
143	1.6976	143	1.4801
144	1.6893	144	1.4896
145	1.6804	145	1.4977
146	1.6708	146	1.5054
147	1.6603	147	1.513
148	1.6487	148	1.5197
149	1.636	149	1.5246
150	1.6221	150	1.5268
151	1.6066	151	1.5264
152	1.589	152	1.5249
153	1.5695	153	1.5225
154	1.5485	154	1.5192
155	1.5262	155	1.5154
156	1.5028	156	1.5108
157	1.4754	157	1.5003
158	1.4449	158	1.4848
159	1.4137	159	1.4675
160	1.3843	160	1.4518
161	1.3592	161	1.4408
162	1.3383	162	1.4337
163	1.3199	163	1.4283
164	1.3045	164	1.4261
165	1.2914	165	1.4253
166	1.2798	166	1.4248
167	1.2689	167	1.4245
168	1.258	168	1.424

169	1.2463	169	1.4233
170	1.233	170	1.421
171	1.218	171	1.4151
172	1.2023	172	1.4071
173	1.1871	173	1.3985
174	1.1733	174	1.3912
175	1.1622	175	1.3869
176	1.154	176	1.3851
177	1.1475	177	1.3841
178	1.1416	178	1.3832
179	1.135	179	1.382
180	1.1265	180	1.38
181	1.1152	181	1.3697
182	1.1012	182	1.3469
183	1.0851	183	1.3164
184	1.0677	184	1.2827
185	1.0495	185	1.2504
186	1.0311	186	1.2234
187	1.011	187	1.1977
188	0.9894	188	1.1722
189	0.9671	189	1.1472
190	0.9449	190	1.123
191	0.9233	191	1.1
192	0.9014	192	1.0781
193	0.8795	193	1.0568
194	0.8578	194	1.0354
195	0.8365	195	1.0133
196	0.8157	196	0.9903
197	0.7954	197	0.9668
198	0.7749	198	0.9429
199	0.7537	199	0.9185
200	0.732	200	0.8934
201	0.7102	201	0.8681
202	0.6889	202	0.843
203	0.668	203	0.8179
204	0.6473	204	0.7929
205	0.6277	205	0.7682
206	0.6099	206	0.7441
207	0.5935	207	0.7206
208	0.5778	208	0.6973
209	0.5624	209	0.6745
210	0.5473	210	0.6522
211	0.5331	211	0.6296
212	0.5205	212	0.606
213	0.5091	213	0.5818
214	0.4977	214	0.5568
215	0.4856	215	0.5304

216	0.4732	216	0.5026
217	0.4601	217	0.4744
218	0.4458	218	0.4461
219	0.4303	219	0.4168
220	0.4144	220	0.3879
221	0.3991	221	0.3607
222	0.3853	222	0.3367
223	0.3723	223	0.3158
224	0.3603	224	0.2958
225	0.3496	225	0.2741
226	0.34	226	0.2508
227	0.3342	227	0.228
228	0.3304	228	0.206
229	0.3304	229	0.1899
230	0.3331	230	0.1778
231	0.3364	231	0.1592
232	0.3408	232	0.1289
233	0.3495	233	0.1039
234	0.3615	234	0.0869
235	0.3725	235	0.0779
236	0.3829	236	0.0682
237	0.3924	237	0.0552
238	0.4021	238	0.0416
239	0.412	239	0.0278
240	0.4217	240	0.0145
241	0.4313	241	0.0019
242	0.4411	242	-0.0102
243	0.451	243	-0.0219
244	0.461	244	-0.0336
245	0.4711	245	-0.0457
246	0.4814	246	-0.058
247	0.4917	247	-0.0703
248	0.502	248	-0.0824
249	0.5123	249	-0.0942
250	0.5226	250	-0.1057
251	0.5328	251	-0.1168
252	0.543	252	-0.1276
253	0.5528	253	-0.1378
254	0.5613	254	-0.1451
255	0.5686	255	-0.1503
256	0.5757	256	-0.1555
257	0.5839	257	-0.1624
258	0.5929	258	-0.171
259	0.6023	259	-0.1807
260	0.6116	260	-0.191
261	0.6206	261	-0.2018
262	0.6299	262	-0.2134

263	0.6393	263	-0.2258
264	0.6482	264	-0.2387
265	0.656	265	-0.252
266	0.6624	266	-0.2654
267	0.6681	267	-0.2794
268	0.6733	268	-0.294
269	0.6774	269	-0.3087
270	0.6797	270	-0.3232
271	0.6807	271	-0.3364
272	0.6813	272	-0.3506
273	0.6802	273	-0.3704
274	0.6763	274	-0.3958
275	0.6713	275	-0.4209
276	0.6645	276	-0.4443
277	0.6556	277	-0.4682
278	0.6451	278	-0.4949
279	0.6315	279	-0.5262
280	0.6149	280	-0.5593
281	0.5947	281	-0.5912
282	0.5721	282	-0.6229
283	0.5473	283	-0.6593
284	0.5188	284	-0.7058
285	0.4898	285	-0.7648
286	0.4629	286	-0.7985
287	0.4316	287	-0.8451
288	0.3965	288	-0.8947
289	0.3626	289	-0.9316
290	0.3284	290	-0.9703
291	0.295	291	-1.0081
292	0.2536	292	-1.0475
293	0.2113	293	-1.0869
294	0.1685	294	-1.1264
295	0.1399	295	-1.1668
296	0.1148	296	-1.2164
297	0.0784	297	-1.2562
298	0.0295	298	-1.2866
299	-0.0152	299	-1.3104
300	-0.0504	300	-1.3297

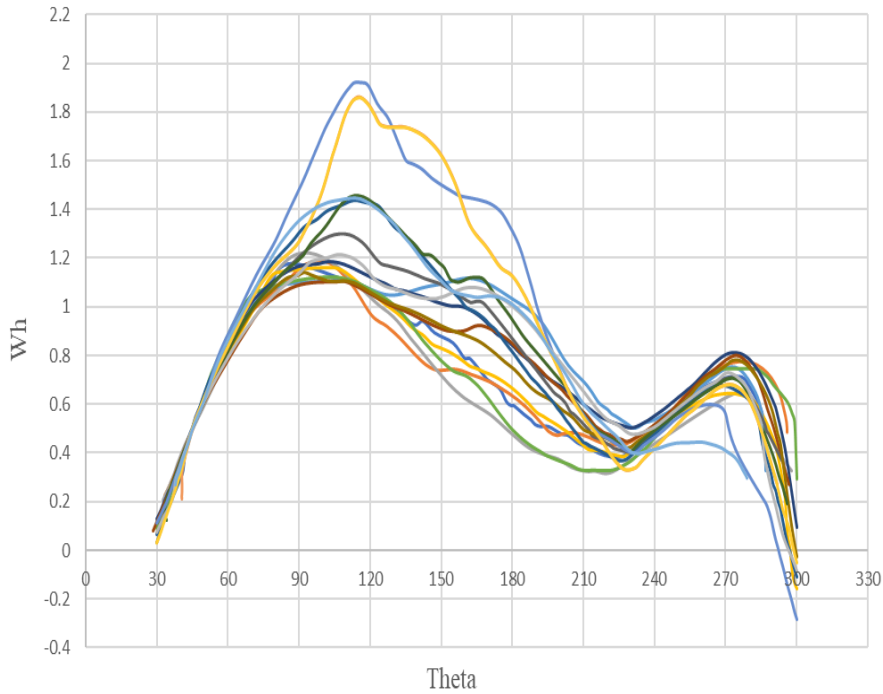
Rusija - nq=64.04 - Otvor - 16 mm

Theta	Wh	Theta	Wm
37.6555	0.267212	37.6555	0.42987
37.79712	0.279575	37.79712	0.432495
38.17989	0.295889	38.17989	0.436741
39.27304	0.323105	39.27304	0.450833
39.96466	0.346672	39.96466	0.455398
40.73297	0.373179	40.73297	0.459708
42.05997	0.410601	42.05997	0.473136
43.67407	0.455908	43.67407	0.491765
45	0.5	45	0.5
49.35363	0.602781	49.35363	0.548447
52.38095	0.688576	52.38095	0.551555
58.52575	0.837738	58.52575	0.557799
72.87648	1.105104	72.87648	0.660632
80.31043	1.236789	80.31043	0.699082
88.35052	1.339609	88.35052	0.743276
95.78775	1.39979	95.78775	0.812641
102.0265	1.428971	102.0265	0.860546
107.3564	1.439765	107.3564	0.91568
111.648	1.446827	111.648	0.979851
115.6708	1.444157	115.6708	1.025452
119.7881	1.424013	119.7881	1.055628
123.6158	1.397109	123.6158	1.081631
127.1297	1.367334	127.1297	1.10371
130.3506	1.336995	130.3506	1.119893
133.6035	1.29486	133.6035	1.120716
136.3908	1.263409	136.3908	1.126334
139.0676	1.229316	139.0676	1.12544
141.5942	1.195433	141.5942	1.120801
143.9323	1.165015	143.9323	1.117406
146.0292	1.14266	146.0292	1.121602
147.9805	1.124484	147.9805	1.129712
149.8611	1.106733	149.8611	1.137058
151.7012	1.087751	151.7012	1.140935
153.4351	1.072568	153.4351	1.146562
155.0495	1.063277	155.0495	1.157556
156.5989	1.056694	156.5989	1.171879
158.1019	1.051923	158.1019	1.189601
159.5679	1.04861	159.5679	1.209458
161.0081	1.046108	161.0081	1.2292
162.435	1.043329	162.435	1.246336
163.8505	1.040127	163.8505	1.261432
165.238	1.038809	165.238	1.277861
166.5979	1.040093	166.5979	1.29706
167.9478	1.042069	167.9478	1.317202
169.2947	1.043796	169.2947	1.337507

170.6435	1.044311	170.6435	1.355958
171.9943	1.043096	171.9943	1.370807
173.3424	1.040871	173.3424	1.382443
174.6869	1.037494	174.6869	1.39212
176.0268	1.032762	176.0268	1.397893
177.3604	1.026488	177.3604	1.397401
178.6856	1.018671	178.6856	1.391912
180	1.009523	180	1.383401
181.3018	0.999269	181.3018	1.372075
182.5897	0.98813	182.5897	1.358358
183.8629	0.976324	183.8629	1.343284
185.1211	0.964059	185.1211	1.3273
186.3641	0.951504	186.3641	1.310729
187.591	0.938457	187.591	1.293378
188.7997	0.924654	188.7997	1.274969
189.9873	0.909863	189.9873	1.255162
191.1499	0.893767	191.1499	1.233472
192.2864	0.876679	192.2864	1.210286
193.399	0.859185	193.399	1.186374
194.491	0.841807	194.491	1.162269
195.5667	0.825	195.5667	1.13655
196.6309	0.809103	196.6309	1.109919
197.6822	0.79381	197.6822	1.083014
198.7183	0.778838	198.7183	1.056433
199.7375	0.764008	199.7375	1.029592
200.7374	0.749163	200.7374	1.001341
201.7155	0.734172	201.7155	0.972258
202.6732	0.719177	202.6732	0.943214
203.6117	0.704289	203.6117	0.914078
204.529	0.68941	204.529	0.884636
205.4226	0.674457	205.4226	0.85499
206.2807	0.658928	206.2807	0.824696
207.1156	0.643501	207.1156	0.79452
207.9584	0.62949	207.9584	0.766086
208.8069	0.616619	208.8069	0.739121
209.6512	0.604375	209.6512	0.713077
210.5105	0.593359	210.5105	0.688725
211.3851	0.583425	211.3851	0.665769
212.2607	0.573978	212.2607	0.643322
213.1322	0.564808	213.1322	0.621324
214.0136	0.556297	214.0136	0.600373
214.9089	0.548471	214.9089	0.580506
215.8019	0.540826	215.8019	0.561024
216.6733	0.532862	216.6733	0.541267
217.5323	0.524849	217.5323	0.521438
218.3806	0.516842	218.3806	0.502088
219.219	0.508867	219.219	0.482958

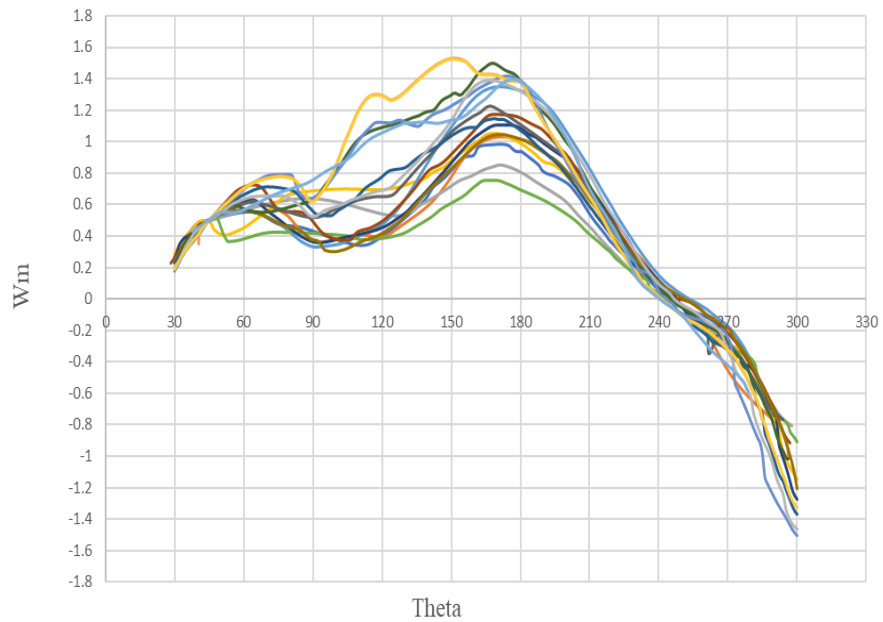
220.0536	0.501057	220.0536	0.463615
220.8851	0.49342	220.8851	0.443536
221.7143	0.485953	221.7143	0.421996
222.5539	0.47888	222.5539	0.398544
223.3846	0.471821	223.3846	0.373984
224.1713	0.464199	224.1713	0.3491
224.9222	0.456224	224.9222	0.324802
225.6416	0.44802	225.6416	0.300416
226.321	0.439505	226.321	0.275362
226.9906	0.431157	226.9906	0.249563
227.7007	0.423649	227.7007	0.223703
228.4509	0.416887	228.4509	0.1982
229.1863	0.410114	229.1863	0.173168
229.9129	0.403415	229.9129	0.149166
230.8313	0.399067	230.8313	0.12719
231.9996	0.397411	231.9996	0.106357
233.1996	0.39582	233.1996	0.08494
234.981	0.399653	234.981	0.063038
237.1003	0.405712	237.1003	0.038972
239.3896	0.411959	239.3896	0.012293
241.8916	0.418405	241.8916	-0.01758
245.4005	0.430133	245.4005	-0.05176
248.9231	0.438507	248.9231	-0.08944
251.8554	0.440475	251.8554	-0.13275
254.9843	0.440929	254.9843	-0.19078
259.5554	0.443166	259.5554	-0.27103
262.7372	0.437341	262.7372	-0.32641
265.7683	0.428928	265.7683	-0.36814
268.4208	0.418367	268.4208	-0.40004
270.1702	0.406634	270.1702	-0.4248
272.0279	0.394607	272.0279	-0.45035
273.6667	0.38248	273.6667	-0.47342
274.6952	0.370955	274.6952	-0.49064
275.4867	0.359974	275.4867	-0.50414
276.1407	0.349497	276.1407	-0.5139
276.677	0.339525	276.677	-0.52293
277.1616	0.329971	277.1616	-0.53626
277.6722	0.320711	277.6722	-0.55078
278.1947	0.311747	278.1947	-0.57332
278.6649	0.303166	278.6649	-0.58388
279.0389	0.295034	279.0389	-0.59356

Wh - Suterove Krive - Pumpne Turbine (17 Modela)



- $nq = 17.53$ - Pumpna Turbina - Kina (Otvor - 26.8°)
- $nq = 20.73$ - Pumpna Turbina - Kina (Otvor - 24 mm)
- $nq = 24.34$ - Pumpna Turbina - Kina (Otvor - 24 mm)
- $nq = 24.8$ - Pumpna Turbina - USA (Otvor - 26 mm)
- $nq = 26.24$ - Pumpna Turbina - Kina (Otvor - 17.5°)
- $nq = 27$ - Pumpna Turbina - Srbija (Otvor - 24 mm)
- $nq = 28.6$ - Pumpna Turbina - USA (Otvor - 18°)
- $nq = 30.95$ - Pumpna Turbina - Kina (Otvor - 20°)
- $nq = 35.89$ - Pumpna Turbina - Kina (Otvor - 33 mm)
- $nq = 38$ - Pumpna Turbina - Kina (Otvor - 24°)
- $nq = 41.6$ - Pumpna Turbina - Austrija (Otvor - 36 mm)
- $nq = 41.9$ - Pumpna Turbina - Kina (Otvor - 20°)
- $nq = 43.83$ - Pumpna Turbina - Rusija (Otvor - 28 mm)
- $nq = 44.93$ - Pumpna Turbina - Kina (Otvor - 40 mm)
- $nq = 50$ - Pumpna Turbina - Kina (Otvor - 20.03°)
- $nq = 56$ - Pumpna Turbina - Kina (Otvor - 40 mm)
- $nq = 64.04$ - Pumpna Turbina - Rusija (Otvor - 16 mm)

Wm - Suterove Krive - Pumpne Turbine (17 Modela)



- $nq = 17.53$ - Pumpna Turbina - Kina (Otvor - 26.8°)
- $nq = 20.73$ - Pumpna Turbina - Kina (Otvor - 24 mm)
- $nq = 24.34$ - Pumpna Turbina - Kina (Otvor - 24 mm)
- $nq = 24.8$ - Pumpna Turbina - USA (Otvor - 26 mm)
- $nq = 26.24$ - Pumpna Turbina - Kina (Otvor - 17.5°)
- $nq = 27$ - Pumpna Turbina - Srbija (Otvor - 24 mm)
- $nq = 28.6$ - Pumpna Turbina - USA (Otvor - 18°)
- $nq = 30.95$ - Pumpna Turbina - Kina (Otvor - 20°)
- $nq = 35.89$ - Pumpna Turbina - Kina (Otvor - 33 mm)
- $nq = 38$ - Pumpna Turbina - Kina (Otvor - 24°)
- $nq = 41.6$ - Pumpna Turbina - Austrija (Otvor - 36 mm)
- $nq = 41.9$ - Pumpna Turbina - Kina (Otvor - 20°)
- $nq = 43.83$ - Pumpna Turbina - Rusija (Otvor - 28 mm)
- $nq = 44.93$ - Pumpna Turbina - Kina (Otvor - 40 mm)
- $nq = 50$ - Pumpna Turbina - Kina (Otvor - 20.03°)
- $nq = 56$ - Pumpna Turbina - Kina (Otvor - 40 mm)
- $nq = 64.04$ - Pumpna Turbina - Rusija (Otvor - 16 mm)

21 Model Pumpi - Wh i Wm

Pumpa - nq=15.7		
Theta	Wh	Wm
0	-0.44	-0.61
5	-0.34	-0.49
10	-0.23	-0.36
15	-0.13	-0.24
20	-0.02	-0.12
25	0.08	0.01
30	0.19	0.13
35	0.29	0.25
40	0.4	0.38
45	0.5	0.5
50	0.6	0.53
55	0.72	0.57
60	0.83	0.6
65	0.92	0.62
70	1	0.62
75	1.1	0.6
80	1.2	0.55
85	1.28	0.47
90	1.31	0.4
95	1.29	0.3
100	1.26	0.25
105	1.26	0.23
110	1.24	0.26
115	1.2	0.32
120	1.16	0.4
125	1.12	0.48
130	1.11	0.55
135	1.1	0.63
140	1.49	0.97
145	1.47	1.05
150	1.45	1.12
155	1.4	1.13
160	1.32	1.14
165	1.26	1.12
170	1.18	1.08
175	1.12	1.04
180	1.11	1.03
185	1.1	1
190	1.07	0.97
195	1.02	0.92
200	0.98	0.86

205	0.9	0.76
210	0.78	0.64
215	0.68	0.51
220	0.6	0.4
225	0.6	0.29
230	0.6	0.18
235	0.6	0.07
240	0.6	-0.04
245	0.6	-0.16
250	0.6	-0.27
255	0.6	-0.38
260	0.6	-0.49
265	0.6	-0.6
270	0.6	-0.71
275	0.54	-0.82
280	0.48	-0.93
285	0.43	-1.04
290	0.37	-1.16
295	0.31	-1.27
300	0.25	-1.38
305	0.2	-1.49
310	0.14	-1.6
315	0.08	-1.6
320	0.02	-1.6
325	-0.04	-1.48
330	-0.09	-1.35
335	-0.15	-1.23
340	-0.21	-1.11
345	-0.27	-0.98
350	-0.32	-0.86
355	-0.38	-0.74
360	-0.44	-0.61

Pumpa - nq=20.5		
Theta	Wh	Wm
0	-0.44	-0.62
5	-0.37	-0.51
10	-0.21	-0.41
15	-0.11	-0.3
20	-0.04	-0.19
25	-0.01	0.01
30	0.09	0.23
35	0.22	0.34
40	0.36	0.42
45	0.5	0.5
50	0.64	0.54
55	0.79	0.57
60	0.92	0.57
65	1.03	0.55
70	1.11	0.51
75	1.2	0.47
80	1.24	0.42
85	1.27	0.38
90	1.28	0.34
95	1.28	0.3
100	1.27	0.27
105	1.26	0.25
110	1.25	0.24
115	1.24	0.25
120	1.25	0.28
125	1.23	0.31
130	1.19	0.38
135	1.19	0.44
140	1.2	0.5
145	1.19	0.56
150	1.14	0.62
155	1.09	0.67
160	1.02	0.7
165	0.96	0.72
170	0.9	0.73
175	0.83	0.74
180	0.77	0.73
185	0.7	0.7
190	0.63	0.66
195	0.56	0.61
200	0.49	0.56
205	0.43	0.51
210	0.4	0.45
215	0.39	0.39

220	0.4	0.33
225	0.42	0.27
230	0.48	0.2
235	0.53	0.13
240	0.6	0.07
245	0.63	0
250	0.67	-0.07
255	0.71	-0.15
260	0.73	-0.24
265	0.74	-0.31
270	0.74	-0.4
275	0.7	-0.49
280	0.61	-0.6
285	0.5	-0.74
290	0.39	-0.89
295	0.26	-1.01
300	0.14	-1.14
305	0.01	-1.25
310	-0.15	-1.4
315	-0.3	-1.6
320	-0.45	-1.63
325	-0.6	-1.56
330	-0.64	-1.44
335	-0.66	-1.33
340	-0.68	-1.18
345	-0.66	-1
350	-0.6	-0.83
355	-0.53	-0.7
360	-0.44	-0.62

Pumpa - nq=22.1		
Theta	Wh	Wm
0	-0.37	-0.42
5	-0.32	-0.27
10	-0.24	-0.12
15	-0.15	0.01
20	-0.06	0.14
25	0.02	0.24
30	0.18	0.33
35	0.31	0.41
40	0.41	0.47
45	0.5	0.5
50	0.61	0.54
55	0.7	0.56
60	0.84	0.59
65	0.94	0.58
70	1.08	0.58
75	1.2	0.54
80	1.29	0.47
85	1.35	0.39
90	1.38	0.32
95	1.4	0.26
100	1.41	0.21
105	1.42	0.21
110	1.44	0.24
115	1.45	0.29
120	1.44	0.33
125	1.44	0.38
130	1.41	0.41
135	1.48	0.43
140	1.45	0.46
145	1.42	0.48
150	1.38	0.5
155	1.33	0.52
160	1.26	0.56
165	1.19	0.59
170	1.08	0.6
175	1.09	0.57
180	0.85	0.48
185	0.71	0.39
190	0.59	0.34
195	0.51	0.29
200	0.45	0.25
205	0.44	0.21
210	0.45	0.19
215	0.48	0.15

220	0.53	0.11
225	0.59	0.07
230	0.63	0.03
235	0.69	-0.02
240	0.77	-0.06
245	0.85	-0.11
250	0.91	-0.19
255	0.94	-0.27
260	0.94	-0.38
265	0.91	-0.49
270	0.86	-0.62
275	0.77	-0.73
280	0.69	-0.81
285	0.64	-0.86
290	0.59	-0.87
295	0.5	-0.9
300	0.42	-0.93
305	0.31	-1.09
310	0.21	-1.09
315	0.12	-1.09
320	0.05	-1.1
325	-0.04	-0.97
330	-0.13	-0.95
335	-0.22	-0.92
340	-0.3	-0.88
345	-0.36	-0.78
350	-0.38	-0.69
355	-0.38	-0.59
360	-0.37	-0.42

Pumpa - nq=24 (25)		
Theta	Wh	Wm
0	0.634	-0.684
4.091	0.643	-0.547
8.182	0.646	-0.414
12.273	0.64	-0.292
16.364	0.629	-0.187
20.455	0.613	-0.105
24.545	0.595	-0.053
28.636	0.575	-0.012
32.727	0.552	0.042
36.818	0.533	0.097
40.909	0.516	0.156
45	0.505	0.227
49.091	0.504	0.3
53.182	0.51	0.371
57.273	0.512	0.444
61.364	0.522	0.522
65.455	0.539	0.596
69.545	0.559	0.672
73.636	0.58	0.738
77.727	0.601	0.763
81.818	0.63	0.797
85.909	0.662	0.837
90	0.692	0.865
94.091	0.722	0.883
98.182	0.753	0.886
102.273	0.782	0.877
106.364	0.808	0.859
110.455	0.832	0.838
114.546	0.857	0.804
118.636	0.879	0.758
122.727	0.904	0.703
126.818	0.93	0.645
130.909	0.959	0.583
135	0.996	0.52
139.091	1.027	0.454
143.182	1.06	0.408
147.273	1.09	0.37
151.364	1.124	0.343
155.455	1.165	0.331
159.546	1.204	0.329
163.636	1.238	0.338
167.727	1.258	0.354
171.818	1.271	0.372
175.909	1.282	0.405

180	1.288	0.45
184.091	1.281	0.486
188.182	1.26	0.52
192.273	1.225	0.552
196.364	1.172	0.579
200.455	1.107	0.603
204.546	1.031	0.616
208.636	0.942	0.617
212.727	0.842	0.606
216.818	0.733	0.582
220.909	0.617	0.546
225	0.5	0.5
229.091	0.368	0.432
233.182	0.24	0.36
237.273	0.125	0.288
241.364	0.011	0.214
245.455	-0.102	0.123
249.546	-0.168	0.037
253.636	-0.255	-0.053
257.727	-0.342	-0.161
261.818	-0.423	-0.248
265.909	-0.494	-0.314
270	-0.556	-0.372
274.091	-0.62	-0.58
278.182	-0.655	-0.74
282.273	-0.67	-0.88
286.364	-0.67	-1
290.455	-0.66	-1.12
294.545	-0.655	-1.25
298.636	-0.64	-1.37
302.727	-0.6	-1.49
306.818	-0.57	-1.59
310.909	-0.52	-1.66
315	-0.47	-1.69
319.091	-0.43	-1.77
323.182	-0.36	-1.65
327.273	-0.275	-1.59
331.364	-0.16	-1.52
335.455	-0.04	-1.42
339.545	0.13	-1.32
343.636	0.295	-1.23
347.727	0.43	-1.1
351.818	0.55	-0.98
355.909	0.62	-0.82
360	0.634	-0.684

Pumpa - nq=25.5		
Theta	Wh	Wm
0	-0.44	-0.34
5	-0.34	-0.25
10	-0.23	-0.15
15	-0.13	-0.06
20	-0.02	0.03
25	0.08	0.13
30	0.19	0.22
35	0.29	0.31
40	0.4	0.41
45	0.5	0.5
50	0.64	0.52
55	0.76	0.54
60	0.91	0.57
65	1.06	0.62
70	1.22	0.67
75	1.38	0.71
80	1.48	0.75
85	1.58	0.79
90	1.62	0.8
95	1.62	0.81
100	1.6	0.82
105	1.56	0.83
110	1.51	0.83
115	1.46	0.82
120	1.39	0.8
125	1.3	0.77
130	1.17	0.72
135	1.06	0.7
140	1.03	0.76
145	1.06	0.84
150	1.08	0.91
155	1	0.94
160	0.92	0.96
165	0.87	0.92
170	0.84	0.9
175	0.8	0.89
180	0.77	0.87
185	0.76	0.86
190	0.76	0.89
195	0.77	0.94
200	0.76	0.92
205	0.76	0.87
210	0.75	0.8
215	0.73	0.75

220	0.69	0.67
225	0.69	0.57
230	0.69	0.47
235	0.69	0.38
240	0.69	0.28
245	0.69	0.18
250	0.69	0.08
255	0.69	-0.01
260	0.69	-0.11
265	0.69	-0.21
270	0.69	-0.31
275	0.63	-0.41
280	0.57	-0.5
285	0.51	-0.6
290	0.45	-0.7
295	0.4	-0.8
300	0.34	-0.89
305	0.28	-0.99
310	0.22	-1.09
315	0.16	-1.09
320	0.1	-1.09
325	0.04	-1
330	-0.02	-0.9
335	-0.08	-0.81
340	-0.13	-0.72
345	-0.19	-0.62
350	-0.25	-0.53
355	-0.31	-0.44
360	-0.37	-0.34

Pumpa - nq=28.8		
Theta	Wh	Wm
0	-0.44	-0.61
5	-0.34	-0.49
10	-0.23	-0.36
15	-0.13	-0.24
20	-0.02	-0.12
25	0.08	0.01
30	0.19	0.13
35	0.29	0.25
40	0.4	0.38
45	0.5	0.5
50	0.6	0.58
55	0.77	0.73
60	0.9	0.88
65	0.97	1
70	1.11	1.14
75	1.32	1.3
80	1.36	1.43
85	1.36	1.52
90	1.37	1.6
95	1.4	1.65
100	1.47	1.7
105	1.54	1.72
110	1.62	1.7
115	1.69	1.67
120	1.74	1.62
125	1.79	1.58
130	1.77	1.5
135	1.69	1.43
140	1.6	1.37
145	1.46	1.32
150	1.31	1.28
155	1.14	1.24
160	1	1.19
165	0.85	1.07
170	0.74	0.93
175	0.64	0.77
180	0.53	0.62
185	0.47	0.55
190	0.41	0.5
195	0.37	0.45
200	0.38	0.42
205	0.38	0.38
210	0.34	0.3
215	0.33	0.23

220	0.36	0.2
225	0.36	0.1
230	0.36	0
235	0.36	-0.1
240	0.36	-0.2
245	0.36	-0.3
250	0.36	-0.4
255	0.36	-0.5
260	0.36	-0.6
265	0.36	-0.7
270	0.36	-0.8
275	0.32	-0.9
280	0.27	-1
285	0.23	-1.1
290	0.18	-1.2
295	0.14	-1.3
300	0.09	-1.4
305	0.05	-1.5
310	0	-1.6
315	-0.04	-1.6
320	-0.08	-1.6
325	-0.13	-1.48
330	-0.17	-1.35
335	-0.22	-1.23
340	-0.26	-1.11
345	-0.31	-0.98
350	-0.35	-0.86
355	-0.4	-0.74
360	-0.44	-0.61

Pumpa - nq=30.3		
Theta	Wh	Wm
0	-0.44	-0.61
5	-0.34	-0.49
10	-0.23	-0.36
15	-0.13	-0.24
20	-0.02	-0.12
25	0.08	0.01
30	0.19	0.13
35	0.29	0.25
40	0.4	0.38
45	0.5	0.5
50	0.65	0.44
55	0.8	0.47
60	0.93	0.49
65	1.06	0.5
70	1.17	0.5
75	1.26	0.51
80	1.33	0.51
85	1.4	0.52
90	1.45	0.52
95	1.45	0.53
100	1.44	0.54
105	1.42	0.56
110	1.41	0.63
115	1.39	0.71
120	1.4	0.79
125	1.39	0.9
130	1.39	1.04
135	1.41	1.22
140	1.48	1.42
145	1.67	1.64
150	2.07	1.99
155	2.3	2.23
160	2.39	2.34
165	2.35	2.38
170	2.23	2.33
175	2.07	2.23
180	1.8	2.05
185	1.62	1.88
190	1.44	1.7
195	1.23	1.47
200	1	1.22
205	0.9	1
210	0.8	0.9
215	0.73	0.78

220	0.68	0.65
225	0.68	0.53
230	0.68	0.4
235	0.68	0.28
240	0.68	0.15
245	0.68	0.03
250	0.68	-0.1
255	0.68	-0.23
260	0.68	-0.35
265	0.68	-0.48
270	0.68	-0.6
275	0.62	-0.73
280	0.56	-0.85
285	0.49	-0.98
290	0.43	-1.1
295	0.37	-1.23
300	0.31	-1.35
305	0.24	-1.48
310	0.18	-1.6
315	0.12	-1.6
320	0.06	-1.6
325	0	-1.48
330	-0.07	-1.35
335	-0.13	-1.23
340	-0.19	-1.11
345	-0.25	-0.98
350	-0.32	-0.86
355	-0.38	-0.74
360	-0.44	-0.61

Pumpa - nq=37.4		
Theta	Wh	Wm
0	-0.96	-0.58
5	-0.78	-0.4
10	-0.6	-0.25
15	-0.43	-0.1
20	-0.27	0.05
25	-0.1	0.16
30	0.08	0.27
35	0.22	0.36
40	0.38	0.43
45	0.5	0.5
50	0.64	0.54
55	0.74	0.57
60	0.81	0.58
65	0.9	0.57
70	1	0.55
75	1.08	0.51
80	1.12	0.48
85	1.14	0.42
90	1.14	0.38
95	1.14	0.35
100	1.14	0.34
105	1.13	0.35
110	1.12	0.38
115	1.11	0.41
120	1.08	0.46
125	1.05	0.52
130	1.03	0.6
135	1.04	0.71
140	1.06	0.81
145	1.06	0.9
150	1.05	1
155	1.04	1.08
160	1.03	1.14
165	1.03	1.2
170	1.02	1.22
175	0.97	1.22
180	0.9	1.2
185	0.85	1.14
190	0.8	1.08
195	0.75	1
200	0.71	0.9
205	0.67	0.8
210	0.62	0.7
215	0.58	0.59

220	0.53	0.48
225	0.51	0.36
230	0.49	0.26
235	0.5	0.17
240	0.52	0.1
245	0.54	0.03
250	0.57	-0.02
255	0.59	-0.09
260	0.6	-0.15
265	0.59	-0.2
270	0.56	-0.27
275	0.5	-0.36
280	0.41	-0.48
285	0.29	-0.62
290	0.09	-0.77
295	-0.11	-0.9
300	-0.31	-1.02
305	-0.49	-1.12
310	-0.52	-1.25
315	-0.54	-1.4
320	-0.57	-1.55
325	-0.6	-1.55
330	-0.64	-1.4
335	-0.67	-1.25
340	-0.7	-1.1
345	-0.75	-0.95
350	-0.8	-0.8
355	-0.9	-0.68
360	-0.96	-0.58

Pumpa - nq=41.8		
Theta	Wh	Wm
0	-0.55	-0.56
5	-0.44	-0.36
10	-0.34	-0.2
15	-0.24	-0.01
20	-0.14	0.09
25	-0.04	0.18
30	0.03	0.27
35	0.16	0.38
40	0.29	0.44
45	0.5	0.5
50	0.62	0.56
55	0.76	0.64
60	0.96	0.66
65	1.1	0.66
70	1.23	0.66
75	1.42	0.66
80	1.56	0.64
85	1.69	0.59
90	1.82	0.56
95	2.02	0.47
100	2.1	0.41
105	2.04	0.34
110	2.04	0.31
115	2.13	0.31
120	2.16	0.31
125	2.1	0.32
130	2.02	0.34
135	1.96	0.35
140	1.82	0.36
145	1.72	0.37
150	1.56	0.41
155	1.44	0.49
160	1.54	0.69
165	1.64	0.9
170	1.61	0.9
175	1.44	0.77
180	1.32	0.74
185	1.23	0.74
190	1.3	0.79
195	1.28	0.76
200	1.19	0.67
205	1.04	0.61
210	0.81	0.5
215	0.77	0.44

220	0.83	0.34
225	0.9	0.25
230	0.94	0.15
235	0.98	0.07
240	0.96	0
245	0.92	-0.1
250	0.9	-0.18
255	0.88	-0.25
260	0.88	-0.32
265	0.86	-0.42
270	0.86	-0.48
275	0.72	-0.66
280	0.53	-0.83
285	0.49	-0.98
290	0.36	-1.08
295	-0.03	-1.23
300	-0.25	-1.42
305	-0.42	-1.51
310	-0.58	-1.61
315	-0.74	-1.64
320	-0.86	-1.64
325	-0.94	-1.61
330	-1	-1.6
335	-1.21	-1.56
340	-1.44	-1.49
345	-1	-1.37
350	-0.86	-1.08
355	-0.67	-0.81
360	-0.55	-0.56

Pumpa - nq=64			
Theta	Wh	Theta	Wm
0	-0.48	0	-0.64
5	-0.5	5	-0.42
10	-0.27	10	-0.24
15	-0.21	15	-0.13
20	-0.14	20	-0.02
25	-0.04	25	0.07
30	0.04	30	0.2
35	0.17	35	0.31
40	0.32	40	0.42
45	0.5	45	0.5
50	0.66	50	0.61
55	0.85	55	0.67
60	1.06	60	0.72
65	1.32	65	0.77
70	1.44	70	0.79
75	1.69	75	0.81
80	1.85	80	0.79
85	2.04	85	0.77
90	2.19	90	0.76
95	2.37	95	0.72
100	2.46	100	0.69
105	2.53	105	0.66
110	2.53	110	0.62
115	2.43	115	0.61
120	2.34	120	0.58
125	2.22	125	0.59
130	2.13	130	0.59
135	2.02	135	0.56
140	1.88	140	0.58
145	1.66	145	0.66
150	1.39	150	0.79
155	1.32	155	0.86
160	1.35	160	0.9
165	1.21	165	0.88
170	1.12	170	0.83
175	1	175	0.74
180	0.88	180	0.69
185	0.81	185	0.64
190	0.81	190	0.67
195	0.81	195	0.66
200	0.76	200	0.56
205	0.69	205	0.48
210	0.69	210	0.37
215	0.76	215	0.3

220	0.72	220	0.23
225	0.71	225	0.16
230	0.72	230	0.12
235	0.74	235	-0.01
240	0.72	240	-0.12
245	0.69	245	-0.23
250	0.66	250	-0.36
255	0.59	255	-0.49
260	0.52	260	-0.61
265	0.44	265	-0.74
270	0.38	270	-0.79
275	0.27	275	-0.98
280	0.02	280	-1.21
285	-0.25	285	-1.56
290	-0.52	290	-1.74
295	-0.76	295	-1.93
300	-0.92	300	-2.04
305	-1.08	305	-2.16
310	-1.21	310	-2.22
315	-1.3	315	-2.28
320	-1.37	320	-2.28
325	-1.39	325	-2.25
330	-1.42	330	-2.22
335	-1.37	335	-2.1
340	-1.28	340	-1.9
345	-1.19	345	-1.72
350	-1	350	-1.32
355	-0.77	355	-0.98
360	-0.48	360	-0.64

Pumpa - nq=71.9		
Theta	Wh	Wm
0	-0.69	-0.58
5	-0.6	-0.44
10	-0.5	-0.29
15	-0.4	-0.12
20	-0.29	0
25	-0.19	0.07
30	-0.07	0.21
35	0	0.3
40	0.31	0.42
45	0.5	0.5
50	0.66	0.57
55	0.79	0.63
60	0.94	0.68
65	1.04	0.71
70	1.14	0.75
75	1.21	0.76
80	1.28	0.77
85	1.31	0.78
90	1.35	0.76
95	1.35	0.76
100	1.32	0.75
105	1.29	0.75
110	1.21	0.76
115	1.14	0.77
120	1.03	0.78
125	0.97	0.83
130	0.96	0.85
135	0.94	0.9
140	0.96	0.97
145	0.96	1.03
150	0.94	1.12
155	0.94	1.15
160	0.91	1.19
165	0.9	1.21
170	0.85	1.17
175	0.81	1.14
180	0.76	1.1
185	0.73	1.04
190	0.68	0.94
195	0.64	0.86
200	0.57	0.71
205	0.53	0.63
210	0.48	0.52
215	0.44	0.43

220	0.39	0.31
225	0.36	0.22
230	0.33	0.08
235	0.3	-0.07
240	0.29	-0.09
245	0.27	-0.2
250	0.23	-0.35
255	0.19	-0.45
260	0.11	-0.58
265	0	-0.69
270	-0.02	-0.83
275	-0.03	-0.94
280	-0.07	-1.1
285	-0.15	-1.19
290	-0.32	-1.3
295	-0.39	-1.37
300	-0.49	-1.42
305	-0.6	-1.49
310	-0.69	-1.5
315	-0.75	-1.5
320	-0.82	-1.45
325	-0.86	-1.42
330	-0.89	-1.32
335	-0.91	-1.26
340	-0.9	-1.14
345	-0.87	-1.02
350	-0.82	-0.89
355	-0.76	-0.75
360	-0.69	-0.58

Pupma - nq=76.1		
Theta	Wh	Wm
0	-1.01	-0.84
5	-0.86	-0.56
10	-0.69	-0.37
15	-0.5	-0.26
20	-0.32	-0.13
25	-0.22	0
30	-0.08	0.06
35	0	0.18
40	0.29	0.39
45	0.5	0.5
50	0.67	0.58
55	0.86	0.65
60	1.02	0.73
65	1.18	0.78
70	1.34	0.84
75	1.47	0.88
80	1.59	0.92
85	1.73	0.95
90	1.79	0.96
95	1.85	0.97
100	1.82	0.98
105	1.82	0.99
110	1.76	1
115	1.71	1.02
120	1.64	1.05
125	1.55	1.07
130	1.51	1.12
135	1.49	1.16
140	1.49	1.21
145	1.49	1.24
150	1.55	1.29
155	1.57	1.33
160	1.55	1.35
165	1.55	1.4
170	1.49	1.39
175	1.42	1.35
180	1.29	1.27
185	1.12	1.15
190	0.9	1.02
195	0.7	0.9
200	0.64	0.76
205	0.56	0.64
210	0.48	0.5
215	0.41	0.37

220	0.36	0.27
225	0.33	0.17
230	0.3	0
235	0.29	-0.06
240	0.24	-0.19
245	0.16	-0.31
250	0.1	-0.43
255	0.05	-0.57
260	0.01	-0.73
265	0	-0.88
270	-0.04	-1.01
275	-0.1	-1.18
280	-0.18	-1.3
285	-0.34	-1.37
290	-0.48	-1.41
295	-0.56	-1.47
300	-0.62	-1.51
305	-0.6	-1.55
310	-0.61	-1.58
315	-0.65	-1.64
320	-0.75	-1.69
325	-0.84	-1.73
330	-0.91	-1.71
335	-0.99	-1.66
340	-1.05	-1.55
345	-1.11	-1.45
350	-1.13	-1.29
355	-1.1	-1.08
360	-1.01	-0.84

Pumpa - nq=85.1		
Theta	Wh	Wm
0	-1.22	-1.35
5	-1.07	-1.14
10	-0.9	-0.91
15	-0.74	-0.69
20	-0.54	-0.4
25	-0.36	-0.15
30	-0.15	0.05
35	0.06	0.21
40	0.29	0.38
45	0.5	0.5
50	0.7	0.6
55	0.89	0.69
60	1.04	0.74
65	1.19	0.79
70	1.3	0.81
75	1.4	0.84
80	1.49	0.87
85	1.53	0.91
90	1.57	0.99
95	1.6	1.06
100	1.63	1.13
105	1.67	1.22
110	1.7	1.3
115	1.73	1.39
120	1.75	1.45
125	1.72	1.5
130	1.68	1.56
135	1.64	1.61
140	1.6	1.64
145	1.56	1.65
150	1.52	1.66
155	1.49	1.66
160	1.46	1.66
165	1.42	1.67
170	1.39	1.66
175	1.35	1.63
180	1.3	1.57
185	1.25	1.48
190	1.18	1.37
195	1.1	1.23
200	0.98	1.08
205	0.8	0.91
210	0.65	0.75
215	0.55	0.6

220	0.44	0.42
225	0.37	0.27
230	0.3	0.11
235	0.24	-0.01
240	0.24	-0.13
245	0.27	-0.26
250	0.29	-0.37
255	0.31	-0.49
260	0.32	-0.6
265	0.33	-0.69
270	0.33	-0.77
275	0.31	-0.86
280	0.29	-0.96
285	0.22	-1.1
290	0.15	-1.3
295	0.05	-1.67
300	-0.1	-1.93
305	-0.27	-2.04
310	-0.4	-2.15
315	-0.5	-2.25
320	-0.6	-2.35
325	-0.7	-2.33
330	-0.8	-2.2
335	-0.9	-2.05
340	-1	-1.95
345	-1.1	-1.8
350	-1.2	-1.65
355	-1.3	-1.5
360	-1.22	-1.35

Pumpa - nq=97		
Theta	Wh	Wm
0	-0.55	-0.67
5	-0.46	-0.49
10	-0.38	-0.26
15	-0.3	-0.16
20	-0.21	-0.06
25	-0.13	0.04
30	-0.01	0.16
35	0.14	0.26
40	0.29	0.37
45	0.5	0.5
50	0.66	0.53
55	0.86	0.62
60	1.02	0.67
65	1.3	0.72
70	1.42	0.76
75	1.56	0.77
80	1.64	0.77
85	1.69	0.76
90	1.77	0.74
95	1.8	0.72
100	1.82	0.72
105	1.8	0.72
110	1.72	0.74
115	1.69	0.79
120	1.61	0.79
125	1.54	0.79
130	1.44	0.76
135	1.37	0.72
140	1.37	0.79
145	1.44	0.96
150	1.51	1.12
155	1.49	1.17
160	1.44	1.14
165	1.39	1.12
170	1.35	1.06
175	1.25	1
180	1.17	0.9
185	1.1	0.83
190	0.94	0.74
195	0.79	0.62
200	0.71	0.53
205	0.61	0.46
210	0.53	0.35
215	0.48	0.24

220	0.45	0.13
225	0.44	0.06
230	0.48	0
235	0.54	-0.09
240	0.48	-0.22
245	0.42	-0.34
250	0.35	-0.45
255	0.28	-0.56
260	0.24	-0.66
265	0.14	-0.79
270	-0.05	-0.94
275	-0.17	-1.12
280	-0.3	-1.23
285	-0.38	-1.42
290	-0.49	-1.56
295	-0.56	-1.72
300	-0.72	-1.8
305	-0.85	-1.88
310	-0.96	-1.9
315	-1.04	-1.9
320	-1.06	-1.82
325	-1.1	-1.74
330	-1.12	-1.69
335	-1.12	-1.59
340	-1.1	-1.46
345	-1.06	-1.32
350	-0.96	-1.12
355	-0.72	-0.86
360	-0.55	-0.67

Pumpa - nq=101		
Theta	Wh	Wm
0	-1.63	-1.61
5	-1.5	-1.27
10	-1.35	-1.21
15	-1.18	-0.99
20	-1.01	-0.77
25	-0.82	-0.54
30	-0.62	-0.33
35	-0.23	0
40	0.17	0.33
45	0.5	0.5
50	0.69	0.62
55	0.89	0.7
60	1.08	0.75
65	1.27	0.79
70	1.44	0.83
75	1.56	0.87
80	1.71	0.84
85	1.84	0.79
90	2	0.72
95	2.15	0.59
100	2.34	0.51
105	2.47	0.54
110	2.65	0.6
115	2.85	0.73
120	3.08	0.98
125	3.24	1.24
130	3.41	1.55
135	3.51	1.77
140	3.63	2.02
145	3.63	2.23
150	3.63	2.38
155	3.51	2.55
160	3.34	2.65
165	2.99	2.75
170	2.51	2.75
175	2.03	2.7
180	1.55	2.6
185	1.3	2.44
190	1.08	2.23
195	0.97	1.93
200	0.86	1.59
205	0.75	1.25
210	0.67	0.93
215	0.53	0.62

220	0.42	0.38
225	0.33	0.21
230	0.23	-0.02
235	0.15	-0.1
240	0.09	-0.37
245	0.05	-0.59
250	0.01	-0.8
255	0	-0.97
260	-0.07	-1.08
265	-0.39	-1.22
270	-0.64	-1.3
275	-0.8	-1.33
280	-0.91	-1.35
285	-0.99	-1.4
290	-0.98	-1.44
295	-0.97	-1.48
300	-1.01	-1.5
305	-1.08	-1.61
310	-1.21	-1.76
315	-1.37	-1.93
320	-1.55	-2.02
325	-1.68	-2.08
330	-1.78	-2.12
335	-1.88	-2.15
340	-1.93	-2.14
345	-1.9	-2.03
350	-1.84	-1.94
355	-1.77	-1.81
360	-1.63	-1.61

Pumpa - nq=123		
Theta	Wh	Wm
0	-1.25	-1.59
5	-1.02	-1.15
10	-0.77	-0.83
15	-0.59	-0.55
20	-0.43	-0.33
25	-0.28	-0.11
30	-0.1	0.02
35	0.04	0.21
40	0.3	0.38
45	0.5	0.5
50	0.67	0.58
55	0.82	0.67
60	0.93	0.74
65	1.05	0.81
70	1.23	0.9
75	1.44	0.98
80	1.57	1.1
85	1.72	1.19
90	1.75	1.23
95	1.86	1.32
100	1.9	1.39
105	1.94	1.5
110	2.01	1.59
115	2.03	1.65
120	2.05	1.72
125	2.1	1.82
130	2.09	1.9
135	2.13	1.94
140	2.1	1.98
145	2.01	2.01
150	2.03	2.03
155	2.07	2.12
160	2.03	2.14
165	1.98	2.14
170	1.96	2.12
175	1.9	2.03
180	1.81	1.92
185	1.79	1.79
190	1.7	1.67
195	1.57	1.5
200	1.48	1.26
205	1.37	1.06
210	1.17	0.84
215	1.1	0.67

220	0.96	0.48
225	0.81	0.32
230	0.68	0.18
235	0.54	0
240	0.38	-0.17
245	0.29	-0.33
250	0.17	-0.5
255	0.08	-0.7
260	-0.12	-0.93
265	-0.28	-1.15
270	-0.4	-1.44
275	-0.51	-1.62
280	-0.64	-1.72
285	-0.84	-1.79
290	-1.07	-1.9
295	-1.3	-1.96
300	-1.5	-2.32
305	-1.68	-2.55
310	-1.92	-2.82
315	-2.07	-2.97
320	-2.17	-3.13
325	-2.27	-3.22
330	-2.29	-3.22
335	-2.24	-3.05
340	-2.12	-2.75
345	-1.92	-2.49
350	-1.68	-2.19
355	-1.47	-1.92
360	-1.25	-1.59

Pumpa - nq=131		
Theta	Wh	Wm
0	-1.56	-1.58
5	-1.43	-1.41
10	-1.28	-1.22
15	-1.07	-0.98
20	-0.89	-0.72
25	-0.67	-0.54
30	-0.41	-0.33
35	-0.11	0
40	0.12	0.29
45	0.5	0.5
50	0.72	0.62
55	0.87	0.7
60	0.99	0.74
65	1.07	0.76
70	1.18	0.78
75	1.34	0.8
80	1.55	0.83
85	1.85	0.88
90	2.13	0.92
95	2.4	0.98
100	2.64	1.04
105	2.85	1.09
110	3.05	1.17
115	3.25	1.28
120	3.46	1.4
125	3.53	1.53
130	3.63	1.73
135	3.56	1.84
140	3.56	2.1
145	3.53	2.26
150	3.53	2.5
155	3.49	2.56
160	3.43	2.67
165	3.4	2.78
170	3.25	2.8
175	3.02	2.8
180	2.58	2.67
185	2.07	2.48
190	1.52	2.24
195	1.2	1.97
200	0.9	1.64
205	0.7	1.29
210	0.56	0.88
215	0.45	0.56

220	0.34	0.29
225	0.25	0.05
230	0.17	-0.06
235	0.1	-0.29
240	0.04	-0.45
245	-0.05	-0.63
250	-0.18	-0.79
255	-0.27	-0.94
260	-0.45	-1.1
265	-0.6	-1.22
270	-0.73	-1.34
275	-0.88	-1.43
280	-1	-1.5
285	-1.04	-1.52
290	-1.01	-1.56
295	-1	-1.53
300	-1.07	-1.63
305	-1.19	-1.75
310	-1.35	-1.93
315	-1.5	-2.04
320	-1.66	-2.13
325	-1.77	-2.16
330	-1.83	-2.16
335	-1.83	-2.12
340	-1.85	-2.07
345	-1.83	-2.01
350	-1.78	-1.93
355	-1.69	-1.77
360	-1.56	-1.58

Pumpa - nq=134		
Theta	Wh	Wm
0	-1.61	-1.61
5	-1.53	-1.43
10	-1.38	-1.21
15	-1.19	-1.02
20	-1.02	-0.79
25	-0.83	-0.56
30	-0.62	-0.33
35	-0.36	-0.08
40	0.03	0.31
45	0.5	0.5
50	0.7	0.62
55	0.85	0.7
60	1.02	0.78
65	1.15	0.8
70	1.3	0.79
75	1.43	0.73
80	1.48	0.64
85	1.72	0.55
90	1.9	0.45
95	2.01	0.39
100	2.2	0.38
105	2.34	0.44
110	2.53	0.57
115	2.71	0.72
120	2.92	0.91
125	3.12	1.12
130	3.27	1.39
135	3.34	1.61
140	3.4	1.9
145	3.4	2.09
150	3.37	2.31
155	3.34	2.44
160	3.24	2.6
165	2.95	2.64
170	2.49	2.71
175	2.05	2.67
180	1.56	2.62
185	1.32	2.51
190	1.09	2.21
195	0.97	1.92
200	0.79	1.55
205	0.68	1.27
210	0.57	0.9
215	0.46	0.56

220	0.35	0.3
225	0.26	0.09
230	0.18	-0.17
235	0.11	-0.31
240	0.06	-0.46
245	0.02	-0.62
250	-0.02	-0.78
255	-0.18	-0.93
260	-0.36	-1.1
265	-0.49	-1.2
270	-0.63	-1.31
275	-0.78	-1.42
280	-0.92	-1.47
285	-1	-1.52
290	-0.99	-1.53
295	-0.96	-1.51
300	-1.01	-1.51
305	-1.11	-1.61
310	-1.24	-1.79
315	-1.43	-1.94
320	-1.55	-2.03
325	-1.69	-2.14
330	-1.79	-2.16
335	-1.84	-2.18
340	-1.9	-2.11
345	-1.88	-2.08
350	-1.85	-1.95
355	-1.76	-1.81
360	-1.61	-1.61

Pumpa - nq=147		
Theta	Wh	Wm
0	-0.69	-1.42
4.091	-0.599	-1.328
8.182	-0.512	-1.211
12.273	-0.418	-1.056
16.364	-0.304	-0.87
20.455	-0.181	-0.677
24.545	-0.078	-0.573
28.636	-0.011	-0.518
32.727	0.032	-0.38
36.818	0.074	-0.232
40.909	0.13	-0.16
45	0.19	0
49.091	0.265	0.118
53.182	0.363	0.308
57.273	0.461	0.442
61.364	0.553	0.574
65.455	0.674	0.739
69.545	0.848	0.929
73.636	1.075	1.147
77.727	1.337	1.37
81.818	1.629	1.599
85.909	1.929	1.839
90	2.18	2.08
94.091	2.334	2.3
98.182	2.518	2.48
102.273	2.726	2.63
106.364	2.863	2.724
110.455	2.948	2.687
114.546	3.026	2.715
118.636	3.015	2.688
122.727	2.927	2.555
126.818	2.873	2.434
130.909	2.771	2.288
135	2.64	2.11
139.091	2.497	1.948
143.182	2.441	1.825
147.273	2.378	1.732
151.364	2.336	1.644
155.455	2.288	1.576
159.546	2.209	1.533
163.636	2.162	1.522
167.727	2.14	1.519
171.818	2.109	1.523
175.909	2.054	1.523

180	1.97	1.49
184.091	1.86	1.386
188.182	1.735	1.223
192.273	1.571	1.048
196.364	1.357	0.909
200.455	1.157	0.814
204.546	1.106	0.766
208.636	0.927	0.734
212.727	0.846	0.678
216.818	0.744	0.624
220.909	0.64	0.57
225	0.5	0.5
229.091	0.374	0.407
233.182	0.191	0.278
237.273	0.001	0.146
241.364	-0.19	0.023
245.455	-0.384	-0.175
249.546	-0.585	-0.379
253.636	-0.786	-0.585
257.727	-0.972	-0.778
261.818	-1.185	-1.008
265.909	-1.372	-1.277
270	-1.5	-1.56
274.091	-1.94	-2.07
278.182	-2.16	-2.48
282.273	-2.29	-2.7
286.364	-2.35	-2.77
290.455	-2.35	-2.8
294.545	-2.23	-2.8
298.636	-2.2	-2.76
302.727	-2.13	-2.71
306.818	-2.05	-2.64
310.909	-1.97	-2.54
315	-1.895	-2.44
319.091	-1.81	-2.34
323.182	-1.73	-2.24
327.273	-1.6	-2.12
331.364	-1.42	-2
335.455	-1.13	-1.94
339.545	-0.95	-1.9
343.636	-0.93	-1.9
347.727	-0.95	-1.85
351.818	-1	-1.75
355.909	-0.92	-1.63
360	-0.69	-1.42

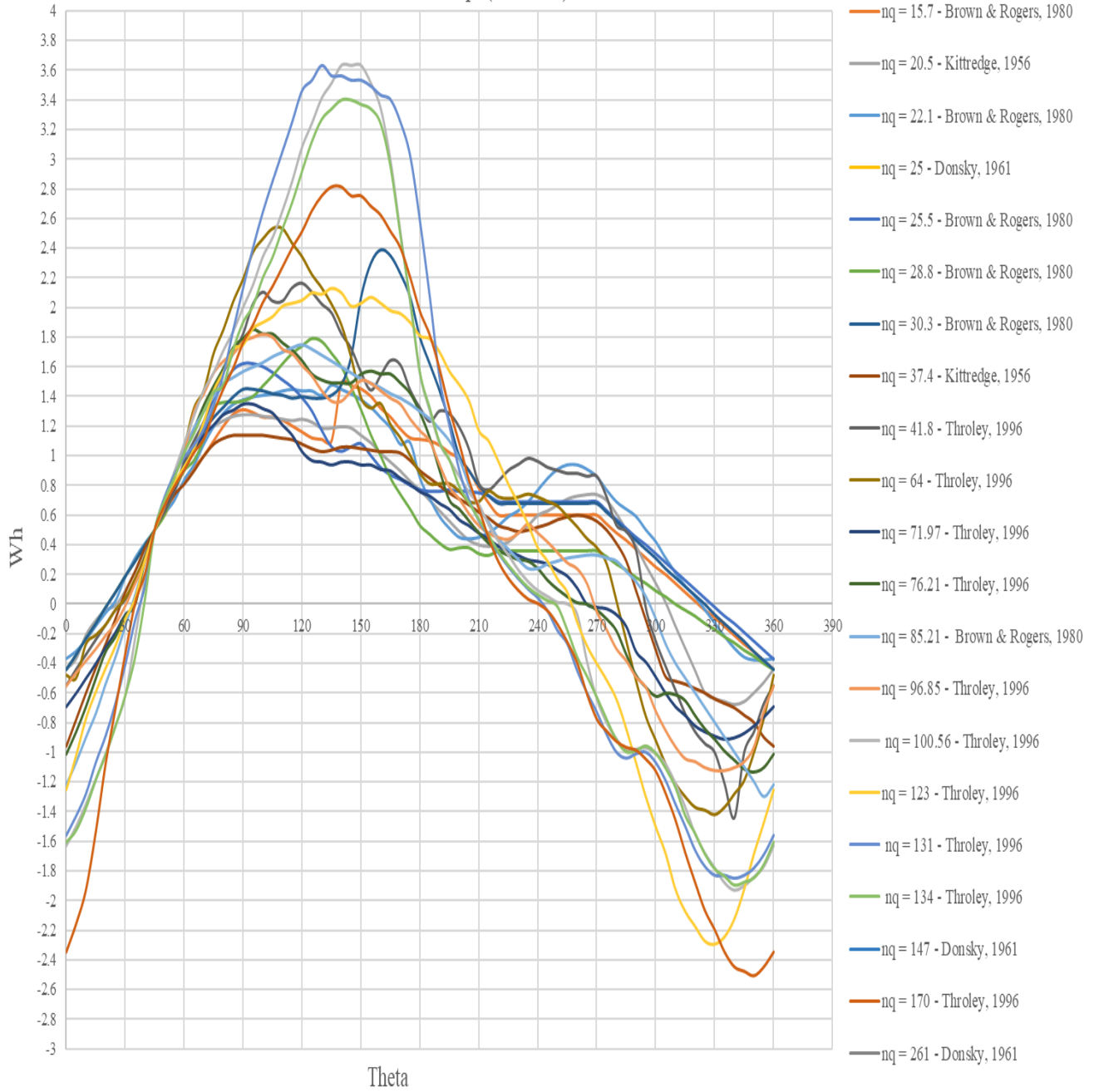
Pumpa - nq=170		
Theta	Wh	Wm
0	-2.35	-2.68
5	-2.16	-2.43
10	-1.93	-1.99
15	-1.54	-1.54
20	-1.08	-1.08
25	-0.71	-0.69
30	-0.34	-0.12
35	0	0.08
40	0.2	0.33
45	0.5	0.5
50	0.66	0.59
55	0.79	0.68
60	0.9	0.75
65	1.02	0.77
70	1.11	0.79
75	1.29	0.79
80	1.45	0.82
85	1.59	0.88
90	1.76	1
95	1.88	1.07
100	2.03	1.2
105	2.14	1.32
110	2.27	1.48
115	2.4	1.65
120	2.51	1.86
125	2.65	2.01
130	2.75	2.15
135	2.81	2.4
140	2.81	2.48
145	2.75	2.59
150	2.75	2.75
155	2.68	2.75
160	2.62	2.81
165	2.51	2.81
170	2.4	2.84
175	2.2	2.84
180	1.97	2.65
185	1.81	2.4
190	1.58	2.16
195	1.31	1.74
200	1.08	1.36
205	0.83	0.97
210	0.64	0.69
215	0.44	0.38

220	0.28	0.04
225	0.17	-0.04
230	0.09	-0.09
235	0.03	-0.29
240	0	-0.47
245	-0.05	-0.69
250	-0.14	-0.91
255	-0.26	-1.16
260	-0.4	-1.39
265	-0.61	-1.63
270	-0.78	-1.81
275	-0.86	-2.07
280	-0.93	-2.23
285	-0.97	-2.48
290	-0.99	-2.62
295	-1.05	-2.81
300	-1.13	-2.95
305	-1.28	-3.06
310	-1.46	-3.25
315	-1.68	-3.34
320	-1.88	-3.44
325	-2.07	-3.47
330	-2.2	-3.38
335	-2.35	-3.3
340	-2.45	-3.25
345	-2.48	-3.17
350	-2.51	-3.06
355	-2.45	-2.95
360	-2.35	-2.68

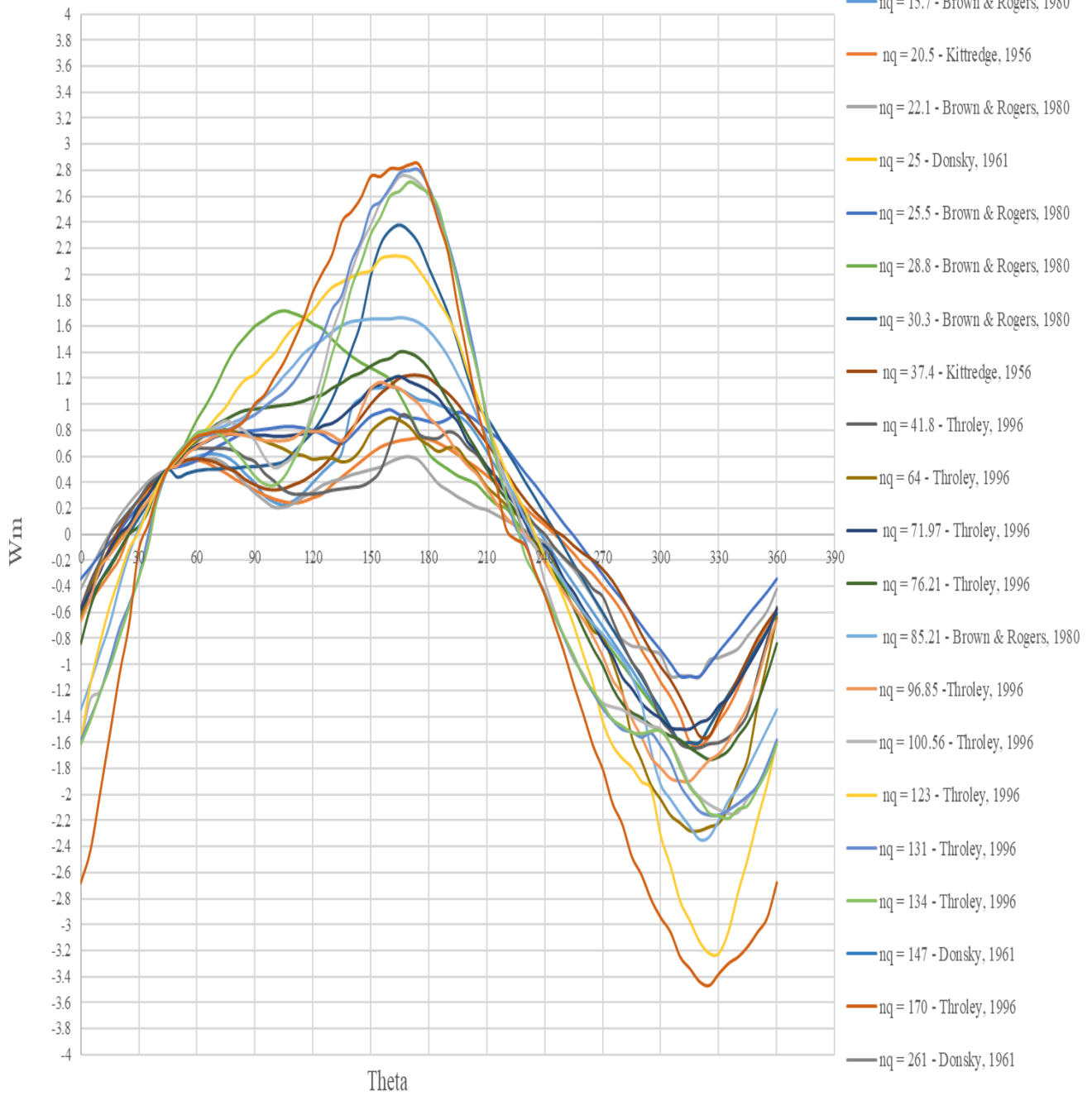
Pumpa - nq=261		
Theta	Wh	Wm
0	-2.23	-2.26
4.091	-2	-2.061
8.182	-1.662	-1.772
12.273	-1.314	-1.465
16.364	-1.089	-1.253
20.455	-0.914	-1.088
24.545	-0.76	-0.921
28.636	-0.601	-0.789
32.727	-0.44	-0.632
36.818	-0.284	-0.457
40.909	-0.13	-0.3
45	0.055	-0.075
49.091	0.222	0.052
53.182	0.357	0.234
57.273	0.493	0.425
61.364	0.616	0.558
65.455	0.675	0.63
69.545	0.68	0.621
73.636	0.691	0.546
77.727	0.752	0.525
81.818	0.825	0.488
85.909	0.93	0.512
90	1.08	0.66
94.091	1.236	0.85
98.182	1.389	1.014
102.273	1.548	1.162
106.364	1.727	1.334
110.455	1.919	1.512
114.546	2.066	1.683
118.636	2.252	1.886
122.727	2.49	2.105
126.818	2.727	2.325
130.909	3.002	2.58
135	3.225	2.77
139.091	3.355	2.886
143.182	3.475	2.959
147.273	3.562	2.979
151.364	3.604	2.962
155.455	3.582	2.877
159.546	3.54	2.713
163.636	3.477	2.556
167.727	3.321	2.403
171.818	3.148	2.237
175.909	2.962	2.08

180	2.75	1.95
184.091	2.542	1.826
188.182	2.354	1.681
192.273	2.149	1.503
196.364	1.909	1.301
200.455	1.702	1.115
204.546	1.506	0.96
208.636	1.31	0.84
212.727	1.131	0.75
216.818	0.947	0.677
220.909	0.737	0.604
225	0.5	0.5
229.091	0.279	0.352
233.182	0.082	0.161
237.273	-0.112	-0.04
241.364	-0.3	-0.225
245.455	-0.505	-0.403
249.546	-0.672	-0.545
253.636	-0.797	-0.61
257.727	-0.872	-0.662
261.818	-0.92	-0.699
265.909	-0.949	-0.719
270	-0.96	-0.73
274.091	-1.08	-0.81
278.182	-1.3	-1.07
282.273	-1.5	-1.36
286.364	-1.7	-1.64
290.455	-1.89	-1.88
294.545	-2.08	-2.08
298.636	-2.27	-2.27
302.727	-2.47	-2.47
306.818	-2.65	-2.65
310.909	-2.81	-2.81
315	-2.95	-2.95
319.091	-3.04	-3.04
323.182	-3.1	-3.1
327.273	-3.15	-3.15
331.364	-3.17	-3.17
335.455	-3.17	-3.2
339.545	-3.13	-3.16
343.636	-3.07	-3.09
347.727	-2.96	-2.99
351.818	-2.82	-2.86
355.909	-2.59	-2.66
360	-2.23	-2.26

Wh - Suterove Krive - Pumpe (21 Model)



Wm - Suterove Krive - Pumpe (21 Model)



Prilozi

Prilog – P7 Kodovi razvijenih numeričkih modela Varijanti 1, 2, 3 na osnovu krivi osam modela pumpi poznatih iz klasične literature – primjer Thorley, R. D. & Chaudry, A. (1996); Donsky, B. (1961); Brown, R.J, Rogers, D.C. (1980)

Prilog za poglavlje - 6.3.1 Nalaženje analitičke veze postupkom regresije za krive Wh karakteristike za osam modela pumpi poznate iz klasične literature – primjer Thorley, D. R. & Chaudry, A. (1996); Donsky, B. (1961); Brown, R.J, Rogers, D.C. (1980) (Varijanta 1)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela za Pumpe - Varijanta 1 (Polinomi 3, 7, 3) u programu Matlab:

```
%% pocetni parametri programa
close all, clc, clear all, warning off % naredbe za brisanje svih podataka i
memorije iz MATLAB-a
format long e % komanda za zaokruzivanje cifara
nq = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % Svi nq-ovi
%% Podaci dobijeni iz modela
Podaci = [-0.74 -0.74 -0.69 -0.83 -1.01 -1.1 -0.74 -1.26
-0.69 -0.66 -0.71 -0.77 -0.93 -1.03 -0.68 -1.23
-0.62 -0.58 -0.52 -0.71 -0.83 -0.95 -0.62 -1.16
-0.52 -0.49 -0.46 -0.63 -0.71 -0.86 -0.55 -1.09
-0.41 -0.38 -0.37 -0.54 -0.56 -0.73 -0.46 -1.01
-0.3 -0.2 -0.21 -0.44 -0.47 -0.6 -0.36 -0.9
0.24 0.18 0.19 -0.27 -0.29 -0.39 -0.1 -0.79
0.47 0.4 0.41 0 0 0.24 0.37 -0.48
0.61 0.54 0.57 0.56 0.54 0.54 0.54 0.41
0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71
0.8 0.79 0.81 0.81 0.82 0.84 0.81 0.83
0.88 0.87 0.92 0.89 0.93 0.94 0.93 0.94
0.95 0.98 1.03 0.97 1.01 1.02 1.01 1.04
1.01 1.05 1.15 1.02 1.09 1.09 1.14 1.13
1.06 1.11 1.2 1.07 1.16 1.14 1.19 1.2
1.1 1.19 1.3 1.1 1.21 1.18 1.25 1.25
1.13 1.25 1.36 1.13 1.26 1.22 1.26 1.31
1.15 1.3 1.43 1.15 1.31 1.24 1.3 1.36
1.16 1.35 1.48 1.16 1.34 1.25 1.33 1.42
1.17 1.42 1.54 1.16 1.36 1.26 1.34 1.47
1.16 1.45 1.57 1.15 1.35 1.28 1.35 1.53
1.14 1.43 1.59 1.14 1.35 1.29 1.34 1.57
1.13 1.43 1.59 1.1 1.33 1.3 1.31 1.63
1.1 1.46 1.56 1.07 1.31 1.32 1.3 1.69
1.08 1.47 1.53 1.02 1.26 1.32 1.27 1.75
1.06 1.45 1.49 0.98 1.24 1.31 1.24 1.8
1.04 1.42 1.46 0.98 1.23 1.3 1.2 1.85
1.02 1.4 1.42 0.97 1.22 1.28 1.17 1.87
0.99 1.35 1.37 0.98 1.22 1.26 1.17 1.9
0.98 1.31 1.29 0.98 1.22 1.25 1.2 1.9
0.95 1.25 1.18 0.97 1.24 1.23 1.23 1.9
0.94 1.2 1.15 0.97 1.25 1.22 1.22 1.87
0.92 1.24 1.16 0.96 1.24 1.21 1.2 1.83
0.91 1.26 1.1 0.95 1.24 1.19 1.18 1.73
0.89 1.27 1.06 0.92 1.22 1.18 1.16 1.58
0.87 1.2 1 0.9 1.19 1.16 1.12 1.43
```



```

0.84    1.15    0.94    0.87    1.14    1.14    1.08    1.24
0.82    1.11    0.9    0.86    1.06    1.12    1.05    1.14
0.81    1.14    0.9    0.82    0.95    1.09    0.97    1.04
0.78    1.13    0.9    0.8    0.84    1.05    0.89    0.98
0.76    1.09    0.87    0.76    0.8    0.99    0.84    0.93
0.74    1.02    0.83    0.73    0.75    0.89    0.78    0.87
0.73    0.9    0.83    0.69    0.69    0.81    0.73    0.82
0.73    0.88    0.87    0.66    0.64    0.74    0.69    0.72
0.72    0.91    0.85    0.63    0.6    0.66    0.67    0.65
0.72    0.95    0.84    0.6    0.57    0.61    0.66    0.57
0.73    0.97    0.85    0.57    0.55    0.55    0.69    0.48
0.74    0.99    0.86    0.55    0.54    0.49    0.74    0.39
0.75    0.98    0.85    0.54    0.49    0.49    0.69    0.3
0.77    0.96    0.83    0.52    0.4    0.52    0.65    0.23
0.78    0.95    0.81    0.48    0.32    0.54    0.59    0.12
0.79    0.94    0.77    0.43    0.23    0.56    0.53    0.03
0.8    0.94    0.72    0.33    0.1    0.57    0.49    -0.26
0.81    0.93    0.66    -0.01    0    0.57    0.37    -0.63
0.81    0.93    0.62    -0.13    -0.21    0.57    -0.22    -0.8
0.79    0.85    0.52    -0.19    -0.31    0.56    -0.41    -0.9
0.71    0.73    0.15    -0.26    -0.42    0.54    -0.55    -0.95
0.57    0.7    -0.5    -0.38    -0.59    0.47    -0.62    -0.99
0.48    0.6    -0.72    -0.57    -0.7    0.39    -0.7    -0.99
0.33    -0.16    -0.87    -0.63    -0.75    0.22    -0.75    -0.98
-0.45    -0.5    -0.96    -0.7    -0.79    -0.32    -0.85    -1.01
-0.56    -0.65    -1.04    -0.78    -0.77    -0.52    -0.92    -1.04
-0.62    -0.76    -1.1    -0.83    -0.78    -0.63    -0.98    -1.1
-0.69    -0.86    -1.14    -0.87    -0.81    -0.71    -1.02    -1.17
-0.73    -0.93    -1.17    -0.9    -0.86    -0.77    -1.03    -1.24
-0.77    -0.97    -1.18    -0.93    -0.92    -0.84    -1.05    -1.3
-0.8    -1    -1.19    -0.94    -0.95    -0.89    -1.06    -1.34
-0.81    -1.1    -1.17    -0.96    -0.99    -0.95    -1.06    -1.37
-0.82    -1.2    -1.13    -0.95    -1.02    -1    -1.05    -1.39
-0.82    -1    -1.09    -0.94    -1.05    -1.05    -1.03    -1.38
-0.81    -0.93    -1    -0.9    -1.06    -1.1    -0.98    -1.36
-0.78    -0.82    -0.88    -0.87    -1.05    -1.14    -0.85    -1.33
-0.74    -0.74    -0.69    -0.83    -1.01    -1.1    -0.74    -1.28];

```

```
%% Definisiranje Theta
```

```
Theta = 0:5:360; % opseg thete sa korakom 1 stepen
```

```
%% Jednacina srednje krive
```

```
% Koeficijenti u srednjoj jednacini (polinom 3 reda)
```

```
p1 = 2.672e-7;
```

```
p2 = -0.0002149;
```

```
p3 = 0.04235;
```

```
p4 = -1.034;
```

```
% Izgled srednje jednacine - polinom 3 reda
```

```
Srednja = p1*Theta.^3 + p2*Theta.^2 + p3*Theta + p4;
```

```
%% Racunanje Delta
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
Ww = 7; % Definisiranje polinoma Theta-Delta
```

```
Ww1 = 3; % Definisiranje polinoma nq-koef
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
% definisanje boja u dijagramima za Theta-Delta (modela i polinoma)
```

```
boja1 = ['-b', '-r', '-g', '-m', '-y', '-c', '-k', ':r']; % vrsta i boja linije polinoma
```

```
boja2 = ['xb', 'xr', 'xg', 'xm', 'xy', 'xc', 'xk', 'or']; % vrsta i boja linije modela
```

```
% Racunanje Delta za svako nq i crtanje dijagrama
```

```

for i = 1:length(nq) % opseg nq-ova
    Delta(:,i) = Podaci(:,i)-Srednja'; % Jednacina za racunanje delte
    (razlika podatka sa modela i srednje krive)
    KoeffDelta(:,i) = polyfit(Theta',Delta(:,i),Ww); % Izracunavanje
    koeficijenata polinoma reda Ww
    % Crtanje dijagrama Delta sa modela i Delta polinoma
    figure(100)
    plot(Theta,polyval(KoeffDelta(:,i),Theta),boja1(i*2-
1:i*2),Theta,Delta(:,i),boja2(i*2-1:i*2)), grid on
    title(['Polinom ',num2str(Ww), ' reda'])
    xlabel('\theta'), ylabel('Delta')
    xlim([min(Theta) max(Theta)])

legend('nq=24.34','nq=24.34','nq=41.81','nq=41.81','nq=64.04','nq=64.04','nq=
71.97','nq=71.97','nq=76.21','nq=76.21','nq=85.21','nq=85.21','nq=96.85','nq=
96.85','nq=100.56','nq=100.56')
    hold on
end
% Izvoz koeficijenata polinoma Theta-Delta reda Ww u Excel-u
xlswrite(['Polinom ',num2str(Ww), ' reda'],KoeffDelta)

%% Pretvaranje koeficijenata iz polinoma Delta reda Ww u polinom reda Ww1 u
zavisnosti od nq-a
Trr = size(KoeffDelta); % velicina matrice koeficijenta polinoma Delta reda
Ww
for j = 1:Trr(1) % opseg koeficijenata polinoma Delta reda Ww
    PpP(j,:) = polyfit(nq,KoeffDelta(j,:),Ww1); % Izracunavanje koeficijenta
    polinoma reda Ww1
    % Crtanje dijagrama koeficijenata Delta uz Thetu u zavisnosti od nq-a
    figure(100+j)

plot(nq,KoeffDelta(j,:), 'xb',min(nq):1:max(nq),polyval(PpP(j,:),min(nq):1:max
(nq)), '-r'), grid on
    title(['Koeficijent ',num2str(j), ' - polinoma ',num2str(Ww1), ' reda'])
    xlabel('nq'), ylabel('Koeficijent')
    xlim([min(nq)-1 max(nq)+1])
end
% Izvoz koeficijenata polinoma nq-koef (koef uz Theta) reda Ww1 u Excel-u
xlswrite(['Polinom ',num2str(Ww1), ' reda Nq'],PpP)

%% Konacna jednacina (Srednja jednacina + jednacina Delta)
for i = 1:length(nq) % opseg nq-ova
    for j = 1:Ww+1 % opseg koeficijenata polinoma reda Ww
        TTr(j) = polyval(PpP(j,:),nq(i)); % Racunanje polinoma reda Ww1 koji
    figurira koeficijentima u polinomu Ww reda u zavisnosti od nq-a
    end
    D = polyval(TTr,Theta); % Racunanje Delta u zavisnosti od Theta i nq-a
    % Napomena
    % nq figurira u koeficijente TTr

    WH(:,i) = Srednja + D; % Zbir Srednje jednacine i jednacine Delta

    % Racunanje r^2
    n1 = size(Podaci); % daje velicinu matrice podataka
    n = n1(1); % uzima broj tacaka na modelu za svako nq
    SSres = sum((Podaci(:,i)-WH(:,i)).^2); % (suma kvadrata razlike modela i
    kanacne jednacine)
    SStot = sum((WH(:,i)-sum(Podaci(:,i))/n).^2); % (suma kvadrat razlike
    konacne jednacine i srednje vrijednosti modela)
    r2 = 1 - SSres/SStot; % Jednacina r^2 = 1 - Ssres/SStot

```

```

    % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
    svako nq
    figure(i)
    plot(Theta,Podaci(:,i),'xb',Theta,Srednja,'--b',Theta',WH(:,i),'-r'),
    grid on
    xlabel('\theta'), ylabel('WH'), title(['Kriva za nq=',num2str(nq(i)),
    'gdje je r^2=',num2str(r2)])
    legend('Kriva modela','Srednja kriva','Srednja+delta')
end
clc

%% Ispisivanje izgleda konacne jednacine
ispis = 'D%1.0d*nq^%1.d + '; % oblik ispisa koeficijenata u polinom reda Ww1
BB = sprintf(ispis,[ 1:1:Ww1+1 ; Ww1:-1:0]); % ispis koeficijenata u
tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-8);
BB = strrep(BB,'nq^1 ','nq '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB,'D','D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:Ww1
    for j = 1:Ww1+1
        A(i,j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
B = [Ww:-1:0]; % Matrica za stepen uz polinom reda Ww1
C = [A B']; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed ']*Theta^%d + ']; % Izgled polinoma
Kon = sprintf(BBa,C'); % ispisivanje jednacine
Jednacina = Kon(1:end-11); % izgled polinoma reda Ww (sa polinomom reda Ww1
kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina,'Theta^1 ','Theta '); % Izbacivanje stepena 1 uz
theta
IsS = 'S1*Theta^3 + S2*Theta^2 + S3*Theta + S4'; % izgled jednacine srednje
krive u tekstualnom obliku
Del = ' + Delta';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['Delta = ', Jednacina]) % opis jednacine Delta
disp(' ')
disp('Izgled cijele jednacine je:')
disp([IsS ' + ' Jednacina]) % ispis cijele jednacine u tekstualnom obliku
disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ',num2str(p1)])
disp([' S2 = ',num2str(p2)])
disp([' S3 = ',num2str(p3)])
disp([' S4 = ',num2str(p4)])
disp(' ')
% ispis koeficijenata u polinom reda Ww1
for i = 1:Ww1
    disp('*****')
    if i == Ww1
        disp('Koeficijenti uz nq (slobodni clan - bez Theta)')
    elseif i ~= Ww1
        disp(['Koeficijenti uz nq kod Theta^',num2str(Ww1-i)])
    end
    for j = 1:Ww1+1
        TtT = PpP(i,j);
        Tttt = sprintf([' D',num2str(i),num2str(j), ' = %.15e'],TtT);
        disp(Tttt)
    end
    disp(' ')
end
end

```

```

%% Ubacivnje novih nq-ova za analizu
nqNew = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % Ubaciti zeljeni
nq
for i = 1:length(nqNew) % opseg novih nq-ova
    for j = 1:Ww+1 % opseg koeficijenata polinoma reda Ww
        TTr(j) = polyval(PpP(j,:),nqNew(i)); % Racunanje polinoma reda Ww1
        koji figurira koeficijentima u polinomu Ww reda u zavisnosti od novih nq-a
        % OBJASNJENJE
        % Komanda "polyval" je komanda za izracunavanje polinoma.
        % Komandu "polyval" definisu dva parametra i to: koeficijenti i nq.
        % Koeficijenti su dati u obliku matrice koji su dobijeni u
        % koraku trazanja koeficijenata za polinom reda Ww1
        % (Ww1 je definisan polinom nq-koeff)
        % U ovom koraku ubacujuci novo nq dobijamo vrijednost koja se
        % nalazi uz theta polinom reda Ww
    end
    D = polyval(TTr,Theta); % Racunanje Delta u zavisnosti od Theta i novih
nq-a
    % OBJASNJENJE
    % U prethodnom koraku smo izracunali polinom reda Ww1 koji je u
    % funkciji od nq. Kada smo izracunali taj polinom dobijamo nove
    % vrijednosti koje predstavljaju novi koeficijenat koji se nalazi u
    % polinomu reda Ww a predstvalja funkciju od Theta. Tako se moze
    % vidjeti da komandu "polyval" tj. novo rjesavanje polinoma reda Ww
    % definisu novi parametri i to koeficijenti koje smo dobili iz
    % polinoma reda Ww1 (f(nq)) i Theta. Na kraju kada
    % izracunamo ovaj polinom dobijamo podatke za Delta.

    WHnew(:,i) = Srednja + D; % Zbir Srednje jednacine i jednacine Delta

    % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako nq
    figure(200+i)
    plot(Theta',WHnew(:,i),'-o'), grid on
    xlabel('\theta'), ylabel('WH'), title('Dijagram \Theta-WH')
    legend(['nq=',num2str(nqNew(i))])
end
% Crtanje svih novih krivih na jednom dijagramu
figure(300)
plot(Theta',WHnew), grid on
xlabel('\theta'), ylabel('WH'), title('Dijagram \Theta-WH'), hold on

% ispis podataka novih nq-ova
disp(' ***** ')
disp(' ')
Izvoz = [1 nqNew; Theta' WHnew];
disp(Izvoz)

%% Izvoz svih podataka u Excel
Izvoz = [1 nq nqNew; Theta' Podaci WHnew];
xlswrite('Podaci za analizu', Izvoz)

```

Prilog za poglavlje - 6.3.2 Nalaženje analitičke veze postupkom regresije za krive Wh karakteristike za osam modela pumpi poznate iz klasične literature – primjer Thorley, R. D. & Chaudry, A. (1996); Donsky, B. (1961); Brown, R.J, Rogers, D.C. (1980) (Varijanta 2)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela za Pumpe - Varijanta 2 (Polinomi 3, 3, 7) u programu Matlab:

```

%% pocetni parametri programa
close all, clc, clear all, warning off % naredbe za brisanje svih podataka i
memorije iz MATLAB-a
format long e % komanda za zaokruzivanje cifara
nq = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % Svi nq-ovi
%% Podaci dobijeni iz modela
Podaci = [-0.74 -0.74 -0.69 -0.83 -1.01 -1.1 -0.74 -1.26
-0.69 -0.66 -0.71 -0.77 -0.93 -1.03 -0.68 -1.23
-0.62 -0.58 -0.52 -0.71 -0.83 -0.95 -0.62 -1.16
-0.52 -0.49 -0.46 -0.63 -0.71 -0.86 -0.55 -1.09
-0.41 -0.38 -0.37 -0.54 -0.56 -0.73 -0.46 -1.01
-0.3 -0.2 -0.21 -0.44 -0.47 -0.6 -0.36 -0.9
0.24 0.18 0.19 -0.27 -0.29 -0.39 -0.1 -0.79
0.47 0.4 0.41 0 0 0.24 0.37 -0.48
0.61 0.54 0.57 0.56 0.54 0.54 0.54 0.41
0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71
0.8 0.79 0.81 0.81 0.82 0.84 0.81 0.83
0.88 0.87 0.92 0.89 0.93 0.94 0.93 0.94
0.95 0.98 1.03 0.97 1.01 1.02 1.01 1.04
1.01 1.05 1.15 1.02 1.09 1.09 1.14 1.13
1.06 1.11 1.2 1.07 1.16 1.14 1.19 1.2
1.1 1.19 1.3 1.1 1.21 1.18 1.25 1.25
1.13 1.25 1.36 1.13 1.26 1.22 1.26 1.31
1.15 1.3 1.43 1.15 1.31 1.24 1.3 1.36
1.16 1.35 1.48 1.16 1.34 1.25 1.33 1.42
1.17 1.42 1.54 1.16 1.36 1.26 1.34 1.47
1.16 1.45 1.57 1.15 1.35 1.28 1.35 1.53
1.14 1.43 1.59 1.14 1.35 1.29 1.34 1.57
1.13 1.43 1.59 1.1 1.33 1.3 1.31 1.63
1.1 1.46 1.56 1.07 1.31 1.32 1.3 1.69
1.08 1.47 1.53 1.02 1.26 1.32 1.27 1.75
1.06 1.45 1.49 0.98 1.24 1.31 1.24 1.8
1.04 1.42 1.46 0.98 1.23 1.3 1.2 1.85
1.02 1.4 1.42 0.97 1.22 1.28 1.17 1.87
0.99 1.35 1.37 0.98 1.22 1.26 1.17 1.9
0.98 1.31 1.29 0.98 1.22 1.25 1.2 1.9
0.95 1.25 1.18 0.97 1.24 1.23 1.23 1.9
0.94 1.2 1.15 0.97 1.25 1.22 1.22 1.87
0.92 1.24 1.16 0.96 1.24 1.21 1.2 1.83
0.91 1.26 1.1 0.95 1.24 1.19 1.18 1.73
0.89 1.27 1.06 0.92 1.22 1.18 1.16 1.58
0.87 1.2 1 0.9 1.19 1.16 1.12 1.43
0.84 1.15 0.94 0.87 1.14 1.14 1.08 1.24
0.82 1.11 0.9 0.86 1.06 1.12 1.05 1.14
0.81 1.14 0.9 0.82 0.95 1.09 0.97 1.04
0.78 1.13 0.9 0.8 0.84 1.05 0.89 0.98
0.76 1.09 0.87 0.76 0.8 0.99 0.84 0.93
0.74 1.02 0.83 0.73 0.75 0.89 0.78 0.87
0.73 0.9 0.83 0.69 0.69 0.81 0.73 0.82
0.73 0.88 0.87 0.66 0.64 0.74 0.69 0.72
0.72 0.91 0.85 0.63 0.6 0.66 0.67 0.65
0.72 0.95 0.84 0.6 0.57 0.61 0.66 0.57

```

```

0.73    0.97    0.85    0.57    0.55    0.55    0.69    0.48
0.74    0.99    0.86    0.55    0.54    0.49    0.74    0.39
0.75    0.98    0.85    0.54    0.49    0.49    0.69    0.3
0.77    0.96    0.83    0.52    0.4  0.52    0.65    0.23
0.78    0.95    0.81    0.48    0.32    0.54    0.59    0.12
0.79    0.94    0.77    0.43    0.23    0.56    0.53    0.03
0.8  0.94    0.72    0.33    0.1  0.57    0.49    -0.26
0.81    0.93    0.66    -0.01    0  0.57    0.37    -0.63
0.81    0.93    0.62    -0.13    -0.21    0.57    -0.22    -0.8
0.79    0.85    0.52    -0.19    -0.31    0.56    -0.41    -0.9
0.71    0.73    0.15    -0.26    -0.42    0.54    -0.55    -0.95
0.57    0.7  -0.5    -0.38    -0.59    0.47    -0.62    -0.99
0.48    0.6  -0.72    -0.57    -0.7    0.39    -0.7    -0.99
0.33    -0.16    -0.87    -0.63    -0.75    0.22    -0.75    -0.98
-0.45    -0.5    -0.96    -0.7    -0.79    -0.32    -0.85    -1.01
-0.56    -0.65    -1.04    -0.78    -0.77    -0.52    -0.92    -1.04
-0.62    -0.76    -1.1    -0.83    -0.78    -0.63    -0.98    -1.1
-0.69    -0.86    -1.14    -0.87    -0.81    -0.71    -1.02    -1.17
-0.73    -0.93    -1.17    -0.9    -0.86    -0.77    -1.03    -1.24
-0.77    -0.97    -1.18    -0.93    -0.92    -0.84    -1.05    -1.3
-0.8    -1    -1.19    -0.94    -0.95    -0.89    -1.06    -1.34
-0.81    -1.1    -1.17    -0.96    -0.99    -0.95    -1.06    -1.37
-0.82    -1.2    -1.13    -0.95    -1.02    -1    -1.05    -1.39
-0.82    -1    -1.09    -0.94    -1.05    -1.05    -1.03    -1.38
-0.81    -0.93    -1    -0.9    -1.06    -1.1    -0.98    -1.36
-0.78    -0.82    -0.88    -0.87    -1.05    -1.14    -0.85    -1.33
-0.74    -0.74    -0.69    -0.83    -1.01    -1.1    -0.74    -1.28];

```

```
%% Definisiranje Theta
```

```
Theta = 0:5:360; % opseg thete sa korakom 1 stepen
```

```
%% Jednacina srednje krive
```

```
% Koeficijenti u srednjoj jednacini (polinom 3 reda)
```

```
p1 = 2.672e-7;
```

```
p2 = -0.0002149;
```

```
p3 = 0.04235;
```

```
p4 = -1.034;
```

```
% Izgled srednje jednacine - polinom 3 reda
```

```
Srednja = p1*Theta.^3 + p2*Theta.^2 + p3*Theta + p4;
```

```
%% Racunanje Delta
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
Ww = 3; % Definisiranje polinoma nq-Delta
```

```
Ww1 = 7; % Definisiranje polinoma Theta-koef
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
% definisanje boja u dijagramima za Theta-Delta (modela i polinoma)
```

```
boja1 = ['-b', '-r', '-g', '-m', '-y', '-c', '-k', ':r']; % vrsta i boja linije polinoma
```

```
boja2 = ['xb', 'xr', 'xg', 'xm', 'xy', 'xc', 'xk', 'or']; % vrsta i boja linije modela
```

```
% Racunanje Delta za svako nq
```

```
for i = 1:length(nq)
```

```
    Delta(:,i) = Podaci(:,i)-Srednja';
```

```
end
```

```
% Trazenje koeficijenta za polinom Ww reda
```

```
ThetaN = 0:5:360; % opseg za novo Theta koraka 5 stepeni
```

```
for i = 1:length(ThetaN) % opseg novog theta koraka od 5 stepeni
```

```
    U = find(ThetaN(i) == Theta); % pronalazi istu vrijednost thete u matrici
```

```
    KoeffDelta(:,i) = polyfit(nq,Delta(U,:),Ww); % Izracunavanje
```

```
koeficijenata polinoma reda Ww
```

```

% Crtanje dijagrama Delta sa modela i Delta za svako novo Theta koraka
% 5 stepeni (na opsegu od 45 do 270 stepeni ima 46 presjecnih dijagrama
figure(i)
plot(min(nq):0.1:max(nq),polyval(KoeffDelta(:,i),min(nq):0.1:max(nq)),'-
b',nq,Delta(U,:),'xr'), grid on
title(['Polinom ',num2str(Ww),' reda za \theta=',num2str(ThetaN(i))])
xlabel('nq'), ylabel('Delta')
xlim([min(nq) max(nq)])
legend('Polinom','Delta')
hold on
end
% Izvoz koeficijenata polinoma nq-Delta reda Ww za svako theta koraka od 5
% stepeni u Excel-u (ukupno 46 polinoma)
xlswrite(['Polinom ',num2str(Ww),' reda'],KoeffDelta)

%% Pretvaranje koeficijenata iz polinoma Delta reda Ww u polinom reda Ww1 u
zavisnosti od Theta
Trr = size(KoeffDelta); % velicina matrice koeficijenta polinoma Delta reda
Ww
for j = 1:Trr(1) % opseg koeficijenata polinoma Delta reda Ww
    PpP(j,:) = polyfit(ThetaN,KoeffDelta(j,:),Ww1); % Izracunavanje
koeficijenta polinoma reda Ww1
    % Crtanje dijagrama koeficijenata Delta uz nq u zavisnosti od Theta
    figure(100+j)

plot(ThetaN,KoeffDelta(j,:),'xb',min(ThetaN):1:max(ThetaN),polyval(PpP(j,:),m
in(ThetaN):1:max(ThetaN)),'-r'), grid on
    title(['Koeficijent ',num2str(j),' - polinoma ',num2str(Ww1),' reda'])
    xlabel('Theta'), ylabel('Koeficijent')
    xlim([min(ThetaN)-1 max(ThetaN)+1])
end
% Izvoz koeficijenata polinoma Theta-koef (koef uz nq) reda Ww1 u Excel-u
xlswrite(['Polinom ',num2str(Ww1),' reda Theta'],PpP)

%% Konacna jednacina (Srednja jednacina + jednacina Delta)
for i = 1:length(nq) % opseg nq-ova
    for oo = 1:length(Theta) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:Ww+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(PpP(j,:),Theta(oo)); % Racunanje polinoma reda
Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta
        end
        Do(oo) = polyval(TTr,nq(i)); % Racunanje Delte za svako Theta koraka
1
    end
    D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta
% Razlog: dobijena matrica delte je matrica jednog reda i treba je
% pretvoriti u matricu jedne vrste jer nam je matrica srednje krive
% zapisana isto kao matrica vrste.

    WH(:,i) = Srednja' + D(:,i); % Konacna jednacina - zbir Srednje jednacine
i jednacine Delta

% Racunanje r^2
n1 = size(Podaci); % daje velicinu matrice podataka
n = n1(1); % uzima broj tacaka na modelu za svako nq
SSres = sum((Podaci(:,i)-WH(:,i)).^2); % (suma kvadrata razlike modela i
kanacne jednacine)
SStot = sum((WH(:,i)-sum(Podaci(:,i))/n).^2); % (suma kvadrata razlike
konacne jednacine i srednje vrijednosti modela)
r2 = 1 - SSres/SStot; % Jednacina r^2 = 1 - Ssres/SStot

```

```

% Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako Theta i nq
figure(200+i)
plot(Theta,Podaci(:,i),'xb',Theta,Srednja,'--b',Theta',WH(:,i),'-r'),
grid on
xlabel('\theta'), ylabel('WH'), title(['Kriva za nq=',num2str(nq(i)),'
gdje je r^2=',num2str(r2)])
legend('Kriva modela','Srednja kriva','Srednja+delta')
end
%% Ispisivanje izgleda konacne jednacine
ispis = 'D%.0d*Theta^%1.0d + '; % oblik ispisa koeficijenata u polinom reda
Ww1
BB = sprintf(ispis,[ 1:1:Ww1+1 ; Ww1:-1:0]); % ispis koeficijenata u
tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-11);
BB = strrep(BB,'Theta^1 ','Theta '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB,'D','D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:Ww1
    for j = 1:Ww1+1
        A(i,j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
B = [Ww:-1:0]; % Matrica za stepen uz polinom reda Ww
C = [A B']; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed ']*nq^%.0d + ']; % Izgled polinoma
Kon = sprintf(BBa,C'); % ispisivanje jednacine
Jednacina = Kon(1:end-8); % izgled polinoma reda Ww (sa polinomom reda Ww1
kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina,'nq^1 ','nq '); % Izbacivanje stepena 1 uz theta
IsS = 'S1*Theta^3 + S2*Theta^2 + S3*Theta + S4'; % izgled jednacine srednje
krive u tekstualnom obliku
Del = ' + Delta';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['Delta = ', Jednacina]) % opis jednacine Delta
disp(' ')
disp('Izgled cijele jednacine je:')
disp([IsS ' + ' Jednacina]) % ispis cijele jednacine u tekstualnom obliku
disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ',num2str(p1)])
disp([' S2 = ',num2str(p2)])
disp([' S3 = ',num2str(p3)])
disp([' S4 = ',num2str(p4)])
disp(' ')
% ispis koeficijenata u polinom reda Ww1
for i = 1:Ww1
    disp('*****')
    if i == Ww1
        disp('Koeficijenti uz Theta (slobodni clan - bez nq-a)')
    elseif i ~= Ww1
        disp(['Koeficijenti uz Theta kod nq^',num2str(Ww1-i)])
    end
    for j = 1:Ww1+1
        TtT = PpP(i,j);
        Tttt = sprintf([' D',num2str(i),num2str(j),' = %.15e'],TtT);
        disp(Tttt)
    end
    disp(' ')
end
end

```



```

%% Ubacivnje novih nq-ova za analizu
nqNew = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % Ubaciti zeljeni
nq
for i = 1:length(nqNew) % opseg novih nq-ova
    for oo = 1:length(Theta) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:Ww+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(PpP(j,:),Theta(oo)); % Racunanje polinoma reda
Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta
            % OBJASNJENJE
            % Komanda "polyval" je komanda za izracunavanje polinoma.
            % Komandu "polyval" definisu dva parametra i to: koeficijenti i
Theta
            % Koeficijenti su dati u obliku matrice koji su dobijeni u
            % koraku trazanja koeficijenata za polinom reda Ww1
            % (Ww1 je definisan polinom Theta-koeff)
            % U ovom koraku ubacujuci Theta dobijamo vrijednost koja se
            % nalazi uz nq
        end
        Do(oo) = polyval(TTr,nqNew(i)); % Racunanje Delte za svako Theta
koraka 1
        % OBJASNJENJE
        % U prethodnom koraku smo izracunali polinom reda Ww1 koji je
        % funkcija od Theta. Kada smo izracunali taj polinom dobijamo nove
        % vrijednosti koje predstavljaju novi koeficijent koji se nalazi u
        % polinomu reda Ww a predstvalja funkciju od nq-a. Tako se moze
        % vidjeti da komandu "polyval" tj. novo rjesavanje polinoma reda Ww
        % definisu novi parametri i to koeficijenti koje smo dobili iz
        % polinoma reda Ww1 (f(Theta)) i novi nq-ovi. Na kraju kada
        % izracunamo ovaj polinom dobijamo podatke za Delta.
    end
    D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta
    % Razlog: dobijena matrica delte je matrica jednog reda i treba je
    % pretvoriti u matricu jedne vrste jer nam je matrica srednje krive
    % zapisana isto kao matrica vrste.

    WHnew(:,i) = Srednja' + D(:,i); % Zbir Srednje jednacine i jednacine
Delta
    % Srednja jednacina je ista

    % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako nq
    figure(200+i)
    plot(Theta',WHnew(:,i),'-o'), grid on
    xlabel('\theta'), ylabel('WH'), title('Dijagram \Theta-WH')
    legend(['nq=',num2str(nqNew(i))])
end
% Crtanje svih novih krivih na jednom dijagramu
figure(300)
plot(Theta',WHnew), grid on
xlabel('\theta'), ylabel('WH'), title('Dijagram \Theta-WH'), hold on

% ispis podataka novih nq-ova
disp(' ***** ')
disp(' ')
Izvoz = [1 nqNew; Theta' WHnew];
disp(Izvoz)

%% Izvoz svih podataka u Excel
Izvoz = [1 nq nqNew; Theta' Podaci WHnew];
xlswrite('Podaci za analizu', Izvoz)

```

Prilog za poglavlje - 6.3.3 Nalaženje analitičke veze postupkom regresije za krive Wh karakteristike za osam modela pumpi poznate iz klasične literature – primjer Thorley, R. D. & Chaudry, A. (1996); Donsky, B. (1961); Brown, R.J, Rogers, D.C. (1980) (Varijanta 3)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela za Pumpe - Varijanta 3 (Polinomi 3, 7, 3, 3) u programu Matlab:

```

%% pocetni parametri programa
close all, clc, clear all, warning off % naredbe za brisanje svih podataka i
memorije iz MATLAB-a
format long e % komanda za zaokruzivanje cifara
nq = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % Svi nq-ovi
%% Podaci dobijeni iz modela
Podaci = [-0.74 -0.74 -0.69 -0.83 -1.01 -1.1 -0.74 -1.26
-0.69 -0.66 -0.71 -0.77 -0.93 -1.03 -0.68 -1.23
-0.62 -0.58 -0.52 -0.71 -0.83 -0.95 -0.62 -1.16
-0.52 -0.49 -0.46 -0.63 -0.71 -0.86 -0.55 -1.09
-0.41 -0.38 -0.37 -0.54 -0.56 -0.73 -0.46 -1.01
-0.3 -0.2 -0.21 -0.44 -0.47 -0.6 -0.36 -0.9
0.24 0.18 0.19 -0.27 -0.29 -0.39 -0.1 -0.79
0.47 0.4 0.41 0 0 0.24 0.37 -0.48
0.61 0.54 0.57 0.56 0.54 0.54 0.54 0.41
0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71
0.8 0.79 0.81 0.81 0.82 0.84 0.81 0.83
0.88 0.87 0.92 0.89 0.93 0.94 0.93 0.94
0.95 0.98 1.03 0.97 1.01 1.02 1.01 1.04
1.01 1.05 1.15 1.02 1.09 1.09 1.14 1.13
1.06 1.11 1.2 1.07 1.16 1.14 1.19 1.2
1.1 1.19 1.3 1.1 1.21 1.18 1.25 1.25
1.13 1.25 1.36 1.13 1.26 1.22 1.26 1.31
1.15 1.3 1.43 1.15 1.31 1.24 1.3 1.36
1.16 1.35 1.48 1.16 1.34 1.25 1.33 1.42
1.17 1.42 1.54 1.16 1.36 1.26 1.34 1.47
1.16 1.45 1.57 1.15 1.35 1.28 1.35 1.53
1.14 1.43 1.59 1.14 1.35 1.29 1.34 1.57
1.13 1.43 1.59 1.1 1.33 1.3 1.31 1.63
1.1 1.46 1.56 1.07 1.31 1.32 1.3 1.69
1.08 1.47 1.53 1.02 1.26 1.32 1.27 1.75
1.06 1.45 1.49 0.98 1.24 1.31 1.24 1.8
1.04 1.42 1.46 0.98 1.23 1.3 1.2 1.85
1.02 1.4 1.42 0.97 1.22 1.28 1.17 1.87
0.99 1.35 1.37 0.98 1.22 1.26 1.17 1.9
0.98 1.31 1.29 0.98 1.22 1.25 1.2 1.9
0.95 1.25 1.18 0.97 1.24 1.23 1.23 1.9
0.94 1.2 1.15 0.97 1.25 1.22 1.22 1.87
0.92 1.24 1.16 0.96 1.24 1.21 1.2 1.83
0.91 1.26 1.1 0.95 1.24 1.19 1.18 1.73
0.89 1.27 1.06 0.92 1.22 1.18 1.16 1.58
0.87 1.2 1 0.9 1.19 1.16 1.12 1.43
0.84 1.15 0.94 0.87 1.14 1.14 1.08 1.24
0.82 1.11 0.9 0.86 1.06 1.12 1.05 1.14
0.81 1.14 0.9 0.82 0.95 1.09 0.97 1.04
0.78 1.13 0.9 0.8 0.84 1.05 0.89 0.98
0.76 1.09 0.87 0.76 0.8 0.99 0.84 0.93
0.74 1.02 0.83 0.73 0.75 0.89 0.78 0.87
0.73 0.9 0.83 0.69 0.69 0.81 0.73 0.82
0.73 0.88 0.87 0.66 0.64 0.74 0.69 0.72
0.72 0.91 0.85 0.63 0.6 0.66 0.67 0.65
0.72 0.95 0.84 0.6 0.57 0.61 0.66 0.57

```

```

0.73    0.97    0.85    0.57    0.55    0.55    0.69    0.48
0.74    0.99    0.86    0.55    0.54    0.49    0.74    0.39
0.75    0.98    0.85    0.54    0.49    0.49    0.69    0.3
0.77    0.96    0.83    0.52    0.4  0.52    0.65    0.23
0.78    0.95    0.81    0.48    0.32    0.54    0.59    0.12
0.79    0.94    0.77    0.43    0.23    0.56    0.53    0.03
0.8  0.94    0.72    0.33    0.1  0.57    0.49    -0.26
0.81    0.93    0.66    -0.01    0  0.57    0.37    -0.63
0.81    0.93    0.62    -0.13    -0.21    0.57    -0.22    -0.8
0.79    0.85    0.52    -0.19    -0.31    0.56    -0.41    -0.9
0.71    0.73    0.15    -0.26    -0.42    0.54    -0.55    -0.95
0.57    0.7  -0.5    -0.38    -0.59    0.47    -0.62    -0.99
0.48    0.6  -0.72    -0.57    -0.7    0.39    -0.7    -0.99
0.33    -0.16    -0.87    -0.63    -0.75    0.22    -0.75    -0.98
-0.45    -0.5    -0.96    -0.7    -0.79    -0.32    -0.85    -1.01
-0.56    -0.65    -1.04    -0.78    -0.77    -0.52    -0.92    -1.04
-0.62    -0.76    -1.1    -0.83    -0.78    -0.63    -0.98    -1.1
-0.69    -0.86    -1.14    -0.87    -0.81    -0.71    -1.02    -1.17
-0.73    -0.93    -1.17    -0.9    -0.86    -0.77    -1.03    -1.24
-0.77    -0.97    -1.18    -0.93    -0.92    -0.84    -1.05    -1.3
-0.8    -1    -1.19    -0.94    -0.95    -0.89    -1.06    -1.34
-0.81    -1.1    -1.17    -0.96    -0.99    -0.95    -1.06    -1.37
-0.82    -1.2    -1.13    -0.95    -1.02    -1    -1.05    -1.39
-0.82    -1    -1.09    -0.94    -1.05    -1.05    -1.03    -1.38
-0.81    -0.93    -1    -0.9    -1.06    -1.1    -0.98    -1.36
-0.78    -0.82    -0.88    -0.87    -1.05    -1.14    -0.85    -1.33
-0.74    -0.74    -0.69    -0.83    -1.01    -1.1    -0.74    -1.28];

```

```
%% Definisiranje Theta
```

```
Theta = 0:5:360; % opseg thete sa korakom 1 stepen
```

```
%% Jednacina srednje krive
```

```
% Koeficijenti u srednjoj jednacini (polinom 3 reda)
```

```
p1 = 2.672e-7;
```

```
p2 = -0.0002149;
```

```
p3 = 0.04235;
```

```
p4 = -1.034;
```

```
% Izgled srednje jednacine - polinom 3 reda
```

```
Srednja = p1*Theta.^3 + p2*Theta.^2 + p3*Theta + p4;
```

```
% crtanje srednje krive na tacke modela
```

```
figure(1)
```

```
plot(Theta', Podaci(:,1), 'xb', Theta', Podaci(:,2), 'xr', Theta', Podaci(:,3), 'xg',
Theta', Podaci(:,4), 'xm', Theta', Podaci(:,5), 'xy', Theta', Podaci(:,6), 'xc', Theta
', Podaci(:,7), 'xk', Theta', Podaci(:,8), 'or', Theta', Srednja', '-r')
```

```
xlabel('\theta'), ylabel('WH')
```

```
xlim([min(Theta) max(Theta)])
```

```
legend('n_{q}=24.34', 'n_{q}=41.81', 'n_{q}=64.04', 'n_{q}=71.97', 'n_{q}=76.21',
'n_{q}=85.21', 'n_{q}=96.85', 'n_{q}=100.56', 'Srednja kriva')
```

```
%% Racunanje Delta1
```

```
% definisanje boja u dijagramima za Theta-Delta (modela i polinoma)
```

```
boja1 = ['-b', '-r', '-g', '-m', '-y', '-c', '-k', ':r']; % vrsta i boja linije
polinoma
```

```
boja2 = ['xb', 'xr', 'xg', 'xm', 'xy', 'xc', 'xk', 'or']; % vrsta i boja linije
modela
```

```
% Racunanje Delta za svako nq i crtanje dijagrama
```

```
for i = 1:length(nq) % opseg nq-ova
```

```
Delta1(:,i) = Podaci(:,i)-Srednja'; % Jednacina za racunanje delte
(razlika podatka sa modela i srednje krive)
```

```
end
```

```

sp1 = 7; % promjena stepena polinoma u delta 1

% Stavljanje Theta i Delte u dvije kolone
Thet2 = [Theta'; Theta'; Theta'; Theta'; Theta'; Theta'; Theta'; Theta']; %
Theta u jednu kolonu
Del2 = [Delta1(:,1); Delta1(:,2); Delta1(:,3); Delta1(:,4); Delta1(:,5);
Delta1(:,6); Delta1(:,7); Delta1(:,8)]; % Delta u jednu kolonu
sred = polyfit(Thet2,Del2,sp1); % Polinom stepena sp1 za srednju krivu kod
delte 1
Deltals = polyval(sred,Theta)'; % Podaci dobijeni iz polinoma stepena sp1 za
Delta 1
% Crtanje srednje krive na delta 1
figure(2)
plot(Thet2, Del2, 'xr', Theta, Deltals, '-b'), grid on
title('Srednja kriva u Delta 1')
xlabel('\theta'), ylabel('Delta 1 WH')
xlim([min(Theta) max(Theta)])
legend('Delta WH','Srednja kriva Delte')
xlswrite('Koeff za Delta1',sred) % izvoz koeficijenata u delta 1

%% Racunanje Delta2
Ww = 3; % Definisiranje polinoma Theta-Delta2
Ww1 = 3; % Definisiranje polinoma nq-koef

for i = 1:length(nq) % opseg nq-ova
    Delta2(:,i) = Delta1(:,i)-Deltals; % Jednacina za racunanje delte
    (razlika podatka sa modela i srednje krive)
    KoeffDelta2(:,i) = polyfit(Theta',Delta2(:,i),Ww); % Izracunavanje
    koeficijenata polinoma reda Ww
    % Crtanje dijagrama Delta2
    figure(100)
    plot(Theta,polyval(KoeffDelta2(:,i),Theta),boja1(i*2-
1:i*2),Theta,Delta2(:,i),boja2(i*2-1:i*2)), grid on
    title(['Polinom ',num2str(Ww),' reda u Delta 2'])
    xlabel('\theta'), ylabel('Delta 2')
    xlim([min(Theta) max(Theta)])

    legend('n_{q}=24.34','n_{q}=24.34','n_{q}=41.81','n_{q}=41.81','n_{q}=64.04',
'n_{q}=64.04','n_{q}=71.97','n_{q}=71.97','n_{q}=76.21','n_{q}=76.21','n_{q}=
85.21','n_{q}=85.21','n_{q}=96.85','n_{q}=96.85','n_{q}=100.56','n_{q}=100.56
')
    hold on
end
% Izvoz koeficijenata polinoma Theta-Delta reda Ww u Excel-u
xlswrite(['Polinom ',num2str(Ww),' reda'],KoeffDelta2)

%% Pretvaranje koeficijenata iz polinoma Delta2 reda Ww u polinom reda Ww1 u
zavisnosti od nq-a
Trr = size(KoeffDelta2); % velicina matrice koeficijenta polinoma Delta reda
Ww
for j = 1:Trr(1) % opseg koeficijenata polinoma Delta reda Ww
    PpP(j,:) = polyfit(nq,KoeffDelta2(j,:),Ww1); % Izracunavanje koeficijenta
    polinoma reda Ww1
    % Crtanje dijagrama koeficijenata Delta uz Thetu u zavisnosti od nq-a
    figure(100+j)

    plot(nq,KoeffDelta2(j,:), 'xb',min(nq):1:max(nq),polyval(PpP(j,:),min(nq):1:ma
x(nq)),'-r'), grid on

```

```

        title(['Koeficijenat ', num2str(j), ' - polinoma ', num2str(Ww1), ' reda u
Delta 2'])
        xlabel('nq'), ylabel('Koeficijent')
        xlim([min(nq)-1 max(nq)+1])
    end
    % Izvoz koeficijenata polinoma nq-koef (koef uz Theta) reda Ww1 u Excel-u
    xlswrite(['Polinom ', num2str(Ww1), ' reda Nq'], PpP)

%% Konacna jednacina (Srednja jednacina + jednacina Delta)
for i = 1:length(nq) % opseg nq-ova
    for j = 1:Ww+1 % opseg koeficijenata polinoma reda Ww
        TTr(j) = polyval(PpP(j,:), nq(i)); % Racunanje polinoma reda Ww1 koji
figurira koeficijentima u polinomu Ww reda u zavisnosti od nq-a
    end
    D = polyval(TTr, Theta); % Racunanje Delta 2 u zavisnosti od Theta i nq-a
    % Napomena
    % nq figurira u koeficijente TTr

    WH(:, i) = Srednja + Deltals' + D; % Zbir Srednje jednacine, srednje
jednacine Delte 1 i jednacine Delte 2

    % Racunanje r^2
    n1 = size(Podaci); % daje velicinu matrice podataka
    n = n1(1); % uzima broj tacaka na modelu za svako nq
    SSres = sum((Podaci(:, i) - WH(:, i)).^2); % (suma kvadrata razlike modela i
kanacne jednacine)
    SStot = sum((WH(:, i) - sum(Podaci(:, i))/n).^2); % (suma kvadrat razlike
konacne jednacine i srednje vrijednosti modela)
    r2 = 1 - SSres/SStot; % Jednacina r^2 = 1 - Ssres/SStot

    % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako nq
    figure(200+i)
    plot(Theta, Podaci(:, i), 'xb', Theta, Srednja, '--b', Theta, WH(:, i), '-r'),
grid on
    xlabel('\theta'), ylabel('WH'), title(['Kriva za nq=', num2str(nq(i)), '
gdje je r^2=', num2str(r2)])
    legend('Kriva modela', 'Srednja kriva', 'Srednja+delta')
end
clc

%% Ispisivanje izgleda konacne jednacine
% podesavanja za ispis jednacine Delta1
SSa = 'R%1.0d*Theta^%d + ';
KonD1 = sprintf(SSa, [1:1:sp1+1 ; sp1:-1:0]);
JedDelta1 = KonD1(1:end-11); % izgled polinoma reda Ww (sa polinomom reda Ww1
kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
JedDelta1 = strrep(JedDelta1, 'Theta^1 ', 'Theta '); % Izbacivanje stepena 1 uz
Theta
% podesavanja za ispis jednacine Delta2
ispis = 'D%1.0d*nq^%1.d + '; % oblik ispisa koeficijenata u polinom reda Ww1
BB = sprintf(ispis, [1:1:Ww+1 ; Ww:-1:0]); % ispis koeficijenata u
tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-8);
BB = strrep(BB, 'nq^1 ', 'nq '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB, 'D', 'D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:Ww1+1
    for j = 1:Ww+1
        A(i, j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
end

```

```

B = [Ww1:-1:0]; % Matrica za stepen uz polinom reda Ww1
C = [A B']; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed ']*Theta^%d + '];
Kon = sprintf(BBa,C');
Jednacina = Kon(1:end-11); % izgled polinoma reda Ww (sa polinomom reda Ww1
kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina,'Theta^1 ','Theta '); % Izbacivanje stepena 1 uz
theta
% Ispis jednacine
IsS = 'S1*Theta^3 + S2*Theta^2 + S3*Theta + S4'; % izgled jednacine srednje
krive u tekstualnom obliku
Del = ' + SrednjaDelta1 + Delta2';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['SrednjaDelta1 = ', JedDelta1])
disp(['Delta2 = ', Jednacina]) % opis jednacine Delta
disp(' ')
disp('Izgled cijele jednacine je:')
disp([IsS ' + ' JedDelta1 ' + ' Jednacina]) % ispis cijele jednacine u
tekstualnom obliku
disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ',num2str(p1)])
disp([' S2 = ',num2str(p2)])
disp([' S3 = ',num2str(p3)])
disp([' S4 = ',num2str(p4)])
for i = 1:sp1+1
    disp([' R',num2str(i),' = ',num2str(sred(i))])
end
disp(' ')
% ispis koeficijenata u polinom reda Ww1
for i = 1:Ww+1
    disp('*****')
    if i == Ww+1
        disp('Koeficijenti uz nq (slobodni clan - bez Theta)')
    elseif i ~= Ww+1
        disp(['Koeficijenti uz nq kod Theta^',num2str(Ww+1-i)])
    end
    for j = 1:Ww1+1
        TtT = PpP(i,j);
        Tttt = sprintf([' D',num2str(i),num2str(j),' = %.15e'],TtT);
        disp(Tttt)
    end
    disp(' ')
end

%% Ubacivanje novih nq-ova za analizu
nq = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % Svi nq-ovi
nqNew = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % Ubaciti zeljeni
nq
for i = 1:length(nqNew) % opseg novih nq-ova
    for j = 1:Ww+1 % opseg koeficijenata polinoma reda Ww
        TTr(j) = polyval(PpP(j,:),nqNew(i)); % Racunanje polinoma reda Ww1
koji figurira koeficijentima u polinomu Ww reda u zavisnosti od novih nq-a
        % OBJASNJENJE
        % Komanda "polyval" je komanda za izracunavanje polinoma.
        % Komandu "polyval" definisu dva parametra i to: koeficijenti i nq.
        % Koeficijenti su dati u obliku matrice koji su dobijeni u
        % koraku trazanja koeficijenata za polinom reda Ww1
        % (Ww1 je definisan polinom nq-koef)
        % U ovom koraku ubacujuci novo nq dobijamo vrijednost koja se
        % nalazi uz theta polinom reda Ww

```

```

end
D2n = polyval(TTr,Theta); % Racunanje Delta 2 u zavisnosti od Theta i
novih nq-a
% OBJASNJENJE
% U prethodnom koraku smo izracunali polinom reda Ww1 koji je u
% funkciji od nq. Kada smo izracunali taj polinom dobijamo nove
% vrijednosti koje predstavljaju novi koeficijent koji se nalazi u
% polinomu reda Ww a predstavlja funkciju od Theta. Tako se moze
% vidjeti da komandu "polyval" tj. novo rjesavanje polinoma reda Ww
% definisu novi parametri i to koeficijenti koje smo dobili iz
% polinoma reda Ww1 (f(nq)) i Theta. Na kraju kada
% izracunamo ovaj polinom dobijamo podatke za Delta 2.

WHnew(:,i) = Srednja + Deltals' + D2n; % Zbir Srednje jednacine, srednje
jednacine Delte 1 i jednacine Delta 2
% Srednja jednacina kao i srednja jednacina od Delta1 je ista za svako
% novo nq i pozivaju se iz prethodnog dijela programa jer te jednacine
% ne zavise od nq-a vec samo od Theta.

% Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako nq
figure(300+i)
plot(Theta',WHnew(:,i),'-o'), grid on
xlabel('\theta'), ylabel('WH'), title('Dijagram \Theta-WH')
legend(['n_{q}=',num2str(nqNew(i))])
end
% Crtanje svih novih krivih na jednom dijagramu
figure(400)
plot(Theta',WHnew), grid on
xlabel('\theta'), ylabel('WH'), title('Dijagram \Theta-WH'), hold on

% ispis podataka novih nq-ova
disp(' ***** ')
disp(' ')
disp('ISPIS DOBIJENIH PODATAKA DOBIJENIM IZ JEDNACINE ZA NOVE nq-ove')
disp(' ')
Izvoz = [1 nqNew; Theta' WHnew];
disp(Izvoz)

%% Izvoz svih podataka u Excel
Izvoz = [1 nq nqNew; Theta' Podaci WHnew];
xlswrite('Podaci za analizu', Izvoz)

```

Prilozi

Prilog – P8 Kodovi razvijenih numeričkih modela Varijnata 4, 5 (Numerički model 1 – nq-ovi modela, Numerički model 2 – novi nq-ovi) postupkom interpolacije (kubni splajn) za krive osam modela pumpi poznate iz klasične literature – primjer Thorley, R. D. & Chaudry, A. (1996); Donsky, B. (1961); Brown, R.J, Rogers, D.C. (1980);

*Prilog za poglavlje 6.3.4 Nalaženje analitičke veze postupkom interpolacije (kubni splajn)
za krive Wh karakteristike za osam modela pumpi poznate iz
klasične literature – primjer Thorley, R. D. & Chaudry, A. (1996);
Donsky, B. (1961); Brown, R.J, Rogers, D.C.
(1980) (Numerički model 1 – nq-ovi modela) – Varijanta 4*

U narednom dijelu teksta priložen je listing koda razvijenog Numeričkog modela 1
(Pumpe - Kubni splajn (nq-ovi modela) u programu Matlab:

```
%% Program za racunanje WH pumpi - SPLINE
clear all, close all, clc
Theta = 0:5:360; % Opseg Theta

% Podaci modela pumpi
nq = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % nq-ovi
WH = [-0.74 -0.74 -0.69 -0.83 -1.01 -1.1 -0.74 -1.26
-0.69 -0.66 -0.71 -0.77 -0.93 -1.03 -0.68 -1.23
-0.62 -0.58 -0.52 -0.71 -0.83 -0.95 -0.62 -1.16
-0.52 -0.49 -0.46 -0.63 -0.71 -0.86 -0.55 -1.09
-0.41 -0.38 -0.37 -0.54 -0.56 -0.73 -0.46 -1.01
-0.3 -0.2 -0.21 -0.44 -0.47 -0.6 -0.36 -0.9
0.24 0.18 0.19 -0.27 -0.29 -0.39 -0.1 -0.79
0.47 0.4 0.41 0 0 0.24 0.37 -0.48
0.61 0.54 0.57 0.56 0.54 0.54 0.54 0.41
0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71
0.8 0.79 0.81 0.81 0.82 0.84 0.81 0.83
0.88 0.87 0.92 0.89 0.93 0.94 0.93 0.94
0.95 0.98 1.03 0.97 1.01 1.02 1.01 1.04
1.01 1.05 1.15 1.02 1.09 1.09 1.14 1.13
1.06 1.11 1.2 1.07 1.16 1.14 1.19 1.2
1.1 1.19 1.3 1.1 1.21 1.18 1.25 1.25
1.13 1.25 1.36 1.13 1.26 1.22 1.26 1.31
1.15 1.3 1.43 1.15 1.31 1.24 1.3 1.36
1.16 1.35 1.48 1.16 1.34 1.25 1.33 1.42
1.17 1.42 1.54 1.16 1.36 1.26 1.34 1.47
1.16 1.45 1.57 1.15 1.35 1.28 1.35 1.53
1.14 1.43 1.59 1.14 1.35 1.29 1.34 1.57
1.13 1.43 1.59 1.1 1.33 1.3 1.31 1.63
1.1 1.46 1.56 1.07 1.31 1.32 1.3 1.69
1.08 1.47 1.53 1.02 1.26 1.32 1.27 1.75
1.06 1.45 1.49 0.98 1.24 1.31 1.24 1.8
1.04 1.42 1.46 0.98 1.23 1.3 1.2 1.85
1.02 1.4 1.42 0.97 1.22 1.28 1.17 1.87
0.99 1.35 1.37 0.98 1.22 1.26 1.17 1.9
0.98 1.31 1.29 0.98 1.22 1.25 1.2 1.9
0.95 1.25 1.18 0.97 1.24 1.23 1.23 1.9
0.94 1.2 1.15 0.97 1.25 1.22 1.22 1.87
0.92 1.24 1.16 0.96 1.24 1.21 1.2 1.83
0.91 1.26 1.1 0.95 1.24 1.19 1.18 1.73
```



```

0.89    1.27    1.06    0.92    1.22    1.18    1.16    1.58
0.87    1.2 1    0.9 1.19    1.16    1.12    1.43
0.84    1.15    0.94    0.87    1.14    1.14    1.08    1.24
0.82    1.11    0.9 0.86    1.06    1.12    1.05    1.14
0.81    1.14    0.9 0.82    0.95    1.09    0.97    1.04
0.78    1.13    0.9 0.8 0.84    1.05    0.89    0.98
0.76    1.09    0.87    0.76    0.8 0.99    0.84    0.93
0.74    1.02    0.83    0.73    0.75    0.89    0.78    0.87
0.73    0.9 0.83    0.69    0.69    0.81    0.73    0.82
0.73    0.88    0.87    0.66    0.64    0.74    0.69    0.72
0.72    0.91    0.85    0.63    0.6 0.66    0.67    0.65
0.72    0.95    0.84    0.6 0.57    0.61    0.66    0.57
0.73    0.97    0.85    0.57    0.55    0.55    0.69    0.48
0.74    0.99    0.86    0.55    0.54    0.49    0.74    0.39
0.75    0.98    0.85    0.54    0.49    0.49    0.69    0.3
0.77    0.96    0.83    0.52    0.4 0.52    0.65    0.23
0.78    0.95    0.81    0.48    0.32    0.54    0.59    0.12
0.79    0.94    0.77    0.43    0.23    0.56    0.53    0.03
0.8 0.94    0.72    0.33    0.1 0.57    0.49    -0.26
0.81    0.93    0.66    -0.01    0 0.57    0.37    -0.63
0.81    0.93    0.62    -0.13    -0.21    0.57    -0.22    -0.8
0.79    0.85    0.52    -0.19    -0.31    0.56    -0.41    -0.9
0.71    0.73    0.15    -0.26    -0.42    0.54    -0.55    -0.95
0.57    0.7 -0.5    -0.38    -0.59    0.47    -0.62    -0.99
0.48    0.6 -0.72    -0.57    -0.7    0.39    -0.7    -0.99
0.33    -0.16    -0.87    -0.63    -0.75    0.22    -0.75    -0.98
-0.45    -0.5    -0.96    -0.7    -0.79    -0.32    -0.85    -1.01
-0.56    -0.65    -1.04    -0.78    -0.77    -0.52    -0.92    -1.04
-0.62    -0.76    -1.1    -0.83    -0.78    -0.63    -0.98    -1.1
-0.69    -0.86    -1.14    -0.87    -0.81    -0.71    -1.02    -1.17
-0.73    -0.93    -1.17    -0.9    -0.86    -0.77    -1.03    -1.24
-0.77    -0.97    -1.18    -0.93    -0.92    -0.84    -1.05    -1.3
-0.8    -1 -1.19    -0.94    -0.95    -0.89    -1.06    -1.34
-0.81    -1.1    -1.17    -0.96    -0.99    -0.95    -1.06    -1.37
-0.82    -1.2    -1.13    -0.95    -1.02    -1 -1.05    -1.39
-0.82    -1 -1.09    -0.94    -1.05    -1.05    -1.03    -1.38
-0.81    -0.93    -1 -0.9    -1.06    -1.1    -0.98    -1.36
-0.78    -0.82    -0.88    -0.87    -1.05    -1.14    -0.85    -1.33
-0.74    -0.74    -0.69    -0.83    -1.01    -1.1    -0.74    -1.28];

```

```

%% Ispis jednacina za svaki opseg theta i za svako nq
disp('Izgled jednacina')
disp(' ')
for j = 1:length(nq)
    S = spline(Theta',WH(:,j)); % Funkcija spline
    koef = S.coefs; % izvlacenje koeficijenata iz funkcije
    n = j*4-3; % korak za ubacivanje koeficijenata u matricu

    Mkoef(:,n:n+3) = koef; % ubacivanje koeficijenata u matricu
    br = S.breaks;
    % Ispisivanje jednacina za svako nq opsega Thete od koraka 5
    disp(['Izgled jednacina spline za nq=',num2str(nq(j))])
    for i = 1:length(Theta)-1
        % ispisivanje jednacine
        disp(['opseg od ',num2str(Theta(i)), ' do ',num2str(Theta(i+1)),' ->
f(',num2str(i),') =
',num2str(koef(i,1)), '*ThetaT^3+(',num2str(koef(i,2)),')*ThetaT^2+(',num2str(
koef(i,3)),')*ThetaT+(',num2str(koef(i,4)),')'])
    end
    disp(' ')
    clear S koef1
end
end

```

```

v = size(Mkoef); % velicina matrice koeficijenata

%% Dijagrami koeficijenata za svaki opseg i nq
for o = 1:length(Theta)-1 % broj funkcija spline za svako nq

    k1 = Mkoef(o,1:4:v(2)); % koeficijent k1
    s1 = polyfit(nq,k1,2); % polinom 2 reda koeficijenta k1
    koef1 = s1; % izvlacenje koeficijenata

    k2 = Mkoef(o,2:4:v(2)); % koeficijent k2
    s2 = polyfit(nq,k2,2); % polinom 2 reda koeficijenta k2
    koef2 = s2; % izvlacenje koeficijenata

    k3 = Mkoef(o,3:4:v(2)); % koeficijent k3
    s3 = polyfit(nq,k3,2); % polinom 2 reda koeficijenta k3
    koef3 = s3; % izvlacenje koeficijenata

    k4 = Mkoef(o,4:4:v(2)); % koeficijent k4
    s4 = polyfit(nq,k4,2); % polinom 2 reda koeficijenta k4
    koef4 = s4; % izvlacenje koeficijenata

    Koefm = [koef1 koef2 koef3 koef4]; % postavljanje koeficijenta u matricu
reda 1

    % ubacivanje koeficijenata u matricu koji figurisu nq
    koefnq(o,:) = Koefm;
    % Matrica "koefnq" je definisana za svaki opseg Theta i svaki opseg
    % nq-a. To znaci da imamo opseg Theta od 0 do 360 koraka 5, imamo opseg
    % nq-a od 8 modela. Detaljnija upustva pokazuje exel tabela

    % Crtanje koeficijenata i funkcije spline
    figure(o)

    suptitle(['Opseg \theta=', num2str(Theta(o)), '-', num2str(Theta(o+1)), '
f_{', num2str(o), '} = k_{', num2str(o*4-3), '}* \theta^3 + k_{', num2str(o*4-
2), '}* \theta^2 + k_{', num2str(o*4-1), '}* \theta + k_{', num2str(o*4), '}'])

    subplot(2,2,1)

    plot(nq,k1,'xr',nq(1):0.01:nq(length(nq)),polyval(koef1,nq(1):0.01:nq(length(
nq))),'-b'), grid on
    xlabel('n_{q}'), ylabel(['koeficijent k_{', num2str(o*4-3), '}'])
    xlim([0 105]) % opseg x ose

    subplot(2,2,2)

    plot(nq,k2,'xr',nq(1):0.01:nq(length(nq)),polyval(koef2,nq(1):0.01:nq(length(
nq))),'-b'), grid on
    xlabel('n_{q}'), ylabel(['koeficijent k_{', num2str(o*4-2), '}'])
    xlim([0 105]) % opseg x ose

    subplot(2,2,3)

    plot(nq,k3,'xr',nq(1):0.01:nq(length(nq)),polyval(koef3,nq(1):0.01:nq(length(
nq))),'-b'), grid on
    xlabel('n_{q}'), ylabel(['koeficijent k_{', num2str(o*4-1), '}'])
    xlim([0 105]) % opseg x ose

```

```

subplot(2,2,4)

plot(nq,k4,'xr',nq(1):0.01:nq(length(nq)),polyval(koef4,nq(1):0.01:nq(length(
nq))),'-b'), grid on
    xlabel('n_{q}'), ylabel(['koeficijent k_{',num2str(o*4),'}'])
    xlim([0 105]) % opseg x ose
end

%% Objedinjavanje polinoma 3 stepena u zajednicki dijagram
nqs = nq(1):0.01:nq(length(nq)); % opseg tacaka za crtanje
for o = 1:length(Theta)-1
    % izvlacenje koeficijenata iz matrice
    K11 = koefnq(o,1:3); % koeficijenti K1
    K12 = koefnq(o,4:6); % koeficijenti K2
    K13 = koefnq(o,7:9); % koeficijenti K3
    K14 = koefnq(o,10:12); % koeficijenti K4

    % Crtanje dijagrama prvog koeficijenta
    figure(101) % crtanje prvog koeficijenta K1
    plot(nqs,polyval(K11,nqs)), grid on, hold on
    xlabel('n_{q}'), ylabel('Koeficijent K1')
    title('krive koeficijenata K1 u cijelom opsegu')
    xlim([fix(nq(1)-1) fix(nq(length(nq))+1)])
    text(max(nqs),polyval(K11,max(nqs)),['\theta=',num2str(Theta(o)),'-
',num2str(Theta(o+1))])

    figure(102) % crtanje prvog koeficijenta K2
    plot(nqs,polyval(K12,nqs)), grid on, hold on
    xlabel('n_{q}'), ylabel('Koeficijent K2')
    title('krive koeficijenata K2 u cijelom opsegu')
    xlim([fix(nq(1)-1) fix(nq(length(nq))+1)])
    text(max(nqs),polyval(K12,max(nqs)),['\theta=',num2str(Theta(o)),'-
',num2str(Theta(o+1))])

    figure(103) % crtanje prvog koeficijenta K3
    plot(nqs,polyval(K13,nqs)), grid on, hold on
    xlabel('n_{q}'), ylabel('Koeficijent K3')
    title('krive koeficijenata K3 u cijelom opsegu')
    xlim([fix(nq(1)-1) fix(nq(length(nq))+1)])
    text(max(nqs),polyval(K13,max(nqs)),['\theta=',num2str(Theta(o)),'-
',num2str(Theta(o+1))])

    figure(104) % crtanje prvog koeficijenta K4
    plot(nqs,polyval(K14,nqs)), grid on, hold on
    xlabel('n_{q}'), ylabel('Koeficijent K4')
    title('krive koeficijenata K4 u cijelom opsegu')
    xlim([fix(nq(1)-1) fix(nq(length(nq))+1)])
    text(max(nqs),polyval(K14,max(nqs)),['\theta=',num2str(Theta(o)),'-
',num2str(Theta(o+1))])

end

%% NOVO NQ 24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56      [33.07 52.92
68 74.09 80.71 91.03 98.7]
nqNew = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % Unijeti novi nq
(ne moze se staviti nq van opsega 24.34-100.56)
ThetaN = 0:0.5:360; % Opseg novog Theta koraka 0.5

for Nq0 = 1:length(nqNew)

```

```

F1 = find(nqNew(NqO) <= nq); % pronalazenje u kojem je opsegu nq-ova novi
nq
F2 = F1(1);
if nqNew(NqO) == nq(F2) % uslov ako je nq isti sa nq-om iz modela
    F = F1(1); % broj u kojem se trazi opseg u matrici koeficijenata
elseif nqNew(NqO) < nq(F2) % uslo ako je nq u nekom opsegu
    F = F1(1)-1; % broj u kojem se trazi opseg u matrici koeficijenata
end

for u = 1:length(ThetaN) % opseg novog theta
    Jj = find(ThetaN(u) <= Theta); % Trazi vrijednosti Thete iz modela
koje su vece ili jednake od vrijednosti novog thete
    wq = Jj(1); % izdvajanje prve vece vrijednosti Thete modela
    % Napomena: na modelu imamo 73 vrijednosti thete sto znaci da imamo
72
    % opsega. Kako nam je matrica kod koeficijentima definisana sa
opsegom
    % tako zadajemo uslove koji su karakteristicni za svako novo theta.

    if ThetaN(u) == 0
        % ako smo dobili da je vrijednost "j" koja nam definise poziciju
        % prve vece vrijednosti thete modela u odnosu na novo theta
jednako
        % 73 ili Theta=360. Kako je matrica dobijena iz modela ima 504
        % reda, da bi uzeli pravi red iz matrice moramo umanjiti mnozilac
        % za 2 (72*7=504 dok je 71*7=497) i zatim dodajemo red za
        % odgovarajuce nq. Kod drugog opsega nije potrebno umanjivanje za
2
        % opsega.
        Nk1 = polyval(koefnq(1,1:3),nqNew(NqO));
        Nk2 = polyval(koefnq(1,4:6),nqNew(NqO));
        Nk3 = polyval(koefnq(1,7:9),nqNew(NqO));
        Nk4 = polyval(koefnq(1,10:12),nqNew(NqO));
        ThetaOld = Theta(1);
    elseif ThetaN(u) ~= 0 % uslov ako je opseg u Theta izmedju 0 i 355
zakljucno sa 355
        if ThetaN(u) == Theta(wq)
            if Theta(wq) < Theta(length(Theta))
                Nk1 = polyval(koefnq(wq,1:3),nqNew(NqO));
                Nk2 = polyval(koefnq(wq,4:6),nqNew(NqO));
                Nk3 = polyval(koefnq(wq,7:9),nqNew(NqO));
                Nk4 = polyval(koefnq(wq,10:12),nqNew(NqO));
                ThetaOld = Theta(wq);
            elseif Theta(wq) == Theta(length(Theta))
                Nk1 = polyval(koefnq(wq-1,1:3),nqNew(NqO));
                Nk2 = polyval(koefnq(wq-1,4:6),nqNew(NqO));
                Nk3 = polyval(koefnq(wq-1,7:9),nqNew(NqO));
                Nk4 = polyval(koefnq(wq-1,10:12),nqNew(NqO));
                ThetaOld = Theta(wq-1);
            end
        elseif ThetaN(u) < Theta(wq)
            Nk1 = polyval(koefnq(wq-1,1:3),nqNew(NqO));
            Nk2 = polyval(koefnq(wq-1,4:6),nqNew(NqO));
            Nk3 = polyval(koefnq(wq-1,7:9),nqNew(NqO));
            Nk4 = polyval(koefnq(wq-1,10:12),nqNew(NqO));
            ThetaOld = Theta(wq-1);
        end
    end
end

Whnew(u) = Nk1*(ThetaN(u)-ThetaOld)^3+Nk2*(ThetaN(u)-
ThetaOld)^2+Nk3*(ThetaN(u)-ThetaOld)+Nk4;

```

```

end

figure(104+NqO)

plot(Theta',WH(:,1),'xr',Theta',WH(:,2),'xb',Theta',WH(:,3),'xg',Theta',WH(:,
4),'xk',Theta',WH(:,5),'or',Theta',WH(:,6),'ob',Theta',WH(:,7),'og',Theta',WH
(:,8),'ok',ThetaN,Whnew,'-r')
grid on
xlabel('\Theta'), ylabel('WH')
xlim([0 360])
set(gca, 'xTick', [0:45:360])
title(['Dijagram tacaka modela i novog n_{q}=', num2str(nqNew(NqO))])
leg = [nq nqNew(NqO)];
legenSS = cellstr(num2str(leg', 'n_{q}=%-.2f'));
legend(legenSS)

clear F1 F2 wq Nk1 Nk2 Nk3 Nk4 ThetaOld Whnew

end

%% Ispisivanje konacne jednacine
disp(' ')
disp('=====')
disp(' ')
disp('KONACNA JEDNACINA JE:')
disp(' WH = K1*ThetaT^3 + K2*ThetaT^2+ K3*ThetaT + K4')
disp('gdje je: ThetaT = ThetaN - ThetaOld')
disp(' K1 = p11*nqNew^3 + p12*nqNew^2 + p13*nqNew + p14')
disp(' K2 = p21*nqNew^3 + p22*nqNew^2 + p23*nqNew + p24')
disp(' K3 = p31*nqNew^3 + p32*nqNew^2 + p33*nqNew + p34')
disp(' K4 = p41*nqNew^3 + p42*nqNew^2 + p43*nqNew + p44')
disp(' ')
disp(' Tabela koeficijenata: ')
disp(' | K1 | K2 |')
disp(' K3 | K4 |')
disp('Opseg Theta | p11 | p12 | p13 | p14 | p21 | p22 | p23 | p24 | p31 | p32 |')
disp(' | p33 | p34 | p41 | p42 | p43 | p44 |')
for i = 1:length(Theta)-1
    O1(i) = Theta(i);
    O2(i) = Theta(i+1);
end

ISPIS = [O1' O2' koefnq];
disp(ISPIS)
xlswrite('MatricaKonacna',ISPIS)

```

Prilog za poglavlje 6.3.5 Nalaženje analitičke veze postupkom interpolacije (kubni splajn) za krive Wh karakteristike za osam modela pumpi poznate iz klasične literature – primjer Thorley, R. D. & Chaudry, A. (1996); Donsky, B. (1961); Brown, R.J, Rogers, D.C. (1980)(Numerički model 2 – novi nq-ovi). – Varijanta 5

U narednom dijelu teksta priložen je listing koda razvijenog Numeričkog modela 2 (Pumpe - Kubni splajn (novi nq-ovi) u programu Matlab:

```

%% Program za racunanje WH pumpi - SPLINE
clear all, close all, clc
Theta = 0:5:360; % Opseg Theta

% Podaci modela pumpi
nq = [24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56]; % nq-ovi
WH = [-0.74 -0.74 -0.69 -0.83 -1.01 -1.1 -0.74 -1.26
-0.69 -0.66 -0.71 -0.77 -0.93 -1.03 -0.68 -1.23
-0.62 -0.58 -0.52 -0.71 -0.83 -0.95 -0.62 -1.16
-0.52 -0.49 -0.46 -0.63 -0.71 -0.86 -0.55 -1.09
-0.41 -0.38 -0.37 -0.54 -0.56 -0.73 -0.46 -1.01
-0.3 -0.2 -0.21 -0.44 -0.47 -0.6 -0.36 -0.9
0.24 0.18 0.19 -0.27 -0.29 -0.39 -0.1 -0.79
0.47 0.4 0.41 0 0 0.24 0.37 -0.48
0.61 0.54 0.57 0.56 0.54 0.54 0.54 0.41
0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71
0.8 0.79 0.81 0.81 0.82 0.84 0.81 0.83
0.88 0.87 0.92 0.89 0.93 0.94 0.93 0.94
0.95 0.98 1.03 0.97 1.01 1.02 1.01 1.04
1.01 1.05 1.15 1.02 1.09 1.09 1.14 1.13
1.06 1.11 1.2 1.07 1.16 1.14 1.19 1.2
1.1 1.19 1.3 1.1 1.21 1.18 1.25 1.25
1.13 1.25 1.36 1.13 1.26 1.22 1.26 1.31
1.15 1.3 1.43 1.15 1.31 1.24 1.3 1.36
1.16 1.35 1.48 1.16 1.34 1.25 1.33 1.42
1.17 1.42 1.54 1.16 1.36 1.26 1.34 1.47
1.16 1.45 1.57 1.15 1.35 1.28 1.35 1.53
1.14 1.43 1.59 1.14 1.35 1.29 1.34 1.57
1.13 1.43 1.59 1.1 1.33 1.3 1.31 1.63
1.1 1.46 1.56 1.07 1.31 1.32 1.3 1.69
1.08 1.47 1.53 1.02 1.26 1.32 1.27 1.75
1.06 1.45 1.49 0.98 1.24 1.31 1.24 1.8
1.04 1.42 1.46 0.98 1.23 1.3 1.2 1.85
1.02 1.4 1.42 0.97 1.22 1.28 1.17 1.87
0.99 1.35 1.37 0.98 1.22 1.26 1.17 1.9
0.98 1.31 1.29 0.98 1.22 1.25 1.2 1.9
0.95 1.25 1.18 0.97 1.24 1.23 1.23 1.9
0.94 1.2 1.15 0.97 1.25 1.22 1.22 1.87
0.92 1.24 1.16 0.96 1.24 1.21 1.2 1.83
0.91 1.26 1.1 0.95 1.24 1.19 1.18 1.73
0.89 1.27 1.06 0.92 1.22 1.18 1.16 1.58
0.87 1.2 1 0.9 1.19 1.16 1.12 1.43
0.84 1.15 0.94 0.87 1.14 1.14 1.08 1.24
0.82 1.11 0.9 0.86 1.06 1.12 1.05 1.14
0.81 1.14 0.9 0.82 0.95 1.09 0.97 1.04
0.78 1.13 0.9 0.8 0.84 1.05 0.89 0.98
0.76 1.09 0.87 0.76 0.8 0.99 0.84 0.93
0.74 1.02 0.83 0.73 0.75 0.89 0.78 0.87
0.73 0.9 0.83 0.69 0.69 0.81 0.73 0.82
0.73 0.88 0.87 0.66 0.64 0.74 0.69 0.72
0.72 0.91 0.85 0.63 0.6 0.66 0.67 0.65

```

```

0.72    0.95    0.84    0.6 0.57    0.61    0.66    0.57
0.73    0.97    0.85    0.57    0.55    0.55    0.69    0.48
0.74    0.99    0.86    0.55    0.54    0.49    0.74    0.39
0.75    0.98    0.85    0.54    0.49    0.49    0.69    0.3
0.77    0.96    0.83    0.52    0.4 0.52    0.65    0.23
0.78    0.95    0.81    0.48    0.32    0.54    0.59    0.12
0.79    0.94    0.77    0.43    0.23    0.56    0.53    0.03
0.8 0.94    0.72    0.33    0.1 0.57    0.49    -0.26
0.81    0.93    0.66    -0.01    0    0.57    0.37    -0.63
0.81    0.93    0.62    -0.13    -0.21    0.57    -0.22    -0.8
0.79    0.85    0.52    -0.19    -0.31    0.56    -0.41    -0.9
0.71    0.73    0.15    -0.26    -0.42    0.54    -0.55    -0.95
0.57    0.7 -0.5    -0.38    -0.59    0.47    -0.62    -0.99
0.48    0.6 -0.72    -0.57    -0.7    0.39    -0.7    -0.99
0.33    -0.16    -0.87    -0.63    -0.75    0.22    -0.75    -0.98
-0.45    -0.5    -0.96    -0.7    -0.79    -0.32    -0.85    -1.01
-0.56    -0.65    -1.04    -0.78    -0.77    -0.52    -0.92    -1.04
-0.62    -0.76    -1.1    -0.83    -0.78    -0.63    -0.98    -1.1
-0.69    -0.86    -1.14    -0.87    -0.81    -0.71    -1.02    -1.17
-0.73    -0.93    -1.17    -0.9    -0.86    -0.77    -1.03    -1.24
-0.77    -0.97    -1.18    -0.93    -0.92    -0.84    -1.05    -1.3
-0.8    -1 -1.19    -0.94    -0.95    -0.89    -1.06    -1.34
-0.81    -1.1    -1.17    -0.96    -0.99    -0.95    -1.06    -1.37
-0.82    -1.2    -1.13    -0.95    -1.02    -1 -1.05    -1.39
-0.82    -1 -1.09    -0.94    -1.05    -1.05    -1.03    -1.38
-0.81    -0.93    -1 -0.9    -1.06    -1.1    -0.98    -1.36
-0.78    -0.82    -0.88    -0.87    -1.05    -1.14    -0.85    -1.33
-0.74    -0.74    -0.69    -0.83    -1.01    -1.1    -0.74    -1.28];

```

```

%% Ispis jednacina za svaki opseg theta i za svako nq
disp('Izgled jednacina')
disp(' ')
for j = 1:length(nq)
    S = spline(Theta',WH(:,j)); % Funkcija spline
    koef = S.coefs; % izvlacenje koeficijenata iz funkcije
    n = j*4-3; % korak za ubacivanje koeficijenata u matricu

    Mkoef(:,n:n+3) = koef; % ubacivanje koeficijenata u matricu
    br = S.breaks;
    % Ispisivanje jednacina za svako nq opsega Thete od koraka 5
    disp(['Izgled jednacina spline za nq=',num2str(nq(j))])
    for i = 1:length(Theta)-1
        % ispisivanje jednacine
        disp(['opseg od ',num2str(Theta(i)), ' do ',num2str(Theta(i+1)), ' ->
f(',num2str(i),') =
',num2str(koef(i,1)), '*ThetaT^3+(',num2str(koef(i,2)), ') *ThetaT^2+(',num2str(
koef(i,3)), ') *ThetaT+(',num2str(koef(i,4)), ')'])
        end
        disp(' ')
        clear S koef1
    end
end
v = size(Mkoef); % velicina matrice koeficijenata

%% Dijagrami koeficijenata za svaki opseg i nq
for o = 1:length(Theta)-1 % broj funkcija spline za svako nq

    k1 = Mkoef(o,1:4:v(2)); % koeficijent k1
    s1 = polyfit(nq,k1,2); % polinom 2 reda koeficijenta k1
    koef1 = s1; % izvlacenje koeficijenata

    k2 = Mkoef(o,2:4:v(2)); % koeficijent k2

```

```

s2 = polyfit(nq,k2,2); % polinom 2 reda koeficijenta k2
koef2 = s2; % izvlacenje koeficijenata

k3 = Mkoef(o,3:4:v(2)); % koeficijent k3
s3 = polyfit(nq,k3,2); % polinom 2 reda koeficijenta k3
koef3 = s3; % izvlacenje koeficijenata

k4 = Mkoef(o,4:4:v(2)); % koeficijent k4
s4 = polyfit(nq,k4,2); % polinom 2 reda koeficijenta k4
koef4 = s4; % izvlacenje koeficijenata

Koeffm = [koef1 koef2 koef3 koef4]; % postavljanje koeficijenta u matricu
reda 1

% ubacivanje koeficijenata u matricu koji figurisu nq
koefnq(o,:) = Koeffm;
% Matrica "koefnq" je definisana za svaki opseg Theta i svaki opseg
% nq-a. To znaci da imamo opseg Theta od 0 do 360 koraka 5, imamo opseg
% nq-a od 8 modela. Detaljnija upustva pokazuje exel tabela

% Crtanje koeficijenata i funkcije spline
figure(o)

    subplot(2,2,1)
    suptitle(['Opseg \theta=', num2str(Theta(o)), '-', num2str(Theta(o+1)), '
f_{', num2str(o), '} = k_{', num2str(o*4-3), '}*theta^3 + k_{', num2str(o*4-
2), '}*theta^2 + k_{', num2str(o*4-1), '}*theta + k_{', num2str(o*4), '}'])

    subplot(2,2,1)
plot(nq,k1,'xr',nq(1):0.01:nq(length(nq)),polyval(koef1,nq(1):0.01:nq(length(
nq))),'-b'), grid on
    xlabel('n_{q}'), ylabel(['koeficijent k_{', num2str(o*4-3), '}'])
    xlim([0 105]) % opseg x ose

    subplot(2,2,2)
plot(nq,k2,'xr',nq(1):0.01:nq(length(nq)),polyval(koef2,nq(1):0.01:nq(length(
nq))),'-b'), grid on
    xlabel('n_{q}'), ylabel(['koeficijent k_{', num2str(o*4-2), '}'])
    xlim([0 105]) % opseg x ose

    subplot(2,2,3)
plot(nq,k3,'xr',nq(1):0.01:nq(length(nq)),polyval(koef3,nq(1):0.01:nq(length(
nq))),'-b'), grid on
    xlabel('n_{q}'), ylabel(['koeficijent k_{', num2str(o*4-1), '}'])
    xlim([0 105]) % opseg x ose

    subplot(2,2,4)
plot(nq,k4,'xr',nq(1):0.01:nq(length(nq)),polyval(koef4,nq(1):0.01:nq(length(
nq))),'-b'), grid on
    xlabel('n_{q}'), ylabel(['koeficijent k_{', num2str(o*4), '}'])
    xlim([0 105]) % opseg x ose
end

%% Objedinjavanje polinoma 3 stepena u zajednicki dijagram
nqs = nq(1):0.01:nq(length(nq)); % opseg tacaka za crtanje
for o = 1:length(Theta)-1

```



```

% izvlacenje koeficijenata iz matrice
K11 = koefnq(o,1:3); % koeficijenti K1
K12 = koefnq(o,4:6); % koeficijenti K2
K13 = koefnq(o,7:9); % koeficijenti K3
K14 = koefnq(o,10:12); % koeficijenti K4

% Crtanje dijagrama prvog koeficijenta
figure(101) % crtanje prvog koeficijenta K1
plot(nqs,polyval(K11,nqs)), grid on, hold on
xlabel('n_{q}'), ylabel('Koeficijent K1')
title('krive koeficijenata K1 u cijelom opsegu')
xlim([fix(nq(1)-1) fix(nq(length(nq))+1)])
text(max(nqs),polyval(K11,max(nqs)), ['\theta=', num2str(Theta(o)), '-
', num2str(Theta(o+1))])

figure(102) % crtanje prvog koeficijenta K2
plot(nqs,polyval(K12,nqs)), grid on, hold on
xlabel('n_{q}'), ylabel('Koeficijent K2')
title('krive koeficijenata K2 u cijelom opsegu')
xlim([fix(nq(1)-1) fix(nq(length(nq))+1)])
text(max(nqs),polyval(K12,max(nqs)), ['\theta=', num2str(Theta(o)), '-
', num2str(Theta(o+1))])

figure(103) % crtanje prvog koeficijenta K3
plot(nqs,polyval(K13,nqs)), grid on, hold on
xlabel('n_{q}'), ylabel('Koeficijent K3')
title('krive koeficijenata K3 u cijelom opsegu')
xlim([fix(nq(1)-1) fix(nq(length(nq))+1)])
text(max(nqs),polyval(K13,max(nqs)), ['\theta=', num2str(Theta(o)), '-
', num2str(Theta(o+1))])

figure(104) % crtanje prvog koeficijenta K4
plot(nqs,polyval(K14,nqs)), grid on, hold on
xlabel('n_{q}'), ylabel('Koeficijent K4')
title('krive koeficijenata K4 u cijelom opsegu')
xlim([fix(nq(1)-1) fix(nq(length(nq))+1)])
text(max(nqs),polyval(K14,max(nqs)), ['\theta=', num2str(Theta(o)), '-
', num2str(Theta(o+1))])

end

%% NOVO NQ 24.34 41.81 64.04 71.97 76.21 85.21 96.85 100.56      [33.07 52.92
68 74.09 80.71 91.03 98.7]
nqNew = [33.07 52.92 68 74.09 80.71 91.03 98.7]; % Unijeti novi nq (ne moze
se staviti nq van opsega 24.34-100.56)
ThetaN = 0:0.5:360; % Opseg novog Theta koraka 0.5

for Nq0 = 1:length(nqNew)
    F1 = find(nqNew(Nq0) <= nq); % pronalazenje u kojem je opsegu nq-ova novi
nq
    F2 = F1(1);
    if nqNew(Nq0) == nq(F2) % uslov ako je nq isti sa nq-om iz modela
        F = F1(1); % broj u kojem se trazi opseg u matrici koeficijenata
    elseif nqNew(Nq0) < nq(F2) % uslo ako je nq u nekom opsegu
        F = F1(1)-1; % broj u kojem se trazi opseg u matrici koeficijenata
    end

    for u = 1:length(ThetaN) % opseg novog theta

```

```

Jj = find(ThetaN(u) <= Theta); % Trazi vrijednosti Thete iz modela
koje su vece ili jednake od vrijednosti novog thete
wq = Jj(1); % izdvajanje prve vece vrijednosti Thete modela
% Napomena: na modelu imamo 73 vrijednosti thete sto znaci da imamo
72
% opsega. Kako nam je matrica kod koeficijentima definisana sa
opsegom
% tako zadajemo uslove koji su karakteristicni za svako novo theta.

if ThetaN(u) == 0
    % ako smo dobili da je vrijednost "j" koja nam definise poziciju
    % prve vece vrijednosti thete modela u odnosu na novo theta
jednako
    % 73 ili Theta=360. Kako je matrica dobijena iz modela ima 504
    % reda, da bi uzeli pravi red iz matrice moramo umanjiti mnozilac
    % za 2 (72*7=504 dok je 71*7=497) i zatim dodajemo red za
    % odgovarajuce nq. Kod drugog opsega nije potrebno umanjivanje za
2
    % opsega.
    Nk1 = polyval(koefnq(1,1:3),nqNew(NqO));
    Nk2 = polyval(koefnq(1,4:6),nqNew(NqO));
    Nk3 = polyval(koefnq(1,7:9),nqNew(NqO));
    Nk4 = polyval(koefnq(1,10:12),nqNew(NqO));
    ThetaOld = Theta(1);
elseif ThetaN(u) ~= 0 % uslov ako je opseg u Theta izmedju 0 i 355
zakljucno sa 355
    if ThetaN(u) == Theta(wq)
        if Theta(wq) < Theta(length(Theta))
            Nk1 = polyval(koefnq(wq,1:3),nqNew(NqO));
            Nk2 = polyval(koefnq(wq,4:6),nqNew(NqO));
            Nk3 = polyval(koefnq(wq,7:9),nqNew(NqO));
            Nk4 = polyval(koefnq(wq,10:12),nqNew(NqO));
            ThetaOld = Theta(wq);
        elseif Theta(wq) == Theta(length(Theta))
            Nk1 = polyval(koefnq(wq-1,1:3),nqNew(NqO));
            Nk2 = polyval(koefnq(wq-1,4:6),nqNew(NqO));
            Nk3 = polyval(koefnq(wq-1,7:9),nqNew(NqO));
            Nk4 = polyval(koefnq(wq-1,10:12),nqNew(NqO));
            ThetaOld = Theta(wq-1);
        end
    elseif ThetaN(u) < Theta(wq)
        Nk1 = polyval(koefnq(wq-1,1:3),nqNew(NqO));
        Nk2 = polyval(koefnq(wq-1,4:6),nqNew(NqO));
        Nk3 = polyval(koefnq(wq-1,7:9),nqNew(NqO));
        Nk4 = polyval(koefnq(wq-1,10:12),nqNew(NqO));
        ThetaOld = Theta(wq-1);
    end
end

Whnew(u) = Nk1*(ThetaN(u)-ThetaOld)^3+Nk2*(ThetaN(u)-
ThetaOld)^2+Nk3*(ThetaN(u)-ThetaOld)+Nk4;

end

figure(104+NqO)

plot(Theta',WH(:,1),'xr',Theta',WH(:,2),'xb',Theta',WH(:,3),'xg',Theta',WH(:,
4),'xk',Theta',WH(:,5),'or',Theta',WH(:,6),'ob',Theta',WH(:,7),'og',Theta',WH
(:,8),'ok',ThetaN,Whnew,'-r')
grid on
xlabel('\Theta'), ylabel('WH')

```

```

xlim([0 360])
set(gca, 'xTick', [0:45:360])
title(['Dijagram tacaka modela i novog n_{q}=', num2str(nqNew(NqO))])
leg = [nq nqNew(NqO)];
legenSS = cellstr(num2str(leg', 'n_{q}=%-.2f'));
legend(legenSS)

clear F1 F2 wq Nk1 Nk2 Nk3 Nk4 ThetaOld Whnew

end

%% Ispisivanje konacne jednacine
disp(' ')
disp('=====')
disp(' ')
disp('KONACNA JEDNACINA JE:')
disp(' WH = K1*ThetaT^3 + K2*ThetaT^2+ K3*ThetaT + K4')
disp('gdje je: ThetaT = ThetaN - ThetaOld')
disp('      K1 = p11*nqNew^3 + p12*nqNew^2 + p13*nqNew + p14')
disp('      K2 = p21*nqNew^3 + p22*nqNew^2 + p23*nqNew + p24')
disp('      K3 = p31*nqNew^3 + p32*nqNew^2 + p33*nqNew + p34')
disp('      K4 = p41*nqNew^3 + p42*nqNew^2 + p43*nqNew + p44')
disp(' ')
disp(' Tabela koeficijenata: ')
disp('      |          K1          |          K2          |')
disp(' K3    |          K4          |')
disp('Opseg Theta | p11 | p12 | p13 | p14 | p21 | p22 | p23 | p24 | p31 | p32')
disp(' | p33 | p34 | p41 | p42 | p43 | p44 |')
for i = 1:length(Theta)-1
    O1(i) = Theta(i);
    O2(i) = Theta(i+1);
end

ISPIS = [O1' O2' koefnq];
disp(ISPIS)
xlswrite('MatricaKonacna', ISPIS)

```

Prilozi

Prilog – P9 Kod razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 6 (Polinomi 3, 3, 7) na osnovu krivih Wh karakteristika i Wm karakteristika za jedan model pumpe i za sedam modela pumpnih-turbina

Prilog za poglavlje 7. Nalaženje analitičke veze (univerzalne zakonitosti) postupkom regresije za krive Wh i Wm karakteristike u četiri kvadranta za jedan model radijalne pumpe i sedam modela radijalnih pumpnih - turbina za koje je autor ove doktorske disertacije prikupio osnovne podatke i izvršio preračunavanje

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela Pumpne turbine i Pumpe – Varijanta 6 (Polinomi 3, 3, 7) na osnovu krivih Wh karakteristika i Wm karakteristika za jedan model pumpe i za sedam modela pumpnih-turbina u programu Matlab:

```
Program za Wh karakteristiku
%% pocetni parametri programa
close all, clc, clear all, warning off % naredbe za brisanje svih podataka i
memorije iz MATLAB-a
format long e % komanda za zaokruzivanje cifara
nq = [24.8 25 27 28.6 38 41.6 43.83 50 56]; % Svi nq-ovi
%% Podaci dobijeni iz modela
Podaci = [-0.5459    -0.5560 -0.4654 -0.5024 -0.5526 -0.4342 -0.4478 -0.403    -
0.5537
-0.4355 -0.4790 -0.3932 -0.398    -0.4751 -0.345    -0.3643 -0.3103 -0.4672
-0.3346 -0.3881 -0.3063 -0.2937 -0.3853 -0.2559 -0.2716 -0.2215 -0.3738
-0.2346 -0.2842 -0.2096 -0.1893 -0.2786 -0.1743 -0.1907 -0.154    -0.2698
-0.1346 -0.1766 -0.1134 -0.0849 -0.1723 -0.0965 -0.0981 -0.0845 -0.1677
-0.0307 -0.0920 -0.0116 0.0183    -0.0809 -0.0245 0.005    -0.0105 -0.0665
0.1039 0.0489 0.0907 0.127    0.0341 0.0635 0.1104 0.074    0.0314
0.2392 0.1880 0.2055 0.2413 0.2290 0.1751 0.2181 0.1741 0.1685
0.3653 0.3390 0.3721 0.3629 0.3652 0.2944 0.3574 0.3487 0.3175
0.5000 0.5000 0.5 0.5 0.5000 0.5 0.4993 0.5 0.5
0.6080 0.6430 0.6372 0.6345 0.6220 0.6424 0.6211 0.6114 0.6283
0.7066 0.7824 0.7733 0.7465 0.7249 0.7626 0.7723 0.7049 0.7374
0.8010 0.9098 0.8854 0.8402 0.8181 0.862    0.8855 0.7912 0.8384
0.8883 1.0218 0.9824 0.9293 0.9000 0.9591 0.9881 0.871    0.9399
0.9750 1.1147 1.0481 1.0159 0.9793 1.05    1.0908 0.9412 1.0338
1.0714 1.1913 1.0729 1.0671 1.0342 1.1282 1.1832 1.0038 1.1103
1.1382 1.2464 1.0885 1.1095 1.0777 1.1927 1.2698 1.0551 1.17
1.1469 1.2779 1.1015 1.1429 1.1174 1.246    1.3783 1.0979 1.215
1.1532 1.2880 1.1117 1.1646 1.1296 1.3045 1.481    1.1379 1.2687
1.1573 1.2800 1.1189 1.1724 1.1300 1.3461 1.5932 1.1863 1.3609
1.1595 1.2657 1.1231 1.1796 1.1119 1.3807 1.709    1.1985 1.482
1.1596 1.2458 1.1241 1.182    1.1035 1.4081 1.8049 1.2123 1.6487
1.1378 1.2081 1.116    1.1686 1.1046 1.4283 1.8849 1.2103 1.8009
1.0985 1.1605 1.0991 1.146    1.0888 1.4372 1.9213 1.186    1.8592
```

```

1.0604 1.1120 1.0725 1.1214 1.0598 1.4267 1.8947 1.1357 1.8206
1.0204 1.0733 1.0457 1.0989 1.0307 1.3996 1.8074 1.0923 1.744
0.9832 1.0343 1.0092 1.074 1.0077 1.3309 1.7194 1.0749 1.7378
0.9396 0.9960 0.957 1.062 0.9911 1.2914 1.6021 1.0577 1.7369
0.8974 0.9520 0.8922 1.0461 0.9720 1.235 1.5767 1.0414 1.7169
0.8562 0.9182 0.8324 1.0293 0.9477 1.1754 1.5365 1.0344 1.6804
0.8287 0.8871 0.7802 1.0119 0.9218 1.118 1.5006 1.0403 1.6221
0.8049 0.8596 0.7391 1.0012 0.9008 1.0609 1.4704 1.06 1.5262
0.7708 0.8293 0.72 0.9951 0.8834 1.003 1.4506 1.0784 1.3843
0.7456 0.7996 0.682 0.9682 0.8627 0.9751 1.4409 1.0794 1.2914
0.7243 0.7662 0.6229 0.9236 0.8299 0.9316 1.4259 1.0647 1.233
0.6993 0.7289 0.5567 0.876 0.7890 0.8789 1.3906 1.0387 1.1622
0.6641 0.6920 0.4969 0.8398 0.7493 0.8142 1.3098 1.0031 1.1265
0.6196 0.6550 0.4519 0.7932 0.6974 0.7475 1.1858 0.9581 1.0495
0.5679 0.6164 0.4174 0.7446 0.6510 0.6885 1.0119 0.9034 0.9449
0.5367 0.5868 0.3881 0.7059 0.6241 0.6325 0.8638 0.8401 0.8365
0.5064 0.5613 0.3681 0.6742 0.5853 0.5705 0.737 0.776 0.732
0.4714 0.5369 0.3492 0.6379 0.5492 0.5035 0.6298 0.7146 0.6277
0.4301 0.5178 0.33 0.5973 0.4968 0.4424 0.5544 0.6527 0.5473
0.4102 0.5109 0.33 0.5609 0.4747 0.4171 0.4925 0.5885 0.4856
0.3988 0.5046 0.3294 0.5331 0.4589 0.3906 0.459 0.5379 0.4144
0.3867 0.5050 0.3406 0.5145 0.4366 0.3667 0.4289 0.5113 0.3496
0.4057 0.5193 0.3689 0.501 0.4254 0.3876 0.3998 0.4775 0.3331
0.4471 0.5411 0.4124 0.5195 0.4632 0.4319 0.4272 0.4844 0.3725
0.4932 0.5674 0.4636 0.5508 0.5047 0.477 0.4633 0.5068 0.4217
0.5306 0.5929 0.5199 0.5862 0.5446 0.5232 0.5036 0.5449 0.4711
0.5617 0.6149 0.5789 0.6265 0.5900 0.5683 0.5465 0.5853 0.5226
0.5888 0.6332 0.6425 0.6667 0.6363 0.6108 0.5762 0.6236 0.5686
0.6153 0.6444 0.7043 0.7153 0.6919 0.6457 0.5939 0.6601 0.6116
0.6354 0.6440 0.7387 0.7656 0.7250 0.6732 0.5969 0.6881 0.656
0.6429 0.6340 0.7477 0.8021 0.7584 0.6752 0.5566 0.7284 0.6797];

```

```
%% Definisiranje Theta
```

```
Theta = 0:5:270; % opseg thete sa korakom 1 stepen
```

```
%% Jednacina srednje krive
```

```
% Koeficijenti u srednjoj jednacini (polinom 3 reda)
```

```
p1 = 1.827e-07;
```

```
p2 = -0.0001478;
```

```
p3 = 0.02934;
```

```
p4 = -0.5253;
```

```
% Izgled srednje jednacine - polinom 3 reda
```

```
Srednja = p1*Theta.^3 + p2*Theta.^2 + p3*Theta + p4;
```

```
%% Racunanje Delta
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
Ww = 3; % Definisiranje polinoma nq-Delta
```

```
Ww1 = 7; % Definisiranje polinoma Theta-koeff
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
% definisanje boja u dijagramima za Theta-Delta (modela i polinoma)
```

```
boja1 = ['-b', '-r', '-g', '-m', '-y', '-c', '-k', ':r']; % vrsta i boja linije polinoma
```

```
boja2 = ['xb', 'xr', 'xg', 'xm', 'xy', 'xc', 'xk', 'or']; % vrsta i boja linije modela
```

```
% Racunanje Delta za svako nq
```

```

for i = 1:length(nq)
    Delta(:,i) = Podaci(:,i)-Srednja';
end

% Traženje koeficijenta za polinom Ww reda
ThetaN = 0:5:270; % opseg za novo Theta koraka 1 stepen
for i = 1:length(ThetaN) % opseg novog theta koraka od 5 stepeni
    U = find(ThetaN(i) == Theta); % pronalazi istu vrijednost thete u matrici
    KoeffDelta(:,i) = polyfit(nq,Delta(U,:),Ww); % Izracunavanje
koeficijenata polinoma reda Ww
    % Crtanje dijagrama Delta sa modela i Delta za svako novo Theta koraka
    % 5 stepeni (na opsegu od 45 do 270 stepeni ima 46 presjecnih dijagrama
    figure(i)
    plot(min(nq):0.1:max(nq),polyval(KoeffDelta(:,i),min(nq):0.1:max(nq)),'-
b',nq,Delta(U,),'xr'), grid on
    title(['Polinom ',num2str(Ww),' reda za \theta=',num2str(ThetaN(i))])
    xlabel('nq'), ylabel('Delta')
    xlim([min(nq) max(nq)])
    legend('Polinom','Delta')
    hold on
end
% Izvoz koeficijenata polinoma nq-Delta reda Ww za svako theta koraka od 5
% stepeni u Excel-u (ukupno 46 polinoma)
xlswrite(['Polinom ',num2str(Ww),' reda'],KoeffDelta)

%% Pretvaranje koeficijenata iz polinoma Delta reda Ww u polinom reda Ww1 u
zavisnosti od Theta
Trr = size(KoeffDelta); % velicina matrice koeficijenta polinoma Delta reda
Ww
for j = 1:Trr(1) % opseg koeficijenata polinoma Delta reda Ww
    PpP(j,:) = polyfit(ThetaN,KoeffDelta(j,:),Ww1); % Izracunavanje
koeficijenta polinoma reda Ww1
    % Crtanje dijagrama koeficijenata Delta uz nq u zavisnosti od Theta
    figure(100+j)

plot(ThetaN,KoeffDelta(j,),'xb',min(ThetaN):1:max(ThetaN),polyval(PpP(j,:),m
in(ThetaN):1:max(ThetaN)),'-r'), grid on
    title(['Koeficijent ',num2str(j),' - polinoma ',num2str(Ww1),' reda'])
    xlabel('Theta'), ylabel('Koeficijent')
    xlim([min(ThetaN)-1 max(ThetaN)+1])
end
% Izvoz koeficijenata polinoma Theta-koef (koef uz nq) reda Ww1 u Excel-u
xlswrite(['Polinom ',num2str(Ww1),' reda Theta'],PpP)

%% Konacna jednacina (Srednja jednacina + jednacina Delta)
for i = 1:length(nq) % opseg nq-ova
    for oo = 1:length(Theta) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:Ww+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(PpP(j,:),Theta(oo)); % Racunanje polinoma reda
Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta
        end
        Do(oo) = polyval(TTr,nq(i)); % Racunanje Delte za svako Theta koraka
1
    end
    D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta

```

```

% Razlog: dobijena matrica delte je matrica jednog reda i treba je
% pretvoriti u matricu jedne vrste jer nam je matrica srednje krive
% zapisana isto kao matrica vrste.

WH(:,i) = Srednja' + D(:,i); % Konacna jednacina - zbir Srednje jednacine
i jednacine Delta

% Racunanje r^2
n1 = size(Podaci); % daje velicinu matrice podataka
n = n1(1); % uzima broj tacaka na modelu za svako nq
SSres = sum((Podaci(:,i)-WH(:,i)).^2); % (suma kvadrata razlike modela i
kanacne jednacine)
SStot = sum((WH(:,i)-sum(Podaci(:,i))/n).^2); % (suma kvadrata razlike
konacne jednacine i srednje vrijednosti modela)
r2 = 1 - SSres/SStot; % Jednacina r^2 = 1 - Ssres/SStot

% Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako Theta i nq
figure(200+i)
plot(Theta,Podaci(:,i),'xb',Theta,Srednja,'--b',Theta',WH(:,i),'-r'),
grid on
xlabel('\theta'), ylabel('WH'), title(['Kriva za nq=',num2str(nq(i)),
gdje je r^2=',num2str(r2)])
legend('Kriva modela','Srednja kriva','Srednja+delta')
end
%% Ispisivanje izgleda konacne jednacine
ispis = 'D%.0d*Theta^%1.0d + '; % oblik ispisa koeficijenata u polinom reda
Ww1
BB = sprintf(ispis,[ 1:1:Ww1+1 ; Ww1:-1:0]); % ispis koeficijenata u
tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-11);
BB = strrep(BB,'Theta^1 ','Theta '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB,'D','D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:Ww+1
    for j = 1:Ww1+1
        A(i,j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
end
B = [Ww:-1:0]; % Matrica za stepen uz polinom reda Ww
C = [A B']; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed ']*nq^%.0d +']; % Izgled polinoma
Kon = sprintf(BBa,C'); % ispisivanje jednacine
Jednacina = Kon(1:end-8); % izgled polinoma reda Ww (sa polinomom reda Ww1
kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina,'nq^1 ','nq '); % Izbacivanje stepena 1 uz theta
IsS = 'S1*Theta^3 + S2*Theta^2 + S3*Theta + S4'; % izgled jednacine srednje
krive u tekstualnom obliku
Del = ' + Delta';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['Delta = ', Jednacina]) % opis jednacine Delta
disp(' ')
disp('Izgled cijele jednacine je:')
disp([IsS ' + ' Jednacina]) % ispis cijele jednacine u tekstualnom obliku

```

```

disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ',num2str(p1)])
disp([' S2 = ',num2str(p2)])
disp([' S3 = ',num2str(p3)])
disp([' S4 = ',num2str(p4)])
disp(' ')
% ispis keoeficijenata u polinom reda Ww1
for i = 1:Ww+1
    disp('*****')
    if i == Ww+1
        disp('Koeficijenti uz Theta (slobodni clan - bez nq-a)')
    elseif i ~= Ww+1
        disp(['Koeficijenti uz Theta kod nq^',num2str(Ww+1-i)])
    end
    for j = 1:Ww+1
        TtT = PpP(i,j);
        Tttt = sprintf([' D',num2str(i),num2str(j), ' = %.15e'],TtT);
        disp(Tttt)
    end
    disp(' ')
end

%% Ubacivnje novih nq-ova za analizu
nqNew = [24.8 25 27 28.6 38 41.6 43.83 50 56]; % Ubaciti zeljeni nq
for i = 1:length(nqNew) % opseg novih nq-ova
    for oo = 1:length(Theta) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:Ww+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(PpP(j,:),Theta(oo)); % Racunanje polinoma reda
Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta
            % OBJASNJENJE
            % Komanda "polyval" je komanda za izracunavanje polinoma.
            % Komandu "polyval" definisu dva parametra i to: koeficijenti i
Theta
            % Koeficijenti su dati u obliku matrice koji su dobijeni u
            % koraku trazanja koeficijenata za polinom reda Ww1
            % (Ww1 je definisan polinom Theta-koeff)
            % U ovom koraku ubacujuci Theta dobijamo vrijednost koja se
            % nalazi uz nq
        end
        Do(oo) = polyval(TTr,nqNew(i)); % Racunanje Delte za svako Theta
koraka 1
        % OBJASNJENJE
        % U prethodnom koraku smo izracunali polinom reda Ww1 koji je
        % funkcija od Theta. Kada smo izracunali taj polinom dobijamo nove
        % vrijednosti koje predstavljaju novi koeficijenat koji se nalazi u
        % polinomu reda Ww a predstvalja funkciju od nq-a. Tako se moze
        % vidjeti da komandu "polyval" tj. novo rjesavanje polinoma reda Ww
        % definisu novi parametri i to koeficijenti koje smo dobili iz
        % polinoma reda Ww1 (f(Theta)) i novi nq-ovi. Na kraju kada
        % izracunamo ovaj polinom dobijamo podatke za Delta.
    end
    D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta
    % Razlog: dobijena matrica delte je matrica jednog reda i treba je
    % pretvoriti u matricu jedne vrste jer nam je matrica srednje krive

```



```

% zapisana isto kao matrica vrste.

WHnew(:,i) = Srednja' + D(:,i); % Zbir Srednje jednacine i jednacine
Delta
% Srednja jednacina je ista

% Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako nq
figure(200+i)
plot(Theta',WHnew(:,i),'-o'), grid on
xlabel('\theta'), ylabel('WH'), title('Dijagram \Theta-WH')
legend(['nq=',num2str(nqNew(i))])
end
% Crtanje svih novih krivih na jednom dijagramu
figure(300)
plot(Theta',WHnew), grid on
xlabel('\theta'), ylabel('WH'), title('Dijagram \Theta-WH'), hold on

% ispis podataka novih nq-ova
disp(' ***** ')
disp(' ')
Izvoz = [1 nqNew; Theta' WHnew];
disp(Izvoz)

%% Izvoz svih podataka u Excel
Izvoz = [1 nqNew; Theta' Podaci WHnew];
xlswrite('Podaci za analizu', Izvoz)
Izvoz2 = [1 nq ; Theta' WHnew]';
xlswrite('Podaci po theta za funkciju', Izvoz2)

Program za Wm karakteristiku
%% pocetni parametri programa
close all, clc, clear all, warning off % naredbe za brisanje svih podataka i
memorije iz MATLAB-a
format long e % komanda za zaokruzivanje cifara
nq = [24.8 25 27 28.6 38 41.6 43.83 50 56]; % Svi nq-ovi
%% Podaci dobijeni iz modela
Podaci = [-0.3554 -0.372 -0.4593 -0.3917 -0.4188 -0.6700 -0.4845 -0.4461 -
0.5108
-0.2861 -0.3003 -0.3398 -0.2873 -0.3178 -0.4004 -0.4126 -0.364 -0.4355
-0.1724 -0.212 -0.2254 -0.1548 -0.2042 -0.3004 -0.3308 -0.2538 -0.3187
0.009 -0.0884 -0.1034 -0.0279 -0.0555 -0.1617 -0.2211 -0.1178 -0.1989
0.1063 0.0273 0.043 0.0797 0.0629 0.0079 -0.0615 -0.003 -0.0308
0.1943 0.133 0.1512 0.1705 0.1567 0.1188 0.057 0.1033 0.0822
0.289 0.2399 0.2536 0.2608 0.2479 0.2282 0.1754 0.2046 0.1889
0.3966 0.3281 0.3671 0.3911 0.362 0.3360 0.3076 0.3388 0.3123
0.4868 0.4163 0.4465 0.4444 0.442 0.4377 0.3971 0.4422 0.405
0.5 0.5 0.5 0.5 0.5 0.5000 0.5 0.5 0.5
0.4145 0.5549 0.4618 0.5426 0.5405 0.5483 0.5798 0.5506 0.5733
0.421 0.5943 0.3684 0.5686 0.5628 0.6111 0.6339 0.6045 0.6415

```

```

0.4551 0.6153 0.3835 0.6148 0.5605 0.6615 0.6951 0.6362 0.7024
0.5061 0.6162 0.4058 0.6244 0.5492 0.6952 0.7446 0.6538 0.7433
0.5612 0.601 0.4229 0.5608 0.5222 0.7119 0.7817 0.6558 0.7661
0.6226 0.5704 0.4256 0.5054 0.483 0.7072 0.7902 0.6566 0.7779
0.6689 0.5347 0.4245 0.4468 0.4556 0.6932 0.7912 0.6422 0.7695
0.6813 0.4937 0.4224 0.3945 0.4303 0.6391 0.6599 0.5861 0.7107
0.6907 0.45 0.4193 0.3608 0.3765 0.5574 0.6401 0.5236 0.6172
0.6974 0.3966 0.4151 0.3576 0.3128 0.5296 0.7005 0.5631 0.702
0.7012 0.3632 0.41 0.3739 0.3018 0.5504 0.7998 0.5877 0.8441
0.7022 0.3426 0.4032 0.3921 0.3221 0.5990 0.8982 0.6187 1.0326
0.7005 0.3292 0.381 0.4086 0.3575 0.6612 1.0099 0.6479 1.2002
0.6982 0.3315 0.3802 0.4254 0.3862 0.7274 1.0939 0.6741 1.2904
0.6983 0.3501 0.3874 0.4498 0.4179 0.7760 1.1221 0.6922 1.2929
0.7073 0.3899 0.4002 0.4914 0.4667 0.8207 1.125 0.7257 1.2665
0.7267 0.4425 0.4236 0.5432 0.5284 0.8336 1.1237 0.7974 1.315
0.7506 0.52 0.4654 0.618 0.6078 0.8911 1.0978 0.8712 1.3837
0.7843 0.5969 0.5093 0.6954 0.688 0.9369 1.15 0.954 1.4472
0.8277 0.6712 0.5664 0.7775 0.7616 0.9795 1.1908 1.0384 1.4977
0.8829 0.7405 0.6104 0.8616 0.8307 1.0355 1.227 1.1375 1.5268
0.9388 0.7995 0.6534 0.9467 0.902 1.0773 1.2709 1.2589 1.5154
0.9939 0.8408 0.7156 1.0224 0.9714 1.0883 1.3201 1.3535 1.4518
1.0452 0.8657 0.7556 1.0742 1.0251 1.1351 1.364 1.3916 1.4253
1.0554 0.8836 0.7556 1.1033 1.0465 1.1414 1.4016 1.387 1.421
1.0304 0.8841 0.7297 1.1028 1.0395 1.1214 1.4173 1.3605 1.3869
0.9943 0.865 0.6957 1.0825 1.0178 1.0701 1.387 1.3238 1.38
0.9409 0.8289 0.6639 1.0358 0.9825 1.0056 1.2989 1.2769 1.2504
0.8768 0.7809 0.6301 0.9872 0.9334 0.9394 1.1402 1.2143 1.123
0.8499 0.7477 0.5884 0.9358 0.8869 0.8726 0.999 1.1304 1.0133
0.7844 0.6801 0.5414 0.8855 0.8134 0.7896 0.8692 1.025 0.8934
0.695 0.5877 0.4854 0.809 0.7307 0.6925 0.7433 0.9086 0.7682
0.5967 0.4961 0.4126 0.7117 0.6291 0.5850 0.6426 0.7905 0.6522
0.5024 0.403 0.3501 0.6067 0.531 0.4897 0.5319 0.6523 0.5304
0.405 0.3159 0.2833 0.5096 0.4442 0.3878 0.4281 0.5317 0.3879
0.3158 0.227 0.2144 0.4092 0.3438 0.2891 0.3301 0.4107 0.2741
0.2334 0.1421 0.1524 0.2883 0.2587 0.2107 0.224 0.2951 0.1778
0.1466 0.0722 0.1153 0.1935 0.1736 0.1456 0.1651 0.1839 0.0779
0.0932 0.0049 0.0332 0.1152 0.1111 0.0975 0.0449 0.0943 0.0145
0.0184 -0.0481 -0.0152 0.0388 0.0544 0.0087 -0.0209 0.0326 -0.0457
-0.0465 -0.1124 -0.0521 -0.0501 0.0088 -0.1040 -0.0942 -0.0365 -0.1057
-0.1013 -0.2195 -0.1062 -0.1255 -0.0289 -0.1674 -0.1228 -0.0764 -0.1503
-0.145 -0.3581 -0.2049 -0.1868 -0.0896 -0.2219 -0.1468 -0.1328 -0.191
-0.1836 -0.517 -0.2694 -0.263 -0.1395 -0.2834 -0.1785 -0.1818 -0.252
-0.2168 -0.684 -0.3113 -0.3297 -0.1866 -0.3146 -0.2521 -0.332 -0.3232];

```

```
%% Definisiranje Theta
```

```
Theta = 0:5:270; % opseg thete sa korakom 1 stepen
```

```
%% Jednacina srednje krive
```

```
% Koeficijenti u srednjoj jednacini (polinom 3 reda)
```

```
p1 = 2.046e-07;
```

```
p2 = -0.0001613;
```

```
p3 = 0.02954;
```

```
p4 = -0.6158;
```

```
% Izgled srednje jednacine - polinom 3 reda
```

```
Srednja = p1*Theta.^3 + p2*Theta.^2 + p3*Theta + p4;
```

```

%% Racunanje Delta
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Ww = 3; % Definisiranje polinoma nq-Delta
Ww1 = 7; % Definisiranje polinoma Theta-koeff
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% definisanje boja u dijagramima za Theta-Delta (modela i polinoma)
boja1 = ['-b', '-r', '-g', '-m', '-y', '-c', '-k', ':r']; % vrsta i boja linije
polinoma
boja2 = ['xb', 'xr', 'xg', 'xm', 'xy', 'xc', 'xk', 'or']; % vrsta i boja linije
modela
% Racunanje Delta za svako nq
for i = 1:length(nq)
    Delta(:,i) = Podaci(:,i)-Srednja';
end

% Trazenje koeficijenta za polinom Ww reda
ThetaN = 0:5:270; % opseg za novo Theta koraka 1 stepen
for i = 1:length(ThetaN) % opseg novog theta koraka od 5 stepeni
    U = find(ThetaN(i) == Theta); % pronalazi istu vrijednost thete u matrici
    KoeffDelta(:,i) = polyfit(nq,Delta(U,:),Ww); % Izracunavanje
koeficijenata polinoma reda Ww
    % Crtanje dijagrama Delta sa modela i Delta za svako novo Theta koraka
    % 5 stepeni (na opsegu od 45 do 270 stepeni ima 46 presjecnih dijagrama
    figure(i)
    plot(min(nq):0.1:max(nq),polyval(KoeffDelta(:,i),min(nq):0.1:max(nq)),'-
b',nq,Delta(U,),'xr'), grid on
    title(['Polinom ',num2str(Ww),' reda za \theta=',num2str(ThetaN(i))])
    xlabel('nq'), ylabel('Delta')
    xlim([min(nq) max(nq)])
    legend('Polinom','Delta')
    hold on
end
% Izvoz koeficijenata polinoma nq-Delta reda Ww za svako theta koraka od 5
% stepeni u Excel-u (ukupno 46 polinoma)
xlswrite(['Polinom ',num2str(Ww),' reda'],KoeffDelta)

%% Pretvaranje koeficijenata iz polinoma Delta reda Ww u polinom reda Ww1 u
zavisnosti od Theta
Trr = size(KoeffDelta); % velicina matrice koeficijenta polinoma Delta reda
Ww
for j = 1:Trr(1) % opseg koeficijenata polinoma Delta reda Ww
    PpP(j,:) = polyfit(ThetaN,KoeffDelta(j,:),Ww1); % Izracunavanje
koeficijenta polinoma reda Ww1
    % Crtanje dijagrama koeficijenata Delta uz nq u zavisnosti od Theta
    figure(100+j)

plot(ThetaN,KoeffDelta(j,),'xb',min(ThetaN):1:max(ThetaN),polyval(PpP(j,)),m
in(ThetaN):1:max(ThetaN)),'-r'), grid on
    title(['Koeficijent ',num2str(j),' - polinoma ',num2str(Ww1),' reda'])
    xlabel('Theta'), ylabel('Koeficijent')
    xlim([min(ThetaN)-1 max(ThetaN)+1])
end
% Izvoz koeficijenata polinoma Theta-koeff (koef uz nq) reda Ww1 u Excel-u
xlswrite(['Polinom ',num2str(Ww1),' reda Theta'],PpP)

```

```

%% Konacna jednacina (Srednja jednacina + jednacina Delta)
for i = 1:length(nq) % opseg nq-ova
    for oo = 1:length(Theta) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:Ww+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(PpP(j,:),Theta(oo)); % Racunanje polinoma reda
Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta
        end
        Do(oo) = polyval(TTr,nq(i)); % Racunanje Delte za svako Theta koraka
    end
    D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta
    % Razlog: dobijena matrica delte je matrica jednog reda i treba je
    % pretvoriti u matricu jedne vrste jer nam je matrica srednje krive
    % zapisana isto kao matrica vrste.

    WM(:,i) = Srednja' + D(:,i); % Konacna jednacina - zbir Srednje jednacine
i jednacine Delta

    % Racunanje r^2
    n1 = size(Podaci); % daje velicinu matrice podataka
    n = n1(1); % uzima broj tacaka na modelu za svako nq
    SSres = sum((Podaci(:,i)-WM(:,i)).^2); % (suma kvadrata razlike modela i
kanacne jednacine)
    SStot = sum((WM(:,i)-sum(Podaci(:,i))/n).^2); % (suma kvadrata razlike
konacne jednacine i srednje vrijednosti modela)
    r2 = 1 - SSres/SStot; % Jednacina r^2 = 1 - Ssres/SStot

    % Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako Theta i nq
    figure(200+i)
    plot(Theta,Podaci(:,i),'xb',Theta,Srednja,'--b',Theta,WM(:,i),'-r'),
grid on
    xlabel('\theta'), ylabel('WM'), title(['Kriva za nq=',num2str(nq(i)),
gdje je r^2=',num2str(r2)])
    legend('Kriva modela','Srednja kriva','Srednja+delta')
end
%% Ispisivanje izgleda konacne jednacine
ispis = 'D%.0d*Theta^1.0d + '; % oblik ispisa koeficijenata u polinom reda
Ww1
BB = sprintf(ispis,[ 1:1:Ww1+1 ; Ww1:-1:0]); % ispis koeficijenata u
tekstualnom obliku u polinom reda Ww1
BB = BB(1:end-11);
BB = strrep(BB,'Theta^1 ','Theta '); % Izbacivanje stepena 1 uz nq
Sjed = strrep(BB,'D','D%.0d'); % Pronalazenje i dodavanje novog indexa
for i = 1:Ww+1
    for j = 1:Ww+1
        A(i,j) = i; % Matrica za index koeficijenta u polinom Ww reda
    end
end
end
B = [Ww:-1:0]; % Matrica za stepen uz polinom reda Ww
C = [A B']; % Matrica sa indexima koji idu uz koeficijent i stepenima
BBa = ['[' Sjed '] *nq%.0d + ']; % Izgled polinoma
Kon = sprintf(BBa,C'); % ispisivanje jednacine

```

```

Jednacina = Kon(1:end-8); % izgled polinoma reda Ww (sa polinomom reda Ww1
kojim su izrazeni koeficijenti u polinomu Ww) - izgled jednacine za Delta
Jednacina = strrep(Jednacina,'nq^1 ','nq '); % Izbacivanje stepena 1 uz theta
IsS = 'S1*Theta^3 + S2*Theta^2 + S3*Theta + S4'; % izgled jednacine srednje
krive u tekstualnom obliku
Del = ' + Delta';
disp('Jednacina ima izgled')
disp([IsS Del]) % ispis oblika jednacine
disp('gdje je:')
disp(['Delta = ', Jednacina]) % opis jednacine Delta
disp(' ')
disp('Izgled cijele jednacine je:')
disp([IsS ' + ' Jednacina]) % ispis cijele jednacine u tekstualnom obliku
disp('Gdje je:') % ispis koeficijenata u srednjoj jednacini
disp([' S1 = ',num2str(p1)])
disp([' S2 = ',num2str(p2)])
disp([' S3 = ',num2str(p3)])
disp([' S4 = ',num2str(p4)])
disp(' ')
% ispis koeficijenata u polinom reda Ww1
for i = 1:Ww+1
    disp('*****')
    if i == Ww+1
        disp('Koeficijenti uz Theta (slobodni clan - bez nq-a)')
    elseif i ~= Ww+1
        disp(['Koeficijenti uz Theta kod nq^',num2str(Ww+1-i)])
    end
    for j = 1:Ww+1
        TtT = PpP(i,j);
        Tttt = sprintf([' D',num2str(i),num2str(j),' = %.15e'],TtT);
        disp(Tttt)
    end
    disp(' ')
end

%% Ubacivnje novih nq-ova za analizu
nqNew = [24.8 25 27 28.6 38 41.6 43.83 50 56]; % Ubaciti zeljeni nq
for i = 1:length(nqNew) % opseg novih nq-ova
    for oo = 1:length(Theta) % opseg Theta (od 45 do 270 koraka 1)
        for j = 1:Ww+1 % opseg koeficijenata u polinomu Ww reda
            TTr(j) = polyval(PpP(j,:),Theta(oo)); % Racunanje polinoma reda
Ww1 koji figurira koeficijentima u polinomu Ww reda u zavisnosti od Theta
            % OBJASNJENJE
            % Komanda "polyval" je komanda za izracunavanje polinoma.
            % Komandu "polyval" definisu dva parametra i to: koeficijenti i
Theta
            % Koeficijenti su dati u obliku matrice koji su dobijeni u
            % koraku trazanja koeficijenata za polinom reda Ww1
            % (Ww1 je definisan polinom Theta-koeff)
            % U ovom koraku ubacujuci Theta dobijamo vrijednost koja se
            % nalazi uz nq
        end
        Do(oo) = polyval(TTr,nqNew(i)); % Racunanje Delte za svako Theta
koraka 1

```

```

% OBJASNJENJE
% U prethodnom koraku smo izracunali polinom reda Ww1 koji je
% funkcija od Theta. Kada smo izracunali taj polinom dobijamo nove
% vrijednosti koje predstavljaju novi koeficijent koji se nalazi u
% polinomu reda Ww a predstvalja funkciju od nq-a. Tako se moze
% vidjeti da komandu "polyval" tj. novo rjesavanje polinoma reda Ww
% definisu novi parametri i to koeficijenti koje smo dobili iz
% polinoma reda Ww1 (f(Theta)) i novi nq-ovi. Na kraju kada
% izracunamo ovaj polinom dobijamo podatke za Delta.
end
D(:,i) = Do'; % Pretvaranje matrice Delta u inverznu matricu Delta
% Razlog: dobijena matrica delte je matrica jednog reda i treba je
% pretvoriti u matricu jedne vrste jer nam je matrica srednje krive
% zapisana isto kao matrica vrste.

WMnew(:,i) = Srednja' + D(:,i); % Zbir Srednje jednacine i jednacine
Delta
% Srednja jednacina je ista

% Crtanje krivih modela, srednje krive i krivih konacne jednacine za
svako nq
figure(200+i)
plot(Theta',WMnew(:,i),'-o'), grid on
xlabel('\theta'), ylabel('WM'), title('Dijagram \Theta-WM')
legend(['nq=', num2str(nqNew(i))])
end
% Crtanje svih novih krivih na jednom dijagramu
figure(300)
plot(Theta',WMnew), grid on
xlabel('\theta'), ylabel('WM'), title('Dijagram \Theta-WM'), hold on

% ispis podataka novih nq-ova
disp(' ***** ')
disp(' ')
Izvoz = [1 nqNew; Theta' WMnew];
disp(Izvoz)

%% Izvoz svih podataka u Excel
Izvoz = [1 nq nqNew; Theta' Podaci WMnew];
xlswrite('Podaci za analizu', Izvoz)
zvoz2 = [1 nq ; Theta' WMnew]';
xlswrite('Podaci po theta za funkciju', Izvoz2)

```

Prilozi

Prilog – P10 Kod razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 7 (Furijerova funkcija 3 reda i Gausova funkcija 5 reda – Gausov model od 5 pikova za Wh karakteristiku; Furijerova funkcija 2 reda i Gausova funkcija 5 reda – Gausov model od 5 pikova za Wm karakteristiku) za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih-turbina

Prilog za poglavlje 8.1 Pronalaženje analitičke veze (univerzalne zakonitosti) sa regresionim postupkom za krive Wh i Wm karakteristike za šest modela radijalnih pumpi i trinest modela radijalnih pumpnih-turbina (Varijanta 7 – Ovaj primjer je urađen sa - Furijerovom funkcijom 3 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wm karakteristiku)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 7 (Ovaj primjer je urađen sa - Furijerovom funkcijom 3 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wm karakteristiku) na osnovu krivih Wh karakteristika i Wm karakteristika za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih-turbina u programu Matlab:

```
Program za Wh i Wm karakteristiku
%% Kod za pronalazenje jednašine za modele pumpi
close all
clear
clc
warning off
format long e

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...
                {'Wh','Wm'},...
                'SelectionMode','single',...
                'PromptString','Odaberi krive');

jezik = listdlg('ListString', ...
```

```

        {'Srpski','Engleski'},...
        'SelectionMode','single',...
        'PromptString','Odaberi jezik ispisa');

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5','furier3-gauss3','furier3-gauss4','furier3-
poly8','furier4-poly9','furier5-poly9','furier4-poly8'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5','furier2-gauss4','furier2-poly7','furier2-
poly8','furier2-poly9','furier2-gauss3','furier2-poly6'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2

```



```

        s = 3; % gauss
elseif funct == 3
    s = 4; % gauss
elseif funct == 4 || funct == 7
    s = 8; % polinom
elseif funct == 5 || funct == 6
    s = 9; % polinom
end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end
end

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w) '};
koeficijenti = {'a_{0} '

```

```

'a_{1}'
'b_{1}'
'a_{2}'
'b_{2}'
'a_{3}'
'b_{3}'
'a_{4}'
'b_{4}'
'a_{5}'
'b_{5}'
'a_{6}'
'b_{6}'
'a_{7}'
'b_{7}'
'a_{8}'
'b_{8}'
'w';

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisiranje granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

% Korak 1. Pronaci koeficijente Fourijereve jednašine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients
    coeff(n,:) = coeff1;
    figure(n) % crtanje grafka
    plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
    WHF(:,n) = coeffFour(ThetaD);
    R2(n) = corr(WHF(:,n), W(:,n)).^2;
    xlim([0 2*pi]);
end

```

```

ylim([y1 y2]);
yticks(y1:0.2:y2);
set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaÅ?inu polinoma od dobijenih koeficijenata
Fourijereve jednaÅ?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:, k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k, :) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:, k), s);
        Koeff(k, :) = Pc;
    end
    if k == L
        Koeifr = koeficijenti(18);
    else
        Koeifr = koeficijenti(k);
    end
end

figure(n+k) % crtanje grafika
plot(nq, coeff(:, k), 'xr'), grid on, hold on

if s <= 5
    plot(GASS(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
else
    plot(polyval(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
end
end

```

```

xlim([nq(1) nq(end)])
set(gca, 'XTick', nq)
set(gca, 'XTickLabelRotation', 90)
set(gcf, 'Position', [100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Gausova jednašina
', num2str(s), ' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
', num2str(ff), ' stepena'])
    legend(['Koficijent Fouriera ', num2str(ff), ' stepena'], ['Gaussian
', num2str(s), ' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Polinom
', num2str(s), ' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
', num2str(ff), ' stepena'])
    legend(['Koficijent Fouriera ', num2str(ff), ' stepena'], ['Polinom
', num2str(s), ' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
', num2str(s), ' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
', num2str(ff), ' series'])
    legend(['Coefficient of Fourer ', num2str(ff), ' series'], ['Gaussian
', num2str(s), ' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
', num2str(s), ' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
', num2str(ff), ' series'])
    legend(['Coefficient of Fourer ', num2str(ff), ' series'], ['Polynom
', num2str(s), ' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
', num2str(ff), '-stepen'])
    if s <= 5
        disp([' - Gausova jednašina ', num2str(s), '-stepena se koristio u
procesu koficijenata Fourireve jednašine'])
    elseif s > 5
        disp([' - polinom ', num2str(s), '-stepena se koristio u procesu
koficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
', num2str(ff), '-series'])
    if s <= 5
        disp([' - Gaussian ', num2str(s), '-series was used to process the
coefficients of the Fourier equation'])
    elseif s > 5
        disp([' - a polynomial ', num2str(s), '-series was used to process
the coefficients of the Fourier equation'])
    end
end

```

```

end
end
for i = 1:length(nq)
    if s <= 5
        a0 = GASS(Koeff(1,:),nq(i));
        a1 = GASS(Koeff(2,:),nq(i));
        b1 = GASS(Koeff(3,:),nq(i));
        if ff >= 2
            a2 = GASS(Koeff(4,:),nq(i));
            b2 = GASS(Koeff(5,:),nq(i));
            if ff >= 3
                a3 = GASS(Koeff(6,:),nq(i));
                b3 = GASS(Koeff(7,:),nq(i));
                if ff >= 4
                    a4 = GASS(Koeff(8,:),nq(i));
                    b4 = GASS(Koeff(9,:),nq(i));
                    if ff >= 5
                        a5 = GASS(Koeff(10,:),nq(i));
                        b5 = GASS(Koeff(11,:),nq(i));
                        if ff >= 6
                            a6 = GASS(Koeff(12,:),nq(i));
                            b6 = GASS(Koeff(13,:),nq(i));
                            if ff >= 7
                                a7 = GASS(Koeff(14,:),nq(i));
                                b7 = GASS(Koeff(15,:),nq(i));
                                if ff == 8
                                    a8 = GASS(Koeff(16,:),nq(i));
                                    b8 = GASS(Koeff(17,:),nq(i));
                                end
                            end
                        end
                    end
                end
            end
        end
    end
    end
    end
    end
    end
    end
    w = GASS(Koeff(end,:),nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:),nq(i));
    a1 = polyval(Koeff(2,:),nq(i));
    b1 = polyval(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq(i));
        b2 = polyval(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq(i));
            b3 = polyval(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq(i));
                b4 = polyval(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq(i));
                    b5 = polyval(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq(i));
                        b6 = polyval(Koeff(13,:),nq(i));
                    end
                end
            end
        end
    end
end

```

```

        if ff >= 7
            a7 = polyval(Koeff(14,:),nq(i));
            b7 = polyval(Koeff(15,:),nq(i));
            if ff == 8
                a8 = polyval(Koeff(16,:),nq(i));
                b8 = polyval(Koeff(17,:),nq(i));
            end
        end
    end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end
end
end
end
end
end
end

% Calculate R^2

```

```

Rsq(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama
figure(k+n+i)
plot(Theta,W(:,i),'xr'), hold on
plot(Theta,WH(:,i),'-b','LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca,'XTick',[0 45 90 135 180 225 270 315 360])

set(gca,'XTickLabel',{'0\circ','45\circ','90\circ','135\circ','180\circ','225\circ','270\circ','315\circ','360\circ'})
set(gcf,'Position',[100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=',num2str(nq(i)), ' gdje je R^2=',num2str(Rsq(i))])
    legend('Kriva modela','Kriva jednaĀ?ine')
    disp(['Krive za n_{q}=',num2str(nq(i)), ' gdje je
R^2=',num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=',num2str(nq(i)), ' where is R^2=',num2str(Rsq(i))])
    legend('Curve of model','Curve of equation')
    disp(['Curve for n_{q}=',num2str(nq(i)), ' where is
R^2=',num2str(Rsq(i))])
end
end
if s <= 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end

```

Program za Wh i Wm karakteristiku

%% Kod za pronalazenje jednaĀ?ine za modele pumpi

```

close all
clear
clc
warning off
format long e

```

```

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
bojaiz =
{'::r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':.c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-r','-b','-g','-y','-m','-c','-k'};

```

```

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...
    {'Wh','Wm'},...
    'SelectionMode','single',...
    'PromptString','Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski','Engleski'},...
    'SelectionMode','single',...
    'PromptString','Odaberi jezik ispisa');

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5','furier3-gauss3','furier3-gauss4','furier3-
poly8','furier4-poly9','furier5-poly9','furier4-poly8'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5','furier2-gauss4','furier2-poly7','furier2-
poly8','furier2-poly9','furier2-gauss3','furier2-poly6'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednaĀ?ina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2

```



```

ff = 2;
end

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7
        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)

```

```

+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '
      'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w) '};
koeficijenti = {'a_{0}'}
      'a_{1}'}
      'b_{1}'}
      'a_{2}'}
      'b_{2}'}
      'a_{3}'}
      'b_{3}'}
      'a_{4}'}
      'b_{4}'}
      'a_{5}'}
      'b_{5}'}
      'a_{6}'}
      'b_{6}'}
      'a_{7}'}
      'b_{7}'}
      'a_{8}'}
      'b_{8}'}
      'w'};

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisiranje granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednaÅ?ine za svaki nq

```

```

for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients
    coeff(n,:) = coeff1;
    figure(n) % crtanje grafka
    plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
    WHF(:,n) = coeffFour(ThetaD);
    R2(n) = corr(WHF(:,n), W(:,n)).^2;
    xlim([0 2*pi]);
    ylim([y1 y2]);
    yticks(y1:0.2:y2);
    set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaÅ?inu polinoma od dobijenih koeficijenata
Fourijereve jednaÅ?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:,k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k,:) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:,k), s);
        Koeff(k,:) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end
end

```

```

figure(n+k) % crtanje grafika
plot(nq,coeff(:,k),'xr'), grid on, hold on

if s <= 5
    plot(GASS(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
else
    plot(polyval(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
end

xlim([nq(1) nq(end)])
set(gca,'XTick',nq)
set(gca,'XTickLabelRotation',90)
set(gcf,'Position',[100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koefficient'), title(['Gausova jednařina
',num2str(s),' stepena za koefficient \it' Koeffr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koefficient Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koefficient'), title(['Polinom
',num2str(s),' stepena za koefficient \it' Koeffr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koefficient Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Koeffr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Koeffr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednařinom
if jezik == 1
    disp('Stepeni jednařina koji su se koristili su:')
    disp([' - za Fourierovu jednařinu na modelu koristio se
',num2str(ff),' -stepen'])
    if s <= 5
        disp([' - Gausova jednařina ',num2str(s),' -stepena se koristio u
procesu koefficientata Fourireve jednařine'])
    elseif s >5
        disp([' - polinom ',num2str(s),' -stepena se koristio u procesu
koefficientata Fourireve jednařine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')

```

```

disp([' - the Fourier equation was used to precess the model
',num2str(ff),'-series'])
if s <= 5
    disp([' - Gaussian ',num2str(s),'-series was used to process the
coefficients of the Fourier equation'])
elseif s >5
    disp([' - a polynomial ',num2str(s),'-series was used to process
the coefficients of the Fourier equation'])
end
end
for i = 1:length(nq)
if s <= 5
    a0 = GASS(Koeff(1,:),nq(i));
    a1 = GASS(Koeff(2,:),nq(i));
    b1 = GASS(Koeff(3,:),nq(i));
if ff >= 2
    a2 = GASS(Koeff(4,:),nq(i));
    b2 = GASS(Koeff(5,:),nq(i));
if ff >= 3
    a3 = GASS(Koeff(6,:),nq(i));
    b3 = GASS(Koeff(7,:),nq(i));
if ff >= 4
    a4 = GASS(Koeff(8,:),nq(i));
    b4 = GASS(Koeff(9,:),nq(i));
if ff >= 5
    a5 = GASS(Koeff(10,:),nq(i));
    b5 = GASS(Koeff(11,:),nq(i));
if ff >= 6
    a6 = GASS(Koeff(12,:),nq(i));
    b6 = GASS(Koeff(13,:),nq(i));
if ff >= 7
    a7 = GASS(Koeff(14,:),nq(i));
    b7 = GASS(Koeff(15,:),nq(i));
if ff == 8
    a8 = GASS(Koeff(16,:),nq(i));
    b8 = GASS(Koeff(17,:),nq(i));
end
end
end
end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq(i));
elseif s > 5
a0 = polyval(Koeff(1,:),nq(i));
a1 = polyval(Koeff(2,:),nq(i));
b1 = polyval(Koeff(3,:),nq(i));
if ff >= 2
    a2 = polyval(Koeff(4,:),nq(i));
    b2 = polyval(Koeff(5,:),nq(i));
if ff >= 3
    a3 = polyval(Koeff(6,:),nq(i));
    b3 = polyval(Koeff(7,:),nq(i));
if ff >= 4

```

```

a4 = polyval(Koeff(8,:),nq(i));
b4 = polyval(Koeff(9,:),nq(i));
if ff >= 5
    a5 = polyval(Koeff(10,:),nq(i));
    b5 = polyval(Koeff(11,:),nq(i));
    if ff >= 6
        a6 = polyval(Koeff(12,:),nq(i));
        b6 = polyval(Koeff(13,:),nq(i));
        if ff >= 7
            a7 = polyval(Koeff(14,:),nq(i));
            b7 = polyval(Koeff(15,:),nq(i));
            if ff == 8
                a8 = polyval(Koeff(16,:),nq(i));
                b8 = polyval(Koeff(17,:),nq(i));
            end
        end
    end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8

```

```

        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
    end

    % Calculate R^2
    Rsq(i) = corr(WH(:,i),W(:,i)).^2;

    % ispis dijagrama
    figure(k+n+i)
    plot(Theta,W(:,i)', 'xr'), hold on
    plot(Theta,WH(:,i)', '-b', 'LineWidth',3), grid on
    xlim([0 360])
    ylim([y1 y2])
    yticks(y1:0.2:y2)
    set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
    set(gcf, 'Position', [100, 100, 800, 700])
    if jezik == 1
        xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=', num2str(nq(i)), ' gdje je R^2=', num2str(Rsq(i))])
        legend('Kriva modela', 'Kriva jednaÅ?ine')
        disp(['Krive za n_{q}=', num2str(nq(i)), ' gdje je
R^2=', num2str(Rsq(i))])
    elseif jezik == 2
        xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=', num2str(nq(i)), ' where is R^2=', num2str(Rsq(i))])
        legend('Curve of model', 'Curve of equation')
        disp(['Curve for n_{q}=', num2str(nq(i)), ' where is
R^2=', num2str(Rsq(i))])
    end

    figure(100) % dijagram za sve
    plot(Theta,W(:,i)',bojaiz{i}), hold on
    plot(Theta,WH(:,i)',bojafun{i}), grid on
    xlim([0 360])
    ylim([y1 y2])
    yticks(y1:0.2:y2)
    set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
    set(gcf, 'Position', [100, 100, 1200, 900])
    leg{i*2-1} = ['model nq=', num2str(nq(i))]; % legenda za podatke modela
    if jezik == 1
        xlabel('\Theta'), ylabel(Wpol), title('Sve krive modela i funkcija')
        leg{i*2} = ['funkc. za nq=', num2str(nq(i))]; % legenda za podatke
dobijene jednacynom
    elseif jezik == 2

```

```

        xlabel('\Theta'), ylabel(Wpol), title('All curve of model and
equation')
        leg{i*2} = ['funct. for nq=',num2str(nq(i))]; % legend for function
    end
end
if s <= 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end
figure(100)
legend(leg,'Location','NorthEastOutside','FontSize',12), legend('boxoff')

```

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469   -0.4478 -0.4845 -0.403   -0.4461 -
0.5537 -0.5108
        -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
        -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
        -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
        -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27   -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544
        -0.34   -0.49   -0.3343 -0.4271 -1.178  -0.287  -0.32   -0.27   -
0.4355 -0.2861 -0.34   -0.25   -0.3662 -0.2943 -0.3932 -0.3398 -0.398  -
0.2873 -0.34   -0.49   -0.34   -0.49   -0.3771 -0.4824 -0.6864 -0.5609 -0.78
-0.4    -0.4751 -0.3178 -0.345  -0.4004 -0.3643 -0.4126 -0.3103 -0.364  -
0.4672 -0.4355
        -0.318  -0.464  -0.3146 -0.3997 -1.164  -0.256  -0.306  -0.239  -
0.413  -0.2699 -0.318  -0.23   -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
0.2614 -0.318  -0.464  -0.318  -0.464  -0.354  -0.456  -0.6534 -0.5388 -0.744
-0.369  -0.457  -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
0.4484 -0.4136

```


	-0.295	-0.438	-0.2936	-0.3722	-1.148	-0.225	-0.29	-0.208	-
0.3933	-0.2511	-0.295	-0.21	-0.3292	-0.2492	-0.3643	-0.2894	-0.3563	-
0.2355	-0.295	-0.438	-0.295	-0.438	-0.3298	-0.4296	-0.6194	-0.5167	-0.707
-0.338	-0.4394	-0.2818	-0.3094	-0.3603	-0.3289	-0.3816	-0.2732	-0.3336	-
0.4309	-0.3886								
	-0.273	-0.411	-0.2733	-0.3444	-1.132	-0.195	-0.274	-0.178	-
0.3733	-0.2299	-0.273	-0.189	-0.3088	-0.2276	-0.3455	-0.2672	-0.3354	-
0.2103	-0.273	-0.411	-0.273	-0.411	-0.3066	-0.4024	-0.5864	-0.4913	-0.671
-0.309	-0.4229	-0.257	-0.2916	-0.34	-0.3103	-0.3654	-0.2546	-0.3091	-
0.4151	-0.3608								
	-0.251	-0.385	-0.2527	-0.3172	-1.115	-0.165	-0.257	-0.148	-
0.3544	-0.2064	-0.251	-0.169	-0.288	-0.207	-0.3259	-0.246	-0.3145	-
0.1826	-0.251	-0.385	-0.251	-0.385	-0.2834	-0.3761	-0.5533	-0.4685	-0.635
-0.279	-0.4035	-0.2326	-0.2737	-0.3204	-0.2911	-0.3485	-0.2361	-0.2804	-
0.3941	-0.3351								
	-0.23	-0.36	-0.2329	-0.2914	-1.098	-0.137	-0.24	-0.12	-
0.3346	-0.1724	-0.23	-0.15	-0.2676	-0.1872	-0.3063	-0.2254	-0.2937	-
0.1548	-0.23	-0.36	-0.23	-0.36	-0.2612	-0.3507	-0.5213	-0.4466	-0.6
-0.25	-0.3853	-0.2042	-0.2559	-0.3004	-0.2716	-0.3308	-0.2215	-0.2538	-
0.3738	-0.3187								
	-0.21	-0.335	-0.2137	-0.2658	-1.081	-0.11	-0.223	-0.093	-
0.315	-0.1331	-0.21	-0.131	-0.2478	-0.1672	-0.2867	-0.2044	-0.2728	-
0.1324	-0.21	-0.335	-0.21	-0.335	-0.24	-0.3254	-0.4895	-0.4248	-0.565
-0.221	-0.3635	-0.1753	-0.2381	-0.2791	-0.2538	-0.3121	-0.208	-0.2289	-
0.3532	-0.3008								
	-0.19	-0.311	-0.1943	-0.2412	-1.063	-0.0839	-0.205	-0.0669	-
0.2953	-0.0887	-0.19	-0.113	-0.228	-0.1468	-0.2671	-0.1816	-0.2519	-
0.1122	-0.19	-0.311	-0.19	-0.311	-0.2187	-0.3009	-0.4577	-0.4055	-0.53
-0.191	-0.342	-0.1465	-0.2203	-0.2552	-0.238	-0.2922	-0.1946	-0.205	-
0.3299	-0.2808								
	-0.17	-0.287	-0.1749	-0.2168	-1.045	-0.0584	-0.187	-0.0414	-
0.2755	-0.048	-0.17	-0.095	-0.2082	-0.126	-0.2475	-0.1578	-0.231	-0.091
-0.17	-0.287	-0.17	-0.287	-0.1975	-0.2764	-0.4267	-0.3862	-0.496	-
0.161	-0.3187	-0.1177	-0.2025	-0.2291	-0.2222	-0.2707	-0.1812	-0.1791	-
0.3077	-0.2581								
	-0.151	-0.263	-0.1561	-0.1923	-1.027	-0.0329	-0.169	-0.0159	-
0.255	-0.018	-0.151	-0.0774	-0.1891	-0.1043	-0.2283	-0.1319	-0.2102	-
0.0581	-0.151	-0.263	-0.151	-0.263	-0.1773	-0.2519	-0.3966	-0.3669	-0.463
-0.131	-0.2993	-0.0872	-0.188	-0.2014	-0.2064	-0.2472	-0.1676	-0.1473	-
0.2873	-0.2314								
	-0.13	-0.24	-0.1357	-0.1685	-1.008	-0.007	-0.15	0.01	-
0.2346	0.009	-0.13	-0.06	-0.1693	-0.0814	-0.2096	-0.1034	-0.1893	-
0.0279	-0.13	-0.24	-0.13	-0.24	-0.1553	-0.2282	-0.3662	-0.3502	-0.43
-0.1	-0.2786	-0.0555	-0.1743	-0.1617	-0.1907	-0.2211	-0.154	-0.1178	-
0.2698	-0.1989								
	-0.108	-0.217	-0.1146	-0.1445	-0.989	0.0196	-0.131	0.0366	-
0.2135	0.0391	-0.108	-0.0426	-0.1492	-0.0572	-0.1915	-0.0722	-0.1684	0.0005
-0.108	-0.217	-0.108	-0.217	-0.1325	-0.2045	-0.3363	-0.3338	-0.398	-
0.0686	-0.2582	-0.0269	-0.1598	-0.1182	-0.1749	-0.1924	-0.1404	-0.0915	-
0.2496	-0.1582								
	-0.0862	-0.193	-0.0936	-0.1197	-0.97	0.0465	-0.112	0.0635	-
0.1954	0.06	-0.0862	-0.0251	-0.1291	-0.0318	-0.1732	-0.0387	-0.1475	0.0245
-0.0862	-0.193	-0.0862	-0.193	-0.1098	-0.1798	-0.3065	-0.3157	-0.366	-
0.0371	-0.2372	-0.0017	-0.1445	-0.0806	-0.1591	-0.1611	-0.1266	-0.0677	-
0.2277	-0.1083								

	-0.0637	-0.169	-0.0721	-0.0949	-0.9511	0.073	-0.0931	0.09	-
0.1749	0.0764	-0.0637	-0.00726	-0.1083	-0.0055	-0.1541	-0.0036	-0.1266	
0.0422	-0.0637	-0.169	-0.0637	-0.169	-0.0865	-0.1553	-0.2765	-0.297	-
0.334	-0.00643	-0.2157	0.0212	-0.1286	-0.0487	-0.1393	-0.1277	-0.1127	-
0.0454	-0.2072	-0.0708							
	-0.0415	-0.145	-0.0513	-0.0704	-0.9337	0.099	-0.0757	0.116	-
0.1553	0.0914	-0.0415	0.011	-0.0872	0.0162	-0.1341	0.0216	-0.1058	0.0608
-0.0415	-0.145	-0.0415	-0.145	-0.0635	-0.1308	-0.2466	-0.2771	-0.302	
0.0228	-0.193	0.0426	-0.1121	-0.0197	-0.1187	-0.0886	-0.0987	-0.0237	-
0.1874	-0.0495								
	-0.02	-0.12	-0.0314	-0.0457	-0.918	0.123	-0.06	0.14	-
0.1346	0.1063	-0.02	0.03	-0.0661	0.0364	-0.1134	0.043	-0.0849	0.0797
-0.02	-0.12	-0.02	-0.12	-0.0411	-0.1056	-0.2168	-0.2538	-0.27	0.05
-0.1723	0.0629	-0.0965	0.0079	-0.0981	-0.0615	-0.0845	-0.003	-0.1677	-
0.0308									
	0.000468	-0.0943	-0.0129	-0.021	-0.9042	0.145	-0.0462	0.162	-
0.115	0.1223	0.000459	0.0497	-0.0453	0.057	-0.0922	0.0645	-0.064	
0.0975	0.000471	-0.0943	0.000459	-0.0944	-0.0197	-0.0801	-0.1873	-	
0.2275	-0.238	0.0746	-0.1549	0.0824	-0.0825	0.0328	-0.0774	-0.0445	-
0.0701	0.0175	-0.1491	-0.012						
	0.0202	-0.0681	0.005	0.0037	-0.891	0.166	-0.033	0.183	-
0.0936	0.1395	0.0202	0.0699	-0.0258	0.0778	-0.0731	0.086	-0.0431	0.1135
0.0202	-0.0682	0.0202	-0.0682	0.0012	-0.0542	-0.1571	-0.1983	-0.205	
0.0971	-0.1394	0.1014	-0.0684	0.0539	-0.0568	-0.0249	-0.0556	0.0383	-
0.1298	0.0086								
	0.0398	-0.0418	0.0231	0.0282	-0.8767	0.186	-0.0187	0.203	-
0.0725	0.1579	0.0397	0.0902	-0.0063	0.0988	-0.0536	0.1077	-0.0223	0.1285
0.0398	-0.0418	0.0397	-0.0419	0.0219	-0.0284	-0.1262	-0.1678	-0.171	0.118
-0.1221	0.12	-0.0542	0.0753	-0.0362	0.0003	-0.0408	0.0595	-0.1083	
0.0312									
	0.0595	-0.0157	0.042	0.0523	-0.85957	0.205	-0.00157	0.222	
-0.0519	0.177	0.0595	0.11	0.0138	0.1196	-0.0332	0.1294	-0.0014	
0.1489	0.0595	-0.0157	0.0595	-0.0158	0.0411	-0.0027	-0.0944	-0.1377	-
0.136	0.139	-0.1027	0.1384	-0.0396	0.0969	-0.0156	0.0292	-0.0258	0.0812
-0.0898	0.0559								
	0.08	0.01	0.06	0.0758	-0.838	0.223	0.02	0.24	-
0.0307	0.1943	0.08	0.13	0.0348	0.1405	-0.0116	0.1512	0.0183	0.1705
0.08	0.01	0.08	0.01	0.0524	0.0227	-0.0617	-0.1081	-0.1	0.16
-0.0809	0.1567	-0.0245	0.1188	0.005	0.057	-0.0105	0.1033	-0.0665	
0.0822									
	0.102	0.0349	0.07	0.0987	-0.8109	0.241	0.0471	0.258	-
0.0084	0.2096	0.102	0.149	0.0571	0.1609	0.011	0.1731	0.0424	0.1901
0.102	0.0349	0.102	0.0351	0.0597	0.0475	-0.0278	-0.0806	-0.0628	0.182
-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							

	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								

	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653	
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4	0.38
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442	
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405			
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477		
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906		
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406	
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562		
0.3521	0.4251									
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483		
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178		
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43	
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687		
0.3928	0.4482									
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488		
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452		
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453	
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802		
0.4292	0.4675									
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494		
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726		
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476	
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905		
0.4652	0.4846									
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5						
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508		
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272		
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527	
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092		
0.5295	0.515									
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516		
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543		
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555	
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186		
0.5534	0.5307									
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525		
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813		
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584	
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289		
0.5781	0.5457									
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533		
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536	
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533	
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041		
0.5595										
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608	
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6	
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622	
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733		
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545		
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596		
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664	

0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577

0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	

0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14

0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	1.55
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	0.3765
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	

	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226		
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664	1.44
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188	
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807		
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217		
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698	
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34	
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535		
0.8102										
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21		
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739	1.47
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119	
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441		
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206		
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779	
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34	
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135		
0.8811										
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599	
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5	1.71
1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076	
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205			
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16	
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51	
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048	
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962		
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207		
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832		
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13	
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113		
1.6192	1									
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21		
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182		
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13	0.35
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487		
1.0326										
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214		
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804		
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13	0.355
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796		
1.0663										
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219		
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783		
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13	0.361
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133		
1.1025										
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225		
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755		
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12	0.367
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462		
1.1381										
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232		
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724		
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12	0.374

1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07

0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4 0.83	1.04	0.52	1.2	0.649	1.07	0.483
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6 1.4	0.852	1.04	0.533	1.19	0.652	1.06	0.495
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3 0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914	
1.79	1.58	1.39	0.9 1.02	0.561	1.18	0.668	1.05	0.52	
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1 0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048	
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1 0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975	
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564	
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374	
1.2913									
	1.1 0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903	
0.7212	1.2 0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78	
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025	
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5 1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6 1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74
1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642	
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379	
1.3419									

	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71	
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								

	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								

	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78

0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22	
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22	
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	1.22
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549
0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382

	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9 1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8 1.08
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1

	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253	
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								

	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	

0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6 0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988	0.405
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1 0.652	0.53	0.459	0.374	0.413	0.344	0.51	

0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.26
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155

0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767	
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644	
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701	
0.4411	-0.0102								
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864	
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711	
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451
-0.0219									
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974	
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535	
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461
-0.0336									
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11	
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862	
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326	
0.4711	-0.0457								
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-	
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126	
0.4814	-0.058								
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14	
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552	

0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051	
0.4917	-0.0703								
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157	
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222	
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-
0.0172	0.502	-0.0824							
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923	
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-
0.0942									
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19	
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365	
0.5226	-0.1057								
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205	
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552	
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-
0.0445	0.5328	-0.1168							
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462	
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-
0.1276									
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								
	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598

-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6 -
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6 -0.16
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656
-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179	
0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507	
0.6733	-0.294								
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-

0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429
-0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27	
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-
0.3232									
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645	
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587	
0.6807	-0.3364								
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303	
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-
0.3506									
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69	
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434	
0.6802	-0.3704								
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
-0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
-0.36									
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
-0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								
	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
-									

0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
-0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
-0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
-0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								
	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491

-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95	
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-
1.2562									
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352	
0.0295	-1.2866								
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-
0.0152	-1.3104								
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-
0.0504	-1.3297								
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-
1.3459									
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-
1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-
0.1599	-1.36								

0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-		
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-	
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398	
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-	
0.1987	-1.3725									
0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-		
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-	
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42	
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-	
0.2339	-1.3837									
0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037	-	
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05	
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-	
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394	
0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-		
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-	
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457	
-1.14	-0.2412	-1.4857	-0.3176	-1.4603	-0.3779	-1.5481	-0.2243	-1.5076	-	
0.2892	-1.4035									
0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-		
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-	
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472	
-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-	
0.3082	-1.4122									
0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-		
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-	
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485	
-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-	
0.3256	-1.4199									
0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-		
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-	
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496	
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-	
0.3476	-1.4265									
0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-		
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-	
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505	-
1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-	
0.3763	-1.4321									
0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-		
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-	
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-	
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-	
1.5186	-0.3994	-1.4363								
0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-		
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-	
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521	
-1.31	-0.3969	-1.5769	-0.4352	-1.4786	-0.483	-1.5536	-0.3691	-1.5189	-	
0.4176	-1.4393									
0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-		
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-	
1.3927	-0.0252	-1.63	0.144	-1.64	0.0825	-1.6675	-0.3851	-1.8762	-0.528	
-1.34	-0.4155	-1.578	-0.4459	-1.4791	-0.4986	-1.5513	-0.3849	-1.5183	-	
0.4329	-1.4409									

0.0918	-1.64	0.1044	-1.5142	-2.121	-1.273	0.136	-1.2	-		
0.5036	-1.4641	0.172	-1.12	-0.0959	-1.1146	-0.371	-1.5708	-0.4071	-	
1.3932	-0.0327	-1.64	0.132	-1.64	0.071	-1.6647	-0.3924	-1.8526	-0.534	
-1.37	-0.432	-1.5771	-0.4681	-1.4791	-0.5129	-1.5476	-0.398	-1.517	-	
0.4462	-1.44									
0.08	-1.64	0.0914	-1.5113	-2.137	-1.263	0.12	-1.19	-		
0.5267	-1.4656	0.16	-1.13	-0.1163	-1.1224	-0.4	-1.5713	-0.4265	-	
1.3927	-0.04	-1.64	0.12	-1.65	0.0596	-1.6729	-0.3996	-1.8468	-0.54	
-1.4	-0.4465	-1.5745	-0.4889	-1.4784	-0.5259	-1.5425	-0.4099	-1.5148	-	
0.4584	-1.4355									
0.0682	-1.64	0.0787	-1.5085	-2.152	-1.253	0.105	-1.18	-		
0.5519	-1.4657	0.148	-1.12	-0.133	-1.1212	-0.4216	-1.5678	-0.4433	-	
1.3913	-0.0473	-1.64	0.108	-1.64	0.0481	-1.6592	-0.4069	-1.8053	-0.546	
-1.43	-0.4596	-1.5699	-0.5015	-1.4771	-0.5381	-1.5359	-0.4215	-1.5114	-0.47	
-1.4309										
0.0563	-1.64	0.0665	-1.5056	-2.1652	-1.243	0.0918	-1.17	-		
0.5683	-1.4643	0.136	-1.12	-0.1477	-1.1206	-0.4391	-1.562	-0.4574	-	
1.3892	-0.0548	-1.64	0.0957	-1.64	0.0364	-1.6556	-0.4142	-1.7738	-0.552	
-1.47	-0.4717	-1.5626	-0.5125	-1.4749	-0.5499	-1.5279	-0.4336	-1.5067	-	
0.4818	-1.4262									
0.0444	-1.63	0.0541	-1.4928	-2.1786	-1.223	0.0784	-1.15	-		
0.5794	-1.4604	0.124	-1.11	-0.1609	-1.1152	-0.4536	-1.5543	-0.4696	-	
1.3861	-0.0626	-1.63	0.0836	-1.63	0.0249	-1.6419	-0.4215	-1.7324	-0.558	
-1.5	-0.4831	-1.5512	-0.5234	-1.4716	-0.5614	-1.5188	-0.446	-1.5002	-	
0.4945	-1.4212									
0.0323	-1.62	0.0416	-1.4799	-2.1922	-1.203	0.0648	-1.13	-		
0.5873	-1.4523	0.112	-1.1	-0.1731	-1.1075	-0.4659	-1.5451	-0.4804	-	
1.3822	-0.0709	-1.62	0.0717	-1.62	0.0135	-1.6282	-0.4288	-1.6909	-0.564	
-1.53	-0.4938	-1.5325	-0.541	-1.4668	-0.5731	-1.509	-0.4587	-1.4918	-	
0.5074	-1.4157									
0.02	-1.6	0.0286	-1.457	-2.207	-1.173	0.05	-1.1	-		
0.5951	-1.4344	0.1	-1.09	-0.1844	-1.0986	-0.4765	-1.5344	-0.4903	-1.3773	-
0.08	-1.6	0.06	-1.6	0.0023	-1.6046	-0.436	-1.6394	-0.57	-1.55	-
-0.504	-1.4972	-0.5574	-1.4595	-0.5849	-1.4987	-0.47	-1.4814	-0.5197	-	-
1.4097										
0.00756	-1.58	0.015	-1.4342	-2.2233	-1.143	0.0337	-1.07	-		
0.6053	-1.248	0.088	-1.08	-0.195	-1.0892	-0.4856	-1.5221	-0.4998	-	
1.3713	-0.0898	-1.58	0.0484	-1.58	-0.0088	-1.5809	-0.4432	-1.5879	-0.576	
-1.57	-0.5138	-1.4276	-0.5701	-1.448	-0.596	-1.4874	-0.4789	-1.4692	-	
0.5315	-1.403									
-0.00488	-1.56	0.0011	-1.4113	-2.2409	-1.113	0.0161	-1.04	-		
0.6086	-1.2002	0.0759	-1.06	-0.205	-1.0744	-0.4935	-1.5075	-0.508	-	
1.3637	-0.1	-1.56	0.0369	-1.56	-0.0197	-1.5609	-0.4496	-1.5679	-0.581	
-1.57	-0.5231	-1.3625	-0.5794	-1.4303	-0.6058	-1.4744	-0.486	-1.4554	-	
0.5426	-1.3952									
-0.0171	-1.53	-0.0129	-1.3813	-2.25936	-1.083	-0.00236	-1.01	-		
-0.6082	-1.1648	0.0639	-1.04	-0.2144	-1.057	-0.5003	-1.4891	-0.5153	-	
1.3539	-0.111	-1.53	0.0251	-1.53	-0.0309	-1.5337	-0.4568	-1.5615	-0.587	
-1.57	-0.5318	-1.3062	-0.5864	-1.4073	-0.6138	-1.4575	-0.4914	-1.4408	-	
0.5528	-1.3862									
-0.0289	-1.51	-0.0267	-1.361	-2.2782	-1.062	-0.0212	-0.989	-		
0.6082	-1.14	0.0519	-1.02	-0.2234	-1.0383	-0.5061	-1.463	-0.5218	-	
1.3403	-0.121	-1.51	0.0129	-1.51	-0.0426	-1.5155	-0.4641	-1.5572	-0.593	
-1.57	-0.5399	-1.2518	-0.5915	-1.3845	-0.6198	-1.4279	-0.4957	-1.4225	-	
0.562	-1.3758									

0.6102	-1.1193	0.04	-1	-0.232	-1.0189	-0.5113	-1.4117	-0.5273	-1.3189	-
0.13	-1.48	0	-1.48	-0.0549	-1.4864	-0.4724	-1.5351	-0.6	-1.55	-
0.5472	-1.1884	-0.5949	-1.3614	-0.6236	-1.3286	-0.499	-1.4044	-0.5702	-	1.3637
0.6132	-1.0986	0.0281	-0.98	-0.2402	-0.9992	-0.5157	-1.3368	-0.5318	-	0.5774
1.2773	-0.138	-1.45	-0.0137	-1.45	-0.0681	-1.4573	-0.4816	-1.513	-0.608	0.6153
-1.53	-0.5539	-1.1481	-0.5966	-1.3375	-0.6253	-1.3039	-0.5018	-1.3865	-	1.2158
0.5774	-1.3499	-0.0602	-1.43	-0.0648	-1.2936	-2.3334	-1.026	-0.0764	-0.953	-1.5
0.6153	-1.0779	0.0162	-0.959	-0.2481	-0.9788	-0.5195	-1.2846	-0.5355	-	0.5839
1.2158	-0.146	-1.43	-0.0278	-1.43	-0.0816	-1.4364	-0.4909	-1.4851	-0.616	0.6151
-1.5	-0.5597	-1.1209	-0.5969	-1.3124	-0.6256	-1.2889	-0.5042	-1.369	-	1.1794
0.5839	-1.334	-0.0698	-1.4	-0.0768	-1.2716	-2.3513	-1.024	-0.0943	-0.951	-1.47
0.6151	-1.0572	0.00429	-0.939	-0.2557	-0.9586	-0.5228	-1.2388	-0.5387	-	0.5897
1.1794	-0.154	-1.4	-0.0422	-1.4	-0.0955	-1.4064	-0.5003	-1.4551	-0.624	0.6133
-1.47	-0.5648	-1.1008	-0.5963	-1.2856	-0.6249	-1.275	-0.5059	-1.352	-	1.1518
0.5897	-1.3159	-0.0796	-1.38	-0.0889	-1.2573	-2.369	-1.024	-0.112	-0.951	-1.43
0.6133	-1.0365	-0.00777	-0.919	-0.2632	-0.9385	-0.5255	-1.203	-0.5416	-	0.5949
1.1518	-0.161	-1.38	-0.0564	-1.38	-0.1091	-1.3846	-0.5096	-1.4194	-0.632	0.6124
-1.43	-0.5694	-1.0852	-0.5952	-1.2577	-0.6235	-1.2592	-0.5062	-1.3355	-	1.1273
0.5949	-1.2955	-0.09	-1.35	-0.1014	-1.2356	-2.387	-1.023	-0.13	-0.95	-1.4
0.6124	-1.0158	-0.02	-0.9	-0.2705	-0.919	-0.5277	-1.1771	-0.5443	-	0.5994
1.1273	-0.17	-1.35	-0.07	-1.35	-0.1222	-1.3546	-0.5188	-1.3894	-0.64	0.6136
-1.4	-0.5733	-1.0723	-0.5941	-1.2268	-0.6217	-1.2429	-0.5065	-1.3197	-	1.1049
0.5994	-1.2731	-0.101	-1.33	-0.1144	-1.2205	-2.405	-1.02	-0.148	-0.947	-1.37
0.6136	-0.9952	-0.0324	-0.881	-0.2776	-0.8997	-0.5295	-1.1508	-0.5468	-	0.6031
1.1049	-0.18	-1.33	-0.0828	-1.33	-0.1345	-1.3337	-0.527	-1.3615	-0.647	0.6151
-1.37	-0.5768	-1.0612	-0.593	-1.1988	-0.6198	-1.2257	-0.5068	-1.3044	-	1.0635
0.6031	-1.2491	-0.113	-1.3	-0.1282	-1.1973	-2.423	-1.014	-0.166	-0.941	-1.34
0.6151	-0.9746	-0.0449	-0.863	-0.2846	-0.8811	-0.5307	-1.1239	-0.549	-	0.6056
1.0635	-0.19	-1.3	-0.095	-1.3	-0.1461	-1.3037	-0.5343	-1.3315	-0.653	0.6173
-1.34	-0.5798	-1.0511	-0.592	-1.1758	-0.618	-1.2069	-0.5071	-1.2898	-	1.0271
0.6056	-1.2262	-0.125	-1.28	-0.1419	-1.1811	-2.441	-1.007	-0.184	-0.934	-1.31
0.6173	-0.9541	-0.0571	-0.845	-0.2911	-0.8628	-0.5315	-1.0961	-0.5508	-	0.6066
1.0271	-0.2	-1.28	-0.107	-1.28	-0.1575	-1.2827	-0.5416	-1.3036	-0.659	0.9336
-1.31	-0.5824	-1.0416	-0.5909	-1.1561	-0.6164	-1.1864	-0.5073	-1.2756	-	-1.25
0.6066	-1.2088	-0.138	-1.25	-0.1563	-1.1576	-2.459	-1	-0.202	-0.927	-0.6207
0.9336	-0.0689	-0.827	-0.2973	-0.8447	-0.5318	-1.0668	-0.5521	-0.9958	-0.21	0.5846
-1.25	-0.118	-1.25	-0.1681	-1.2527	-0.5487	-1.2736	-0.665	-1.28	-	1.1913
0.5846	-1.0325	-0.5896	-1.1376	-0.6153	-1.165	-0.5074	-1.2616	-0.6058	-	0.6249
1.1913	-0.15	-1.23	-0.17	-1.1414	-2.477	-0.993	-0.22	-0.92	-	0.9692
0.6249	-0.9131	-0.08	-0.81	-0.3027	-0.8271	-0.5315	-1.0364	-0.553	-	-1.25
0.9692	-0.22	-1.23	-0.13	-1.23	-0.1794	-1.2318	-0.5552	-1.2457	-0.67	-1.25
-1.25	-0.5864	-1.0237	-0.5881	-1.1192	-0.6145	-1.1436	-0.5075	-1.2477	-	0.6029
0.6029	-1.1737									

	-0.162	-1.21	-0.1834	-1.1254	-2.494	-0.987	-0.237	-0.914	-
0.6274	-0.8927	-0.0904	-0.793	-0.3076	-0.8098	-0.5307	-1.007	-0.5533	-
0.9464	-0.228	-1.21	-0.142	-1.21	-0.1908	-1.2109	-0.5616	-1.2179	-0.675
-1.22	-0.5878	-1.0149	-0.5863	-1.0996	-0.6134	-1.123	-0.5075	-1.2336	-
0.5984	-1.1559								
	-0.174	-1.18	-0.1969	-1.1022	-2.511	-0.981	-0.254	-0.908	-
0.6264	-0.8724	-0.1	-0.775	-0.3118	-0.7922	-0.5294	-0.9803	-0.5528	-
0.9258	-0.236	-1.18	-0.154	-1.18	-0.2022	-1.1809	-0.5681	-1.1879	-0.68
-1.19	-0.5889	-1.0059	-0.5839	-1.0773	-0.6117	-1.1029	-0.5073	-1.2192	-
0.5931	-1.138								
	-0.186	-1.16	-0.21	-1.0859	-2.527	-0.974	-0.27	-0.901	-
0.6231	-0.8521	-0.11	-0.757	-0.3159	-0.7744	-0.5274	-0.957	-0.5517	-
0.9064	-0.244	-1.16	-0.166	-1.16	-0.2136	-1.16	-0.5754	-1.16	-0.686
-1.16	-0.5897	-0.9967	-0.581	-1.0522	-0.609	-1.0794	-0.5071	-1.2042	-
0.588	-1.1198								
	-0.198	-1.13	-0.2229	-1.0619	-2.542	-0.965	-0.285	-0.892	-
0.6188	-0.8319	-0.12	-0.739	-0.3198	-0.7565	-0.525	-0.9368	-0.5497	-
0.8875	-0.252	-1.13	-0.178	-1.13	-0.2251	-1.13	-0.5827	-1.13	-0.692
-1.13	-0.5902	-0.9869	-0.5774	-1.0242	-0.6049	-1.0524	-0.5068	-1.1885	-
0.5839	-1.1014								
	-0.21	-1.11	-0.2357	-1.0442	-2.557	-0.953	-0.3	-0.88	-
0.6147	-0.8117	-0.13	-0.72	-0.3235	-0.738	-0.5223	-0.9194	-0.547	-
0.8687	-0.26	-1.11	-0.19	-1.11	-0.2367	-1.1109	-0.5915	-1.1179	-0.7
-1.1	-0.5903	-0.9762	-0.5732	-0.9953	-0.5999	-1.0267	-0.5063	-1.1715	-
0.5812	-1.0825								
	-0.222	-1.08	-0.2483	-1.0182	-2.571	-0.937	-0.314	-0.864	-
0.6119	-0.7915	-0.141	-0.7	-0.3277	-0.7187	-0.5194	-0.9037	-0.5441	-
0.8493	-0.269	-1.08	-0.202	-1.08	-0.2484	-1.0809	-0.6012	-1.0879	-0.709
-1.07	-0.5902	-0.9643	-0.5687	-0.9655	-0.5941	-1.0028	-0.5056	-1.1528	-
0.5796	-1.0632								
	-0.235	-1.06	-0.2616	-0.9982	-2.585	-0.917	-0.328	-0.844	-
0.6103	-0.7714	-0.153	-0.68	-0.3323	-0.6991	-0.5165	-0.8893	-0.5412	-
0.8289	-0.28	-1.06	-0.213	-1.06	-0.2592	-1.0618	-0.6106	-1.0757	-0.718
-1.04	-0.5898	-0.9503	-0.5639	-0.9338	-0.5882	-0.9809	-0.5048	-1.1321	-
0.5789	-1.0435								
	-0.247	-1.03	-0.2736	-0.9708	-2.597	-0.896	-0.34	-0.823	-
0.6095	-0.7514	-0.165	-0.66	-0.337	-0.6793	-0.5136	-0.8757	-0.5388	-
0.8075	-0.29	-1.03	-0.225	-1.03	-0.2711	-1.0318	-0.6218	-1.0457	-0.729
-1.01	-0.5892	-0.9335	-0.5596	-0.8991	-0.5824	-0.96	-0.5038	-1.1093	-
0.5789	-1.023								
	-0.259	-1.01	-0.2853	-0.9502	-2.608	-0.874	-0.351	-0.801	-
0.6091	-0.7313	-0.178	-0.64	-0.3423	-0.6594	-0.511	-0.8628	-0.5372	-
0.7868	-0.3	-1.01	-0.237	-1.01	-0.283	-1.0127	-0.6322	-1.0336	-0.739
-0.98	-0.5884	-0.9134	-0.5557	-0.8604	-0.5773	-0.9379	-0.5026	-1.0845	-
0.5794	-1.002								
	-0.27	-0.98	-0.2957	-0.9228	-2.617	-0.853	-0.36	-0.78	-
0.6088	-0.7113	-0.19	-0.62	-0.3472	-0.6394	-0.5087	-0.8502	-0.5367	-0.766
-0.31	-0.98	-0.25	-0.98	-0.2958	-0.9827	-0.6437	-1.0036	-0.75	-0.95
-0.5874	-0.8895	-0.5516	-0.8225	-0.573	-0.9105	-0.5012	-1.0582	-0.5801	-
0.9803									
	-0.28	-0.955	-0.3049	-0.8992	-2.624	-0.833	-0.367	-0.76	-
0.6081	-0.6913	-0.202	-0.601	-0.3524	-0.6199	-0.5068	-0.838	-0.5373	-
0.7454	-0.319	-0.955	-0.264	-0.955	-0.3094	-0.9583	-0.6545	-0.9833	-0.76
-0.919	-0.5862	-0.8623	-0.5472	-0.7902	-0.5699	-0.879	-0.4996	-1.0312	-
0.581	-0.958								

-0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
 0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
 0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
 -0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
 0.5818 -0.9351
 -0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
 0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
 0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
 -0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
 0.5825 -0.9119
 -0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
 0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
 0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79
 -0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
 0.583 -0.8882
 -0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
 0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
 -0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
 -0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
 0.8643
 -0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
 0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
 0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811
 -0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
 0.5825 -0.8403
 -0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
 0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
 0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822
 -0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
 0.5814 -0.81
 -0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
 0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
 0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
 -0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
 0.5794 -0.7783
 -0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
 0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
 0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
 -0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
 0.5765 -0.7458
 -0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
 0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
 -0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
 -0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
 0.7117
 -0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
 0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
 0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
 -0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
 0.5683 -0.6754
 -0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
 0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
 0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
 -0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
 0.5636 -0.6363

-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.43 -0.4398 -
0.4134 -0.5433 -0.5068];

Prilozi

Prilog – P11 Kod razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 8 (Furijerova funkcija 3 reda i Gausova funkcija 3 reda – Gausov model od 3 pika za Wh karakteristiku; Furijerova funkcija 2 reda i Gausova funkcija 4 reda – Gausov model od 4 pika za Wm karakteristiku) za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih-turbina

Prilog za poglavlje 8.2 Pronalaženje analitičke veze (univerzalne zakonitosti) sa regresionim postupkom za krive Wh i Wm karakteristike za šest modela radijalnih pumpi i trinest modela radijalnih pumpnih-turbina (Varijanta 8 – Ovaj primjer je urađen sa - Furijerovom funkcijom 3 reda i Gausovom funkcijom 3 reda – Gausov model od 3 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wm karakteristiku)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 8 (Ovaj primjer je urađen sa - Furijerovom funkcijom 3 reda i Gausovom funkcijom 3 reda – Gausov model od 3 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wm karakteristiku) na osnovu krivih Wh karakteristika i Wm karakteristika za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih-turbina u programu Matlab:

```
Program za Wh i Wm karakteristiku
%% Kod za pronalazenje jednaš?ine za modele pumpi
close all
clear
clc
warning off
format long e

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...
                {'Wh','Wm'},...
                'SelectionMode','single',...
                'PromptString','Odaberi krive');

jezik = listdlg('ListString', ...
```

```

        {'Srpski','Engleski'},...
        'SelectionMode','single',...
        'PromptString','Odaberi jezik ispisa');

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5','furier3-gauss3','furier3-gauss4','furier3-
poly8','furier4-poly9','furier5-poly9','furier4-poly8'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5','furier2-gauss4','furier2-poly7','furier2-
poly8','furier2-poly9','furier2-gauss3','furier2-poly6'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2

```

```

        s = 3; % gauss
elseif funct == 3
    s = 4; % gauss
elseif funct == 4 || funct == 7
    s = 8; % polinom
elseif funct == 5 || funct == 6
    s = 9; % polinom
end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end
end

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w) '};
koeficijenti = {'a_{0} '

```

```

'a_{1}'
'b_{1}'
'a_{2}'
'b_{2}'
'a_{3}'
'b_{3}'
'a_{4}'
'b_{4}'
'a_{5}'
'b_{5}'
'a_{6}'
'b_{6}'
'a_{7}'
'b_{7}'
'a_{8}'
'b_{8}'
'w'};

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisiranje granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

% Korak 1. Pronaci koeficijente Fourijereve jednaÅ?ine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients
    coeff(n,:) = coeff1;
    figure(n) % crtanje grafka
    plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
    WHF(:,n) = coeffFour(ThetaD);
    R2(n) = corr(WHF(:,n), W(:,n)).^2;
    xlim([0 2*pi]);
end

```

```

ylim([y1 y2]);
yticks(y1:0.2:y2);
set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaÅ?inu polinoma od dobijenih koeficijenata
Fourijereve jednaÅ?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:, k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k, :) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:, k), s);
        Koeff(k, :) = Pc;
    end
    if k == L
        Koeifr = koeficijenti(18);
    else
        Koeifr = koeficijenti(k);
    end
end

figure(n+k) % crtanje grafika
plot(nq, coeff(:, k), 'xr'), grid on, hold on

if s <= 5
    plot(GASS(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
else
    plot(polyval(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
end
end

```

```

xlim([nq(1) nq(end)])
set(gca, 'XTick', nq)
set(gca, 'XTickLabelRotation', 90)
set(gcf, 'Position', [100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Gausova jednašina
', num2str(s), ' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
', num2str(ff), ' stepena'])
    legend(['Koficijent Fouriera ', num2str(ff), ' stepena'], ['Gaussian
', num2str(s), ' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Polinom
', num2str(s), ' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
', num2str(ff), ' stepena'])
    legend(['Koficijent Fouriera ', num2str(ff), ' stepena'], ['Polinom
', num2str(s), ' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
', num2str(s), ' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
', num2str(ff), ' series'])
    legend(['Coefficient of Fourer ', num2str(ff), ' series'], ['Gaussian
', num2str(s), ' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
', num2str(s), ' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
', num2str(ff), ' series'])
    legend(['Coefficient of Fourer ', num2str(ff), ' series'], ['Polynom
', num2str(s), ' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
', num2str(ff), '-stepen'])
    if s <= 5
        disp([' - Gausova jednašina ', num2str(s), '-stepena se koristio u
procesu koficijenata Fourireve jednašine'])
    elseif s > 5
        disp([' - polinom ', num2str(s), '-stepena se koristio u procesu
koficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
', num2str(ff), '-series'])
    if s <= 5
        disp([' - Gaussian ', num2str(s), '-series was used to process the
coefficients of the Fourier equation'])
    elseif s > 5
        disp([' - a polynomial ', num2str(s), '-series was used to process
the coefficients of the Fourier equation'])
    end
end

```

```

end
end
for i = 1:length(nq)
    if s <= 5
        a0 = GASS(Koeff(1,:),nq(i));
        a1 = GASS(Koeff(2,:),nq(i));
        b1 = GASS(Koeff(3,:),nq(i));
        if ff >= 2
            a2 = GASS(Koeff(4,:),nq(i));
            b2 = GASS(Koeff(5,:),nq(i));
            if ff >= 3
                a3 = GASS(Koeff(6,:),nq(i));
                b3 = GASS(Koeff(7,:),nq(i));
                if ff >= 4
                    a4 = GASS(Koeff(8,:),nq(i));
                    b4 = GASS(Koeff(9,:),nq(i));
                    if ff >= 5
                        a5 = GASS(Koeff(10,:),nq(i));
                        b5 = GASS(Koeff(11,:),nq(i));
                        if ff >= 6
                            a6 = GASS(Koeff(12,:),nq(i));
                            b6 = GASS(Koeff(13,:),nq(i));
                            if ff >= 7
                                a7 = GASS(Koeff(14,:),nq(i));
                                b7 = GASS(Koeff(15,:),nq(i));
                                if ff == 8
                                    a8 = GASS(Koeff(16,:),nq(i));
                                    b8 = GASS(Koeff(17,:),nq(i));
                                end
                            end
                        end
                    end
                end
            end
        end
    end
    end
    end
    end
    end
    end
    w = GASS(Koeff(end,:),nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:),nq(i));
    a1 = polyval(Koeff(2,:),nq(i));
    b1 = polyval(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq(i));
        b2 = polyval(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq(i));
            b3 = polyval(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq(i));
                b4 = polyval(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq(i));
                    b5 = polyval(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq(i));
                        b6 = polyval(Koeff(13,:),nq(i));
                    end
                end
            end
        end
    end
end

```

```

        if ff >= 7
            a7 = polyval(Koeff(14,:),nq(i));
            b7 = polyval(Koeff(15,:),nq(i));
            if ff == 8
                a8 = polyval(Koeff(16,:),nq(i));
                b8 = polyval(Koeff(17,:),nq(i));
            end
        end
    end
end
end
end
end
end
end
end
    w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end
end
    % Calculate R^2

```



```

Rsq(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama
figure(k+n+i)
plot(Theta,W(:,i),'xr'), hold on
plot(Theta,WH(:,i),'-b','LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca,'XTick',[0 45 90 135 180 225 270 315 360])

set(gca,'XTickLabel',{'0\circ','45\circ','90\circ','135\circ','180\circ','225
\circ','270\circ','315\circ','360\circ'})
set(gcf,'Position',[100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=',num2str(nq(i)), ' gdje je R^2=',num2str(Rsq(i))])
    legend('Kriva modela','Kriva jednaĀ?ine')
    disp(['Krive za n_{q}=',num2str(nq(i)), ' gdje je
R^2=',num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=',num2str(nq(i)), ' where is R^2=',num2str(Rsq(i))])
    legend('Curve of model','Curve of equation')
    disp(['Curve for n_{q}=',num2str(nq(i)), ' where is
R^2=',num2str(Rsq(i))])
end
end
if s <= 5
    writematrix(Koeff,['Koficijenti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koficijenti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end

Program za Wh i Wm karakteristiku
%% Kod za pronalazenje jednaĀ?ine za modele pumpi
close all
clear
clc
warning off
format long e

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
bojaiz =
{'::r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};

```

```

bojafun = {'-r', '-b', '-g', '-y', '-m', '-c', '-k', '--r', '--b', '--g', '--y', '--
m', '--c', '--k', '-.r', '-.b', '-.g', '-.y', '-.m', '-.c', '-.k'};

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...
    {'Wh', 'Wm'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski', 'Engleski'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi jezik ispisa');

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5', 'furier3-gauss3', 'furier3-gauss4', 'furier3-
poly8', 'furier4-poly9', 'furier5-poly9', 'furier4-poly8'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5', 'furier2-gauss4', 'furier2-poly7', 'furier2-
poly8', 'furier2-poly9', 'furier2-gauss3', 'furier2-poly6'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:, TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:, TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6

```

```

        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7
        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)

```

```

+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
    'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '
    'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w) '};
koeficijenti = {'a_{0}'
    'a_{1}'
    'b_{1}'
    'a_{2}'
    'b_{2}'
    'a_{3}'
    'b_{3}'
    'a_{4}'
    'b_{4}'
    'a_{5}'
    'b_{5}'
    'a_{6}'
    'b_{6}'
    'a_{7}'
    'b_{7}'
    'a_{8}'
    'b_{8}'
    'w'};

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisane granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;

```

```

y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednašine za svaki nq

for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients
    coeff(n,:) = coeff1;
    figure(n) % crtanje grafka
    plot(coeffFour, '-b',ThetaD,W(:,n), 'xr'), grid on
    WHF(:,n)= coeffFour(ThetaD);
    R2(n) = corr(WHF(:,n),W(:,n)).^2;
    xlim([0 2*pi]);
    ylim([y1 y2]);
    yticks(y1:0.2:y2);
    set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
    set(gcf, 'Position', [100, 100, 800, 700])
    if jezik == 1
        xlabel('\Theta'), ylabel(Wpol), title(['jednašina Fouriera
', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je
R^2=', num2str(R2(n))])
        legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
        disp(['jednašina Fouriera ', num2str(ff), ' stepena za model krive
n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    elseif jezik == 2
        xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier
', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is
R^2=', num2str(R2(n))])
        legend('The curve of the model', ['Function Fourier ', num2str(ff), '
series'])
        disp(['Function Fourier ', num2str(ff), ' series on model curve for
n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednašinu polinoma od dobijenih koeficijenata
Fourijereve jednašine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:,k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k,:) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:,k), s);
        Koeff(k,:) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);

```

```

else
    Koeffr = koeficijenti(k);
end

figure(n+k) % crtanje grafika
plot(nq,coeff(:,k),'xr'), grid on, hold on

if s <= 5
    plot(GASS(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
else
    plot(polyval(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
end

xlim([nq(1) nq(end)])
set(gca,'XTick',nq)
set(gca,'XTickLabelRotation',90)
set(gcf,'Position',[100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Gausova jednařina
',num2str(s),' stepena za koeficijent \it' Koeffr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Polinom
',num2str(s),' stepena za koeficijent \it' Koeffr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Koeffr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Koeffr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednařinom
if jezik == 1
    disp('Stepeni jednařina koji su se koristili su:')
    disp([' - za Fourierovu jednařinu na modelu koristio se
',num2str(ff),' -stepen'])
    if s <= 5
        disp([' - Gausova jednařina ',num2str(s),' -stepena se koristio u
procesu koeficijenata Fourireve jednařine'])
    elseif s >5

```

```

        disp([' - polinom ', num2str(s), '-stepena se koristio u procesu
koeficijenata Fourireve jedna?ine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
', num2str(ff), '-series'])
    if s <= 5
        disp([' - Gaussian ', num2str(s), '-series was used to process the
coefficients of the Fourier equation'])
    elseif s > 5
        disp([' - a polynomial ', num2str(s), '-series was used to process
the coefficients of the Fourier equation'])
    end
end
for i = 1:length(nq)
    if s <= 5
        a0 = GASS(Koeff(1,:), nq(i));
        a1 = GASS(Koeff(2,:), nq(i));
        b1 = GASS(Koeff(3,:), nq(i));
        if ff >= 2
            a2 = GASS(Koeff(4,:), nq(i));
            b2 = GASS(Koeff(5,:), nq(i));
            if ff >= 3
                a3 = GASS(Koeff(6,:), nq(i));
                b3 = GASS(Koeff(7,:), nq(i));
                if ff >= 4
                    a4 = GASS(Koeff(8,:), nq(i));
                    b4 = GASS(Koeff(9,:), nq(i));
                    if ff >= 5
                        a5 = GASS(Koeff(10,:), nq(i));
                        b5 = GASS(Koeff(11,:), nq(i));
                        if ff >= 6
                            a6 = GASS(Koeff(12,:), nq(i));
                            b6 = GASS(Koeff(13,:), nq(i));
                            if ff >= 7
                                a7 = GASS(Koeff(14,:), nq(i));
                                b7 = GASS(Koeff(15,:), nq(i));
                                if ff == 8
                                    a8 = GASS(Koeff(16,:), nq(i));
                                    b8 = GASS(Koeff(17,:), nq(i));
                                end
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
end
end
end
end
w = GASS(Koeff(end,:), nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:), nq(i));
    a1 = polyval(Koeff(2,:), nq(i));
    b1 = polyval(Koeff(3,:), nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:), nq(i));

```

```

b2 = polyval(Koeff(5,:),nq(i));
if ff >= 3
    a3 = polyval(Koeff(6,:),nq(i));
    b3 = polyval(Koeff(7,:),nq(i));
    if ff >= 4
        a4 = polyval(Koeff(8,:),nq(i));
        b4 = polyval(Koeff(9,:),nq(i));
        if ff >= 5
            a5 = polyval(Koeff(10,:),nq(i));
            b5 = polyval(Koeff(11,:),nq(i));
            if ff >= 6
                a6 = polyval(Koeff(12,:),nq(i));
                b6 = polyval(Koeff(13,:),nq(i));
                if ff >= 7
                    a7 = polyval(Koeff(14,:),nq(i));
                    b7 = polyval(Koeff(15,:),nq(i));
                    if ff == 8
                        a8 = polyval(Koeff(16,:),nq(i));
                        b8 = polyval(Koeff(17,:),nq(i));
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +

```



```

b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end

% Calculate R^2
Rsq(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama
figure(k+n+i)
plot(Theta,W(:,i),'xr'), hold on
plot(Theta,WH(:,i),'-b','LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca,'XTick',[0 45 90 135 180 225 270 315 360])

set(gca,'XTickLabel',{'0\circ','45\circ','90\circ','135\circ','180\circ','225
\circ','270\circ','315\circ','360\circ'})
set(gcf,'Position',[100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=',num2str(nq(i)), ' gdje je R^2=',num2str(Rsq(i))])
    legend('Kriva modela','Kriva jednaĀ?ine')
    disp(['Krive za n_{q}=',num2str(nq(i)), ' gdje je
R^2=',num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=',num2str(nq(i)), ' where is R^2=',num2str(Rsq(i))])
    legend('Curve of model','Curve of equation')
    disp(['Curve for n_{q}=',num2str(nq(i)), ' where is
R^2=',num2str(Rsq(i))])
end

figure(100) % dijagram za sve
plot(Theta,W(:,i),'bojaiz{i}), hold on
plot(Theta,WH(:,i),'bojafun{i}), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca,'XTick',[0 45 90 135 180 225 270 315 360])

set(gca,'XTickLabel',{'0\circ','45\circ','90\circ','135\circ','180\circ','225
\circ','270\circ','315\circ','360\circ'})
set(gcf,'Position',[100, 100, 1200, 900])
leg{i*2-1} = ['model nq=',num2str(nq(i))]; % legenda za podatke modela
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title('Sve krive modela i funkcija')

```

```

        leg{i*2} = ['funkc. za nq=', num2str(nq(i))]; % legenda za podatke
dobijene jednacinom
    elseif jezik == 2
        xlabel('\Theta'), ylabel(Wpol), title('All curve of model and
equation')
        leg{i*2} = ['funct. for nq=', num2str(nq(i))]; % legend for function
    end
end
if s <= 5
    writematrix(Koeff, ['Koefficienti_', Wpol, ' Furier', num2str(ff), '-
Gauss', num2str(s), '.xlsx'])
elseif s > 5
    writematrix(Koeff, ['Koefficienti_', Wpol, ' Furier', num2str(ff), '-
Polinom', num2str(s), '.xlsx'])
end
figure(100)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')

```

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469   -0.4478 -0.4845 -0.403   -0.4461 -
0.5537 -0.5108
        -0.422   -0.588   -0.4054 -0.532   -1.222  -0.409   -0.364   -0.392   -
0.5227 -0.344   -0.422   -0.324   -0.4363 -0.3844 -0.451   -0.4464 -0.4815 -
0.3791 -0.422   -0.588   -0.422   -0.588   -0.4645 -0.5839 -0.818   -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
        -0.403   -0.565   -0.3893 -0.507   -1.213  -0.379   -0.355   -0.362   -
0.4996 -0.3289 -0.403   -0.307   -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403   -0.565   -0.403   -0.565   -0.444   -0.5597 -0.7856 -0.6146 -0.889
-0.502   -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
        -0.383   -0.541   -0.3721 -0.4812 -1.203  -0.349   -0.345   -0.332   -
0.4772 -0.3146 -0.383   -0.289   -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383   -0.541   -0.383   -0.541   -0.4227 -0.5348 -0.753   -0.5993 -0.853
-0.467   -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442   -0.3474 -0.3885 -
0.5025 -0.4708
        -0.362   -0.516   -0.3537 -0.4545 -1.191  -0.318   -0.333   -0.301   -
0.4558 -0.3006 -0.362   -0.27    -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362   -0.516   -0.362   -0.516   -0.4003 -0.509   -0.7194 -0.5813 -0.816
-0.433   -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544
        -0.34    -0.49    -0.3343 -0.4271 -1.178  -0.287   -0.32    -0.27    -
0.4355 -0.2861 -0.34    -0.25    -0.3662 -0.2943 -0.3932 -0.3398 -0.398   -
0.2873 -0.34    -0.49    -0.34    -0.49    -0.3771 -0.4824 -0.6864 -0.5609 -0.78
-0.4     -0.4751 -0.3178 -0.345   -0.4004 -0.3643 -0.4126 -0.3103 -0.364   -
0.4672 -0.4355
        -0.318   -0.464   -0.3146 -0.3997 -1.164  -0.256   -0.306   -0.239   -
0.413   -0.2699 -0.318   -0.23    -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -

```

0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
-0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
0.4484 -0.4136
-0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
-0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
0.4309 -0.3886
-0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
-0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
0.4151 -0.3608
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 0.0312
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 0.1092
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 0.0253 0.204 -0.0276 0.1934 0.0067 0.1635 0.0477 0.1073 0.021 0.1484
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 0.0459 0.2433 0.146 0.185 0.1023 0.2012 0.0574 0.2178 0.0858

0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	

0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35										
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264											
0.2845	0.3877																		
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653										
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4	0.38									
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442										
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405												
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477											
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906											
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406										
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562											
0.3521	0.4251																		
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483											
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178											
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43										
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687											
0.3928	0.4482																		
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488											
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452											
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453										
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802											
0.4292	0.4675																		
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494											
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726											
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476										
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905											
0.4652	0.4846																		
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4993
0.5	0.5	0.5	0.5	0.5															
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508											
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272											
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527										
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092											
0.5295	0.515																		
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516											
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543											
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555										
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186											
0.5534	0.5307																		
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525											
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813											
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584										
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289											
0.5781	0.5457																		
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533											
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536										
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533										
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041											
0.5595																			
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608										
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6										
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622										
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733											

	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								

	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05

0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
									0.6226
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14

0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	1.55
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	1.6
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172	0.3765	
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	1.65
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702	0.3128	
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	

	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.44	1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341
1.1188	0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.47	1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34
1.1119	0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.71	1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059
0.3076	1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205	
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
0.35	1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
0.355	1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
0.361	1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
0.367	1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462
1.1381									

	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		0.3575
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		0.3705
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	

	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	0.483
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564	
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374	
1.2913									
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025	
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74

1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642	
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379	
1.3419									
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71	
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	

0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04

1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									

	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317	
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78	
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22		
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424	
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728	
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759	
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22		
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463		
1.4233										
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243	
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74	
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22		
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421	
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598		
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113		
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218		
1.4151										
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595		
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992		
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1	1.22
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023		
1.4071										
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589		
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102	
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22	
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871		
1.3985										
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581		
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882		
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983	
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668		
1.1733	1.3912									
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57		
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22	
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622		
1.3869										
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556		
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87		
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154		
1.3851										
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539		
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641		
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942	
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469		
1.1475	1.3841									
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52		
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569		
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927	
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395		
1.1416	1.3832									
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719	
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549	

0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9 1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8 1.08
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977

0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695

0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								

	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6 0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988	0.405
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								

	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								

	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767	
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644	
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701	
0.4411	-0.0102								
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864	
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711	
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451
-0.0219									
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974	
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535	
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461
-0.0336									
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11	
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862	
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326	
0.4711	-0.0457								
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-	
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126	
0.4814	-0.058								

	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573	
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407	
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462		
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-	
0.1276										
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236		
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-	
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583	
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596		
0.5528	-0.1378									
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252		
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-	
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587	-
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613	
-0.1451										
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27		
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-	
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59	
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764		
0.5686	-0.1503									
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594	
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407	
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104		
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-	
0.1555										
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312		
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-	
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596	
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976		
0.5839	-0.1624									

	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6 -
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4 -0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6	-0.16
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656
-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179	
0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507	
0.6733	-0.294								

	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27	
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-
0.3232									
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645	
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587	
0.6807	-0.3364								
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303	
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-
0.3506									
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69	
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434	
0.6802	-0.3704								
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
-0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
-0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								

	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								

	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95	
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-
1.2562									
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352	
0.0295	-1.2866								
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-
0.0152	-1.3104								
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-
0.0504	-1.3297								
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-
1.3459									
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-

1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-
0.1599	-1.36								
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-
0.1987	-1.3725								
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-
0.2339	-1.3837								
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457
-1.14	-0.2412	-1.4857	-0.3176	-1.4603	-0.3779	-1.5481	-0.2243	-1.5076	-
0.2892	-1.4035								
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472
-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-
0.3082	-1.4122								
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485
-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-
0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
-1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-
0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
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0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-
1.3927	-0.0252	-1.63	0.144	-1.64	0.0825	-1.6675	-0.3851	-1.8762	-0.528

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0.0444 -1.63 0.0541 -1.4928 -2.1786 -1.223 0.0784 -1.15 -
0.5794 -1.4604 0.124 -1.11 -0.1609 -1.1152 -0.4536 -1.5543 -0.4696 -
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-1.5 -0.4831 -1.5512 -0.5234 -1.4716 -0.5614 -1.5188 -0.446 -1.5002 -
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0.0323 -1.62 0.0416 -1.4799 -2.1922 -1.203 0.0648 -1.13 -
0.5873 -1.4523 0.112 -1.1 -0.1731 -1.1075 -0.4659 -1.5451 -0.4804 -
1.3822 -0.0709 -1.62 0.0717 -1.62 0.0135 -1.6282 -0.4288 -1.6909 -0.564
-1.53 -0.4938 -1.5325 -0.541 -1.4668 -0.5731 -1.509 -0.4587 -1.4918 -
0.5074 -1.4157
0.02 -1.6 0.0286 -1.457 -2.207 -1.173 0.05 -1.1 -
0.5951 -1.4344 0.1 -1.09 -0.1844 -1.0986 -0.4765 -1.5344 -0.4903 -1.3773 -
0.08 -1.6 0.06 -1.6 0.0023 -1.6046 -0.436 -1.6394 -0.57 -1.55
-0.504 -1.4972 -0.5574 -1.4595 -0.5849 -1.4987 -0.47 -1.4814 -0.5197 -
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-1.57 -0.5138 -1.4276 -0.5701 -1.448 -0.596 -1.4874 -0.4789 -1.4692 -
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-0.00488 -1.56 0.0011 -1.4113 -2.2409 -1.113 0.0161 -1.04 -
0.6086 -1.2002 0.0759 -1.06 -0.205 -1.0744 -0.4935 -1.5075 -0.508 -
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-0.0171 -1.53 -0.0129 -1.3813 -2.25936 -1.083 -0.00236 -1.01
-0.6082 -1.1648 0.0639 -1.04 -0.2144 -1.057 -0.5003 -1.4891 -0.5153 -
1.3539 -0.111 -1.53 0.0251 -1.53 -0.0309 -1.5337 -0.4568 -1.5615 -0.587
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0.13 -1.48 0 -1.48 -0.0549 -1.4864 -0.4724 -1.5351 -0.6 -1.55 -
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0.6132 -1.0986 0.0281 -0.98 -0.2402 -0.9992 -0.5157 -1.3368 -0.5318 -
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1.2158 -0.146 -1.43 -0.0278 -1.43 -0.0816 -1.4364 -0.4909 -1.4851 -0.616
-1.5 -0.5597 -1.1209 -0.5969 -1.3124 -0.6256 -1.2889 -0.5042 -1.369 -
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-1.37 -0.5768 -1.0612 -0.593 -1.1988 -0.6198 -1.2257 -0.5068 -1.3044 -
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-0.113 -1.3 -0.1282 -1.1973 -2.423 -1.014 -0.166 -0.941 -
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-0.125 -1.28 -0.1419 -1.1811 -2.441 -1.007 -0.184 -0.934 -
0.6173 -0.9541 -0.0571 -0.845 -0.2911 -0.8628 -0.5315 -1.0961 -0.5508 -
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-1.31 -0.5824 -1.0416 -0.5909 -1.1561 -0.6164 -1.1864 -0.5073 -1.2756 -
0.6066 -1.2088
-0.138 -1.25 -0.1563 -1.1576 -2.459 -1 -0.202 -0.927 -0.6207 -
0.9336 -0.0689 -0.827 -0.2973 -0.8447 -0.5318 -1.0668 -0.5521 -0.9958 -0.21
-1.25 -0.118 -1.25 -0.1681 -1.2527 -0.5487 -1.2736 -0.665 -1.28 -
0.5846 -1.0325 -0.5896 -1.1376 -0.6153 -1.165 -0.5074 -1.2616 -0.6058 -
1.1913
-0.15 -1.23 -0.17 -1.1414 -2.477 -0.993 -0.22 -0.92 -
0.6249 -0.9131 -0.08 -0.81 -0.3027 -0.8271 -0.5315 -1.0364 -0.553 -
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-0.162 -1.21 -0.1834 -1.1254 -2.494 -0.987 -0.237 -0.914 -
0.6274 -0.8927 -0.0904 -0.793 -0.3076 -0.8098 -0.5307 -1.007 -0.5533 -
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0.9258 -0.236 -1.18 -0.154 -1.18 -0.2022 -1.1809 -0.5681 -1.1879 -0.68
-1.19 -0.5889 -1.0059 -0.5839 -1.0773 -0.6117 -1.1029 -0.5073 -1.2192 -
0.5931 -1.138
-0.186 -1.16 -0.21 -1.0859 -2.527 -0.974 -0.27 -0.901 -
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0.9064 -0.244 -1.16 -0.166 -1.16 -0.2136 -1.16 -0.5754 -1.16 -0.686
-1.16 -0.5897 -0.9967 -0.581 -1.0522 -0.609 -1.0794 -0.5071 -1.2042 -
0.588 -1.1198
-0.198 -1.13 -0.2229 -1.0619 -2.542 -0.965 -0.285 -0.892 -
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-1.13 -0.5902 -0.9869 -0.5774 -1.0242 -0.6049 -1.0524 -0.5068 -1.1885 -
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0.8687 -0.26 -1.11 -0.19 -1.11 -0.2367 -1.1109 -0.5915 -1.1179 -0.7
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-1.07 -0.5902 -0.9643 -0.5687 -0.9655 -0.5941 -1.0028 -0.5056 -1.1528 -
0.5796 -1.0632
-0.235 -1.06 -0.2616 -0.9982 -2.585 -0.917 -0.328 -0.844 -
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-0.247 -1.03 -0.2736 -0.9708 -2.597 -0.896 -0.34 -0.823 -
0.6095 -0.7514 -0.165 -0.66 -0.337 -0.6793 -0.5136 -0.8757 -0.5388 -
0.8075 -0.29 -1.03 -0.225 -1.03 -0.2711 -1.0318 -0.6218 -1.0457 -0.729
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0.5789 -1.023
-0.259 -1.01 -0.2853 -0.9502 -2.608 -0.874 -0.351 -0.801 -
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0.7868 -0.3 -1.01 -0.237 -1.01 -0.283 -1.0127 -0.6322 -1.0336 -0.739
-0.98 -0.5884 -0.9134 -0.5557 -0.8604 -0.5773 -0.9379 -0.5026 -1.0845 -
0.5794 -1.002
-0.27 -0.98 -0.2957 -0.9228 -2.617 -0.853 -0.36 -0.78 -
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-0.31 -0.98 -0.25 -0.98 -0.2958 -0.9827 -0.6437 -1.0036 -0.75 -0.95
-0.5874 -0.8895 -0.5516 -0.8225 -0.573 -0.9105 -0.5012 -1.0582 -0.5801 -
0.9803
-0.28 -0.955 -0.3049 -0.8992 -2.624 -0.833 -0.367 -0.76 -
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-0.919 -0.5862 -0.8623 -0.5472 -0.7902 -0.5699 -0.879 -0.4996 -1.0312 -
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 -0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
 0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
 0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
 -0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
 0.5818 -0.9351
 -0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
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 -0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
 0.5825 -0.9119
 -0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
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 -0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
 0.583 -0.8882
 -0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
 0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
 -0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
 -0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
 0.8643
 -0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
 0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
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 -0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
 0.5825 -0.8403
 -0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
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 -0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
 0.5814 -0.81
 -0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
 0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
 0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
 -0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
 0.5794 -0.7783
 -0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
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 0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
 -0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
 0.5765 -0.7458
 -0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
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 -0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
 -0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
 0.7117
 -0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
 0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
 0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
 -0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
 0.5683 -0.6754
 -0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
 0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
 0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896

-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.413
-0.5433 -0.5068];

Prilozi

Prilog – P12 Kod razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 9 (Furijerovom funkcijom 3 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinom 7 reda za Wm karakteristiku) za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih- turbina

Prilog za poglavlje 8.3 Pronalaženje analitičke veze (univerzalne zakonitosti) sa regresionim postupkom za krive Wh i Wm karakteristike za šest modela radijalnih pumpi i trinest modela radijalnih pumpnih-turbina (Varijanta 9 – Ovaj primjer je urađen sa - Furijerovom funkcijom 3 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinom 7 reda za Wm karakteristiku)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela Pumpne turbine i Pumpe – Varijanta 9 (Ovaj primjer je urađen sa - Furijerovom funkcijom 3 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 7 reda za Wm karakteristiku) na osnovu krivih Wh karakteristika i Wm karakteristika za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih-turbina u programu Matlab:

```
Program za Wh i Wm karakteristiku
%% Kod za pronalazenje jednaÅ?ine za modele pumpi
close all
clear
clc
warning off
format long e

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...
    {'Wh', 'Wm'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski', 'Engleski'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi jezik ispisa');
```

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if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5', 'furier3-gauss3', 'furier3-gauss4', 'furier3-
poly8', 'furier4-poly9', 'furier5-poly9', 'furier4-poly8'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5', 'furier2-gauss4', 'furier2-poly7', 'furier2-
poly8', 'furier2-poly9', 'furier2-gauss3', 'furier2-poly6'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi funkciju za Wm');
end

%% Definisiranje Theta i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definiranje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss

```

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elseif funct == 4 || funct == 7
    s = 8; % polinom
elseif funct == 5 || funct == 6
    s = 9; % polinom
end
elseif odabir == 2
if funct == 1
    s = 5; % gauss
elseif funct == 2
    s = 4; % gauss
elseif funct == 6
    s = 3; % gauss
elseif funct == 3
    s = 7; % polinom
elseif funct == 4
    s = 8; % polinom
elseif funct == 5
    s = 9; % polinom
elseif funct == 7
    s = 6; % polinom
end
end
end

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w) '};
koeficijenti = {'a_{0}'
'a_{1}'
'b_{1}'
'a_{2}'

```

```

'b_{2}'
'a_{3}'
'b_{3}'
'a_{4}'
'b_{4}'
'a_{5}'
'b_{5}'
'a_{6}'
'b_{6}'
'a_{7}'
'b_{7}'
'a_{8}'
'b_{8}'
'w'];

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisane granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednašine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients
    coeff(n,:) = coeff1;
    figure(n) % crtanje grafka
    plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
    WHF(:,n) = coeffFour(ThetaD);
    R2(n) = corr(WHF(:,n), W(:,n)).^2;
    xlim([0 2*pi]);
    ylim([y1 y2]);
    yticks(y1:0.2:y2);
    set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

```

```

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaš?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaš?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaš?inu polinoma od dobijenih koeficijenata Fourierjeve jednaš?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:, k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k, :) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:, k), s);
        Koeff(k, :) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end

    figure(n+k) % crtanje grafika
    plot(nq, coeff(:, k), 'xr'), grid on, hold on

    if s <= 5
        plot(GASS(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
    else
        plot(polyval(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
    end

    xlim([nq(1) nq(end)])
    set(gca, 'XTick', nq)

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set(gca,'XTickLabelRotation',90)
set(gcf, 'Position', [100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Gausova jednašina
',num2str(s),' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Polinom
',num2str(s),' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
',num2str(ff),' -stepen'])
    if s <= 5
        disp([' - Gausova jednašina ',num2str(s),'-stepena se koristio u
procesu koficijenata Fourireve jednašine'])
    elseif s >5
        disp([' - polinom ',num2str(s),'-stepena se koristio u procesu
koficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
',num2str(ff),'-series'])
    if s <= 5
        disp([' - Gaussian ',num2str(s),'-series was used to process the
coefficients of the Fourier equation'])
    elseif s >5
        disp([' - a polynomial ',num2str(s),'-series was used to process
the coefficients of the Fourier equation'])
    end
end
for i = 1:length(nq)

```



```

if s <= 5
    a0 = GASS(Koeff(1,:),nq(i));
    a1 = GASS(Koeff(2,:),nq(i));
    b1 = GASS(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq(i));
        b2 = GASS(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq(i));
            b3 = GASS(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq(i));
                b4 = GASS(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq(i));
                    b5 = GASS(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq(i));
                        b6 = GASS(Koeff(13,:),nq(i));
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq(i));
                            b7 = GASS(Koeff(15,:),nq(i));
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq(i));
                                b8 = GASS(Koeff(17,:),nq(i));
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:),nq(i));
    a1 = polyval(Koeff(2,:),nq(i));
    b1 = polyval(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq(i));
        b2 = polyval(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq(i));
            b3 = polyval(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq(i));
                b4 = polyval(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq(i));
                    b5 = polyval(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq(i));
                        b6 = polyval(Koeff(13,:),nq(i));
                        if ff >= 7
                            a7 = polyval(Koeff(14,:),nq(i));
                            b7 = polyval(Koeff(15,:),nq(i));

```

```

        if ff == 8
            a8 = polyval(Koeff(16,:),nq(i));
            b8 = polyval(Koeff(17,:),nq(i));
        end
    end
end
end
end
end
end
end
end
    w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end

% Calculate R^2
Rsq(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama

```

```

figure(k+n+i)
plot(Theta,W(:,i),'xr'), hold on
plot(Theta,WH(:,i),'-b','LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca,'XTick',[0 45 90 135 180 225 270 315 360])

set(gca,'XTickLabel',{'0\circ','45\circ','90\circ','135\circ','180\circ','225\circ','270\circ','315\circ','360\circ'})
set(gcf,'Position',[100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=',num2str(nq(i)), ' gdje je R^2=',num2str(Rsq(i))])
    legend('Kriva modela','Kriva jedna\?ine')
    disp(['Krive za n_{q}=',num2str(nq(i)), ' gdje je
R^2=',num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=',num2str(nq(i)), ' where is R^2=',num2str(Rsq(i))])
    legend('Curve of model','Curve of equation')
    disp(['Curve for n_{q}=',num2str(nq(i)), ' where is
R^2=',num2str(Rsq(i))])
end
end
if s <= 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end

```

Program za Wh i Wm karakteristiku

%% Kod za pronalazenje jedna\?ine za modele pumpi

close all

clear

clc

warning off

format long e

```

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

```

bojaiz =

```

{'.:r','.:ob','.:+g','.:*y','.:xm','.:dc','.:^k','.:vr','.:>b','.:<g','.:py','.:hm','.:.c
','.:ok','.:*r','.:*b','.:*g','.:*y','.:*m','.:*c','.:*k'};

```

```

bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-r','-b','-g','-y','-m','-c','-k'};

```

%% Podaci dobijeni iz modela

run data_model.m

odabir = listdlg('ListString', ...

```

        {'Wh','Wm'},...
        'SelectionMode','single',...
        'PromptString','Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski','Engleski'},...
    'SelectionMode','single',...
    'PromptString','Odaberi jezik ispisa');

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5','furier3-gauss3','furier3-gauss4','furier3-
poly8','furier4-poly9','furier5-poly9','furier4-poly8'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5','furier2-gauss4','furier2-poly7','furier2-
poly8','furier2-poly9','furier2-gauss3','furier2-poly6'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

```

```

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7
        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

```

```

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '

```

```

    'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w)');
koeficijenti = {'a_{0}'
    'a_{1}'
    'b_{1}'
    'a_{2}'
    'b_{2}'
    'a_{3}'
    'b_{3}'
    'a_{4}'
    'b_{4}'
    'a_{5}'
    'b_{5}'
    'a_{6}'
    'b_{6}'
    'a_{7}'
    'b_{7}'
    'a_{8}'
    'b_{8}'
    'w'};

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisane granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednaÄ?ine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients

```

```

coeff(n,:) = coeff1;
figure(n) % crtanje grafka
plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
WHF(:,n) = coeffFour(ThetaD);
R2(n) = corr(WHF(:,n), W(:,n)).^2;
xlim([0 2*pi]);
ylim([y1 y2]);
yticks(y1:0.2:y2);
set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaÅ?inu polinoma od dobijenih koeficijenata Fourijereve jednaÅ?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:,k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k,:) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:,k), s);
        Koeff(k,:) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end
end

figure(n+k) % crtanje grafika
plot(nq, coeff(:,k), 'xr'), grid on, hold on

```

```

if s <= 5
    plot(GASS(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
else
    plot(polyval(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
end

xlim([nq(1) nq(end)])
set(gca,'XTick',nq)
set(gca,'XTickLabelRotation',90)
set(gcf,'Position',[100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Gausova jednařina
',num2str(s),' stepena za koeficijent \it' Koefr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Polinom
',num2str(s),' stepena za koeficijent \it' Koefr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Koefr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Koefr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednařinom
if jezik == 1
    disp('Stepeni jednařina koji su se koristili su:')
    disp([' - za Fourierovu jednařinu na modelu koristio se
',num2str(ff),' -stepen'])
    if s <= 5
        disp([' - Gausova jednařina ',num2str(s),' -stepena se koristio u
procesu koeficijenata Fourireve jednařine'])
    elseif s >5
        disp([' - polinom ',num2str(s),' -stepena se koristio u procesu
koeficijenata Fourireve jednařine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
',num2str(ff),' -series'])
    if s <= 5

```



```

        disp([' - Gaussian ',num2str(s),'-series was used to process the
coefficients of the Fourier equation'])
    elseif s >5
        disp([' - a polynomial ',num2str(s),'-series was used to process
the coefficients of the Fourier equation'])
    end
end
for i = 1:length(nq)
    if s <= 5
        a0 = GASS(Koeff(1,:),nq(i));
        a1 = GASS(Koeff(2,:),nq(i));
        b1 = GASS(Koeff(3,:),nq(i));
        if ff >= 2
            a2 = GASS(Koeff(4,:),nq(i));
            b2 = GASS(Koeff(5,:),nq(i));
            if ff >= 3
                a3 = GASS(Koeff(6,:),nq(i));
                b3 = GASS(Koeff(7,:),nq(i));
                if ff >= 4
                    a4 = GASS(Koeff(8,:),nq(i));
                    b4 = GASS(Koeff(9,:),nq(i));
                    if ff >= 5
                        a5 = GASS(Koeff(10,:),nq(i));
                        b5 = GASS(Koeff(11,:),nq(i));
                        if ff >= 6
                            a6 = GASS(Koeff(12,:),nq(i));
                            b6 = GASS(Koeff(13,:),nq(i));
                            if ff >= 7
                                a7 = GASS(Koeff(14,:),nq(i));
                                b7 = GASS(Koeff(15,:),nq(i));
                                if ff == 8
                                    a8 = GASS(Koeff(16,:),nq(i));
                                    b8 = GASS(Koeff(17,:),nq(i));
                                end
                            end
                        end
                    end
                end
            end
        end
    end
end
    end
end
end
end
    w = GASS(Koeff(end,:),nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:),nq(i));
    a1 = polyval(Koeff(2,:),nq(i));
    b1 = polyval(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq(i));
        b2 = polyval(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq(i));
            b3 = polyval(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq(i));
                b4 = polyval(Koeff(9,:),nq(i));
                if ff >= 5

```

```

        a5 = polyval(Koeff(10,:),nq(i));
        b5 = polyval(Koeff(11,:),nq(i));
        if ff >= 6
            a6 = polyval(Koeff(12,:),nq(i));
            b6 = polyval(Koeff(13,:),nq(i));
            if ff >= 7
                a7 = polyval(Koeff(14,:),nq(i));
                b7 = polyval(Koeff(15,:),nq(i));
                if ff == 8
                    a8 = polyval(Koeff(16,:),nq(i));
                    b8 = polyval(Koeff(17,:),nq(i));
                end
            end
        end
    end
end
end
end
end
end
end
    w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +

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```

b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end

% Calculate R^2
Rsq(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama
figure(k+n+i)
plot(Theta,W(:,i)', 'xr'), hold on
plot(Theta,WH(:,i)', '-b', 'LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=', num2str(nq(i)), ' gdje je R^2=', num2str(Rsq(i))])
    legend('Kriva modela', 'Kriva jednaĀ?ine')
    disp(['Krive za n_{q}=', num2str(nq(i)), ' gdje je
R^2=', num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=', num2str(nq(i)), ' where is R^2=', num2str(Rsq(i))])
    legend('Curve of model', 'Curve of equation')
    disp(['Curve for n_{q}=', num2str(nq(i)), ' where is
R^2=', num2str(Rsq(i))])
end

figure(100) % dijagram za sve
plot(Theta,W(:,i)',bojaiz{i}), hold on
plot(Theta,WH(:,i)',bojafun{i}), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 1200, 900])
leg{i*2-1} = ['model nq=', num2str(nq(i))]; % legenda za podatke modela
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title('Sve krive modela i funkcija')
    leg{i*2} = ['funkc. za nq=', num2str(nq(i))]; % legenda za podatke
dobijene jednacinom
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title('All curve of model and
equation')
    leg{i*2} = ['funct. for nq=', num2str(nq(i))]; % legend for function
end
end
end

```

```

if s <= 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end
figure(100)
legend(leg,'Location','NorthEastOutside','FontSize',12), legend('boxoff')

```

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469   -0.4478 -0.4845 -0.403   -0.4461 -
0.5537 -0.5108
        -0.422   -0.588   -0.4054 -0.532   -1.222  -0.409   -0.364   -0.392   -
0.5227 -0.344   -0.422   -0.324   -0.4363 -0.3844 -0.451   -0.4464 -0.4815 -
0.3791 -0.422   -0.588   -0.422   -0.588   -0.4645 -0.5839 -0.818   -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
        -0.403   -0.565   -0.3893 -0.507   -1.213  -0.379   -0.355   -0.362   -
0.4996 -0.3289 -0.403   -0.307   -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403   -0.565   -0.403   -0.565   -0.444   -0.5597 -0.7856 -0.6146 -0.889
-0.502   -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
        -0.383   -0.541   -0.3721 -0.4812 -1.203  -0.349   -0.345   -0.332   -
0.4772 -0.3146 -0.383   -0.289   -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
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0.4672 -0.4355

```

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	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
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0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									

	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461											
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359											
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35										
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264											
0.2845	0.3877																		
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653										
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4	0.38									
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442										
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405												
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477											
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906											
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406										
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562											
0.3521	0.4251																		
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483											
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178											
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43										
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687											
0.3928	0.4482																		
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488											
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452											
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453										
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802											
0.4292	0.4675																		
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494											
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726											
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476										
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905											
0.4652	0.4846																		
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4993
0.5	0.5	0.5	0.5	0.5															
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508											
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272											
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527										
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092											
0.5295	0.515																		
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516											
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543											
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555										
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186											
0.5534	0.5307																		
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525											
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813											
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584										
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289											
0.5781	0.5457																		
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533											
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536										
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533										
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041											
0.5595																			
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608										
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6										

0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826

0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	

0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
	0.6226								
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14

0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	1.55
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	1.6
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172	0.3765	
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	1.65
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702	0.3128	
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	

	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584	
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43	
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224	
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534		
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226		
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664	1.44
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188	
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807		
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217		
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698	
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34	
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535		
0.8102										
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21		
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739	1.47
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119	
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441		
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206		
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779	
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34	
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135		
0.8811										
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599	
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5	1.71
1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076	
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205			
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16	
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51	
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048	
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962		
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207		
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832		
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13	
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113		
1.6192	1									
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21		
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182		
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13	0.35
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487		
1.0326										
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214		
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804		
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13	0.355
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796		
1.0663										
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219		
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783		
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13	0.361
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133		
1.1025										
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225		
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755		
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12	0.367
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462		
1.1381										

	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		0.3575
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		0.3705
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	

	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564	
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374	
1.2913									
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025	
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74

1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642	
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379	
1.3419									
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71	
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	

0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04

1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									

	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317	
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78	
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22		
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424	
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728	
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759	
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22		
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463		
1.4233										
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243	
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74	
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22		
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421	
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598		
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113		
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218		
1.4151										
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595		
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992		
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1	1.22
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023		
1.4071										
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589		
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102	
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22	
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871		
1.3985										
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581		
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882		
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983	
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668		
1.1733	1.3912									
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57		
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22	
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622		
1.3869										
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556		
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87		
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154		
1.3851										
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539		
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641		
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942	
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469		
1.1475	1.3841									
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52		
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569		
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927	
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395		
1.1416	1.3832									
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719	
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549	

0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9 1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8 1.08
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977

0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695

0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								

	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								

	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								

	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767	
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644	
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701	
0.4411	-0.0102								
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864	
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711	
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451
-0.0219									
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974	
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535	
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461
-0.0336									
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11	
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862	
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326	
0.4711	-0.0457								
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-	
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126	
0.4814	-0.058								

	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14	
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552	
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051	
0.4917	-0.0703								
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157	
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222	
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-
0.0172	0.502	-0.0824							
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923	
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-
0.0942									
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19	
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365	
0.5226	-0.1057								
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205	
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552	
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-
0.0445	0.5328	-0.1168							
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462	
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-
0.1276									
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
-									
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								

	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6 -
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4 -0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6	-0.16
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656
-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179	
0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507	
0.6733	-0.294								

	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27	
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-
0.3232									
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645	
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587	
0.6807	-0.3364								
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303	
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-
0.3506									
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69	
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434	
0.6802	-0.3704								
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
-0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
-0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								

	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								

	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95	
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-
1.2562									
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352	
0.0295	-1.2866								
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-
0.0152	-1.3104								
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-
0.0504	-1.3297								
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-
1.3459									
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-

1.3077 0.0737 -1.44 0.282 -1.4 0.2221 -1.3254 -0.2329 -1.6677 -0.372
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0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134
-0.5433 -0.5068];

Prilozi

Prilog – P13 Kod razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 10 (Furijerovom funkcijom 3 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 8 reda za Wm karakteristiku) za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih- turbina

Prilog za poglavlje 8.4 Pronalaženje analitičke veze (univerzalne zakonitosti) sa regresionim postupkom za krive Wh i Wm karakteristike za šest modela radijalnih pumpi i trinest modela radijalnih pumpnih-turbina (Varijanta 10 – Ovaj primjer je urađen sa - Furijerovom funkcijom 3 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 8 reda za Wm karakteristiku)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 10 (Ovaj primjer je urađen sa - Furijerovom funkcijom 3 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 8 reda za Wm karakteristiku) na osnovu krivih Wh karakteristika i Wm karakteristika za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih-turbina u programu Matlab:

```
Program za Wh i Wm karakteristiku
%% Kod za pronalazenje jednaš?ine za modele pumpi
close all
clear
clc
warning off
format long e

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...
    {'Wh','Wm'},...
    'SelectionMode','single',...
    'PromptString','Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski','Engleski'},...
    'SelectionMode','single',...
    'PromptString','Odaberi jezik ispisa');
```

```

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5','furier3-gauss3','furier3-gauss4','furier3-
poly8','furier4-poly9','furier5-poly9','furier4-poly8'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5','furier2-gauss4','furier2-poly7','furier2-
poly8','furier2-poly9','furier2-gauss3','furier2-poly6'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7

```

```

        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w) '};
koeficijenti = {'a_{0}'
'a_{1}'
'b_{1}'
'a_{2}'
'b_{2}'}

```

```

'a_{3}'
'b_{3}'
'a_{4}'
'b_{4}'
'a_{5}'
'b_{5}'
'a_{6}'
'b_{6}'
'a_{7}'
'b_{7}'
'a_{8}'
'b_{8}'
'w'];

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisiranje granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednaÄ?ine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients
    coeff(n,:) = coeff1;
    figure(n) % crtanje grafka
    plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
    WHF(:,n) = coeffFour(ThetaD);
    R2(n) = corr(WHF(:,n), W(:,n)).^2;
    xlim([0 2*pi]);
    ylim([y1 y2]);
    yticks(y1:0.2:y2);
    set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

```



```

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaš?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaš?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaš?inu polinoma od dobijenih koeficijenata Fourierjeve jednaš?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:, k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k, :) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:, k), s);
        Koeff(k, :) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end

    figure(n+k) % crtanje grafika
    plot(nq, coeff(:, k), 'xr'), grid on, hold on

    if s <= 5
        plot(GASS(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
    else
        plot(polyval(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
    end

    xlim([nq(1) nq(end)])
    set(gca, 'XTick', nq)

```

```

set(gca,'XTickLabelRotation',90)
set(gcf, 'Position', [100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Gausova jednašina
',num2str(s),' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Polinom
',num2str(s),' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
',num2str(ff),' -stepen'])
    if s <= 5
        disp([' - Gausova jednašina ',num2str(s),'-stepena se koristio u
procesu koficijenata Fourireve jednašine'])
    elseif s >5
        disp([' - polinom ',num2str(s),'-stepena se koristio u procesu
koficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
',num2str(ff),'-series'])
    if s <= 5
        disp([' - Gaussian ',num2str(s),'-series was used to process the
coefficients of the Fourier equation'])
    elseif s >5
        disp([' - a polynomial ',num2str(s),'-series was used to process
the coefficients of the Fourier equation'])
    end
end
for i = 1:length(nq)

```

```

if s <= 5
    a0 = GASS(Koeff(1,:),nq(i));
    a1 = GASS(Koeff(2,:),nq(i));
    b1 = GASS(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq(i));
        b2 = GASS(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq(i));
            b3 = GASS(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq(i));
                b4 = GASS(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq(i));
                    b5 = GASS(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq(i));
                        b6 = GASS(Koeff(13,:),nq(i));
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq(i));
                            b7 = GASS(Koeff(15,:),nq(i));
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq(i));
                                b8 = GASS(Koeff(17,:),nq(i));
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:),nq(i));
    a1 = polyval(Koeff(2,:),nq(i));
    b1 = polyval(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq(i));
        b2 = polyval(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq(i));
            b3 = polyval(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq(i));
                b4 = polyval(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq(i));
                    b5 = polyval(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq(i));
                        b6 = polyval(Koeff(13,:),nq(i));
                        if ff >= 7
                            a7 = polyval(Koeff(14,:),nq(i));
                            b7 = polyval(Koeff(15,:),nq(i));
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end

```



```

figure(k+n+i)
plot(Theta,W(:,i),'xr'), hold on
plot(Theta,WH(:,i),'-b','LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca,'XTick',[0 45 90 135 180 225 270 315 360])

set(gca,'XTickLabel',{'0\circ','45\circ','90\circ','135\circ','180\circ','225\circ','270\circ','315\circ','360\circ'})
set(gcf,'Position',[100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=',num2str(nq(i)), ' gdje je R^2=',num2str(Rsq(i))])
    legend('Kriva modela','Kriva jedna\?ine')
    disp(['Krive za n_{q}=',num2str(nq(i)), ' gdje je
R^2=',num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=',num2str(nq(i)), ' where is R^2=',num2str(Rsq(i))])
    legend('Curve of model','Curve of equation')
    disp(['Curve for n_{q}=',num2str(nq(i)), ' where is
R^2=',num2str(Rsq(i))])
end
end
if s <= 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end

```

Program za Wh i Wm karakteristiku

%% Kod za pronalazenje jedna\?ine za modele pumpi

close all

clear

clc

warning off

format long e

```

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

```

bojaiz =

```

{'.:r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm','.:c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};

```

```

bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-r','-b','-g','-y','-m','-c','-k'};

```

%% Podaci dobijeni iz modela

run data_model.m

odabir = listdlg('ListString', ...

```

        {'Wh', 'Wm'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski', 'Engleski'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi jezik ispisa');

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5', 'furier3-gauss3', 'furier3-gauss4', 'furier3-
poly8', 'furier4-poly9', 'furier5-poly9', 'furier4-poly8'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5', 'furier2-gauss4', 'furier2-poly7', 'furier2-
poly8', 'furier2-poly9', 'furier2-gauss3', 'furier2-poly6'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

```

```

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7
        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

```

```

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '

```

```

'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w)');
koeficijenti = {'a_{0}'
'a_{1}'
'b_{1}'
'a_{2}'
'b_{2}'
'a_{3}'
'b_{3}'
'a_{4}'
'b_{4}'
'a_{5}'
'b_{5}'
'a_{6}'
'b_{6}'
'a_{7}'
'b_{7}'
'a_{8}'
'b_{8}'
'w'};

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisane granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednaÄ?ine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients

```



```

coeff(n,:) = coeff1;
figure(n) % crtanje grafka
plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
WHF(:,n) = coeffFour(ThetaD);
R2(n) = corr(WHF(:,n), W(:,n)).^2;
xlim([0 2*pi]);
ylim([y1 y2]);
yticks(y1:0.2:y2);
set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaÅ?inu polinoma od dobijenih koeficijenata Fourijereve jednaÅ?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:,k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k,:) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:,k), s);
        Koeff(k,:) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end
end

figure(n+k) % crtanje grafika
plot(nq, coeff(:,k), 'xr'), grid on, hold on

```

```

if s <= 5
    plot(GASS(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
else
    plot(polyval(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
end

xlim([nq(1) nq(end)])
set(gca,'XTick',nq)
set(gca,'XTickLabelRotation',90)
set(gcf,'Position',[100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Gausova jednašina
',num2str(s),' stepena za koeficijent \it' Koefr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Polinom
',num2str(s),' stepena za koeficijent \it' Koefr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Koefr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Koefr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
',num2str(ff),'-stepen'])
    if s <= 5
        disp([' - Gausova jednašina ',num2str(s),'-stepena se koristio u
procesu koeficijenata Fourireve jednašine'])
    elseif s >5
        disp([' - polinom ',num2str(s),'-stepena se koristio u procesu
koeficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
',num2str(ff),'-series'])
    if s <= 5

```

```

        disp([' - Gaussian ', num2str(s), '-series was used to process the
coefficients of the Fourier equation'])
    elseif s > 5
        disp([' - a polynomial ', num2str(s), '-series was used to process
the coefficients of the Fourier equation'])
    end
end
for i = 1:length(nq)
    if s <= 5
        a0 = GASS(Koeff(1,:), nq(i));
        a1 = GASS(Koeff(2,:), nq(i));
        b1 = GASS(Koeff(3,:), nq(i));
        if ff >= 2
            a2 = GASS(Koeff(4,:), nq(i));
            b2 = GASS(Koeff(5,:), nq(i));
            if ff >= 3
                a3 = GASS(Koeff(6,:), nq(i));
                b3 = GASS(Koeff(7,:), nq(i));
                if ff >= 4
                    a4 = GASS(Koeff(8,:), nq(i));
                    b4 = GASS(Koeff(9,:), nq(i));
                    if ff >= 5
                        a5 = GASS(Koeff(10,:), nq(i));
                        b5 = GASS(Koeff(11,:), nq(i));
                        if ff >= 6
                            a6 = GASS(Koeff(12,:), nq(i));
                            b6 = GASS(Koeff(13,:), nq(i));
                            if ff >= 7
                                a7 = GASS(Koeff(14,:), nq(i));
                                b7 = GASS(Koeff(15,:), nq(i));
                                if ff == 8
                                    a8 = GASS(Koeff(16,:), nq(i));
                                    b8 = GASS(Koeff(17,:), nq(i));
                                end
                            end
                        end
                    end
                end
            end
        end
    end
    end
    end
    end
    end
    w = GASS(Koeff(end,:), nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:), nq(i));
    a1 = polyval(Koeff(2,:), nq(i));
    b1 = polyval(Koeff(3,:), nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:), nq(i));
        b2 = polyval(Koeff(5,:), nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:), nq(i));
            b3 = polyval(Koeff(7,:), nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:), nq(i));
                b4 = polyval(Koeff(9,:), nq(i));
                if ff >= 5

```

```

a5 = polyval(Koeff(10,:),nq(i));
b5 = polyval(Koeff(11,:),nq(i));
if ff >= 6
    a6 = polyval(Koeff(12,:),nq(i));
    b6 = polyval(Koeff(13,:),nq(i));
    if ff >= 7
        a7 = polyval(Koeff(14,:),nq(i));
        b7 = polyval(Koeff(15,:),nq(i));
        if ff == 8
            a8 = polyval(Koeff(16,:),nq(i));
            b8 = polyval(Koeff(17,:),nq(i));
        end
    end
end
end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +

```

```

b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end

% Calculate R^2
Rsqr(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama
figure(k+n+i)
plot(Theta,W(:,i)', 'xr'), hold on
plot(Theta,WH(:,i)', '-b', 'LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=', num2str(nq(i)), ' gdje je R^2=', num2str(Rsqr(i))])
    legend('Kriva modela', 'Kriva jedna\cine')
    disp(['Krive za n_{q}=', num2str(nq(i)), ' gdje je
R^2=', num2str(Rsqr(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=', num2str(nq(i)), ' where is R^2=', num2str(Rsqr(i))])
    legend('Curve of model', 'Curve of equation')
    disp(['Curve for n_{q}=', num2str(nq(i)), ' where is
R^2=', num2str(Rsqr(i))])
end

figure(100) % dijagram za sve
plot(Theta,W(:,i)',bojaiz{i}), hold on
plot(Theta,WH(:,i)',bojafun{i}), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 1200, 900])
leg{i*2-1} = ['model nq=', num2str(nq(i))]; % legenda za podatke modela
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title('Sve krive modela i funkcija')
    leg{i*2} = ['funkc. za nq=', num2str(nq(i))]; % legenda za podatke
dobijene jednacinom
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title('All curve of model and
equation')
    leg{i*2} = ['funct. for nq=', num2str(nq(i))]; % legend for function
end
end
end

```

```

if s <= 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end
figure(100)
legend(leg,'Location','NorthEastOutside','FontSize',12), legend('boxoff')

```

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469   -0.4478 -0.4845 -0.403   -0.4461 -
0.5537 -0.5108
        -0.422   -0.588   -0.4054 -0.532   -1.222  -0.409   -0.364   -0.392   -
0.5227 -0.344   -0.422   -0.324   -0.4363 -0.3844 -0.451   -0.4464 -0.4815 -
0.3791 -0.422   -0.588   -0.422   -0.588   -0.4645 -0.5839 -0.818   -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
        -0.403   -0.565   -0.3893 -0.507   -1.213  -0.379   -0.355   -0.362   -
0.4996 -0.3289 -0.403   -0.307   -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403   -0.565   -0.403   -0.565   -0.444   -0.5597 -0.7856 -0.6146 -0.889
-0.502   -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
        -0.383   -0.541   -0.3721 -0.4812 -1.203  -0.349   -0.345   -0.332   -
0.4772 -0.3146 -0.383   -0.289   -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383   -0.541   -0.383   -0.541   -0.4227 -0.5348 -0.753   -0.5993 -0.853
-0.467   -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442   -0.3474 -0.3885 -
0.5025 -0.4708
        -0.362   -0.516   -0.3537 -0.4545 -1.191  -0.318   -0.333   -0.301   -
0.4558 -0.3006 -0.362   -0.27    -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362   -0.516   -0.362   -0.516   -0.4003 -0.509   -0.7194 -0.5813 -0.816
-0.433   -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544
        -0.34    -0.49    -0.3343 -0.4271 -1.178  -0.287   -0.32    -0.27    -
0.4355 -0.2861 -0.34    -0.25    -0.3662 -0.2943 -0.3932 -0.3398 -0.398   -
0.2873 -0.34    -0.49    -0.34    -0.49    -0.3771 -0.4824 -0.6864 -0.5609 -0.78
-0.4     -0.4751 -0.3178 -0.345   -0.4004 -0.3643 -0.4126 -0.3103 -0.364   -
0.4672 -0.4355

```

-0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
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 0.0253 0.204 -0.0276 0.1934 0.0067 0.1635 0.0477 0.1073 0.021 0.1484
 -0.0198 0.1275

	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									

	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405		
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4993
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6

0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826

0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	

0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
									0.6226
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14

0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	1.55
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	1.6
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172	0.3765	
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	1.65
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702	0.3128	
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	

	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.44	1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341
1.1188	0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.47	1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34
1.1119	0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.71	1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059
0.3076	1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205	
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
0.35	1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
0.355	1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
0.361	1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
0.367	1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462
1.1381									

	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		0.3575
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		0.3705
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	

	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564	
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374	
1.2913									
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025	
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74

1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642	
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379	
1.3419									
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71	
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	

0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04

1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									

	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317	
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78	
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22		
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424	
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728	
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759	
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22		
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463		
1.4233										
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243	
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74	
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22		
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421	
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598		
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113		
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218		
1.4151										
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595		
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992		
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1	1.22
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023		
1.4071										
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589		
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102	
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22	
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871		
1.3985										
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581		
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882		
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983	
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668		
1.1733	1.3912									
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57		
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22	
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622		
1.3869										
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556		
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87		
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154		
1.3851										
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539		
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641		
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942	
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469		
1.1475	1.3841									
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52		
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569		
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927	
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395		
1.1416	1.3832									
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719	
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549	

0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9 1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8 1.08
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977

0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695

0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								

	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								

	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								

	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767	
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644	
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701	
0.4411	-0.0102								
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864	
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711	
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451
-0.0219									
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974	
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535	
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461
-0.0336									
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11	
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862	
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326	
0.4711	-0.0457								
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-	
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126	
0.4814	-0.058								

	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14	
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552	
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051	
0.4917	-0.0703								
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157	
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222	
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-
0.0172	0.502	-0.0824							
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923	
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-
0.0942									
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19	
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365	
0.5226	-0.1057								
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205	
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552	
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-
0.0445	0.5328	-0.1168							
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462	
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-
0.1276									
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								

	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656
-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179	
0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507	
0.6733	-0.294								

	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27	
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-
0.3232									
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645	
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587	
0.6807	-0.3364								
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303	
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-
0.3506									
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69	
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434	
0.6802	-0.3704								
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
-0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
-0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								

	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								

	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95	
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-
1.2562									
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352	
0.0295	-1.2866								
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-
0.0152	-1.3104								
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-
0.0504	-1.3297								
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-
1.3459									
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-

1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-
0.1599	-1.36								
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-
0.1987	-1.3725								
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-
0.2339	-1.3837								
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457
-1.14	-0.2412	-1.4857	-0.3176	-1.4603	-0.3779	-1.5481	-0.2243	-1.5076	-
0.2892	-1.4035								
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472
-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-
0.3082	-1.4122								
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485
-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-
0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
-1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-
0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
-1.31	-0.3969	-1.5769	-0.4352	-1.4786	-0.483	-1.5536	-0.3691	-1.5189	-
0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-
1.3927	-0.0252	-1.63	0.144	-1.64	0.0825	-1.6675	-0.3851	-1.8762	-0.528

-1.34 -0.4155 -1.578 -0.4459 -1.4791 -0.4986 -1.5513 -0.3849 -1.5183 -
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-0.5433 -0.5068];

Prilozi

Prilog – P14 Kod razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 11 (Furijerovom funkcijom 4 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 9 reda za Wm karakteristiku) za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih- turbina

Prilog za poglavlje 8.5 Pronalaženje analitičke veze (univerzalne zakonitosti) sa regresionim postupkom za krive Wh i Wm karakteristike za šest modela radijalnih pumpi i trinest modela radijalnih pumpnih-turbina (Varijanta 11 – Ovaj primjer je urađen sa - Furijerovom funkcijom 4 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda Polinomom 9 reda za Wm karakteristiku)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 11 (Ovaj primjer je urađen sa - Furijerovom funkcijom 4 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 9 reda za Wm karakteristiku) na osnovu krivih Wh karakteristika i Wm karakteristika za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih-turbina u programu Matlab:

```
Program za Wh i Wm karakteristiku
%% Kod za pronalazenje jednašine za modele pumpi
close all
clear
clc
warning off
format long e

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...
    {'Wh','Wm'},...
    'SelectionMode','single',...
    'PromptString','Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski','Engleski'},...
    'SelectionMode','single',...
    'PromptString','Odaberi jezik ispisa');
```

```

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5','furier3-gauss3','furier3-gauss4','furier3-
poly8','furier4-poly9','furier5-poly9','furier4-poly8'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5','furier2-gauss4','furier2-poly7','furier2-
poly8','furier2-poly9','furier2-gauss3','furier2-poly6'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wm');
end

%% Definisiranje Theta i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definiranje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7

```



```

        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w) '};
koeficijenti = {'a_{0}'
'a_{1}'
'b_{1}'
'a_{2}'
'b_{2}'}

```

```

'a_{3}'
'b_{3}'
'a_{4}'
'b_{4}'
'a_{5}'
'b_{5}'
'a_{6}'
'b_{6}'
'a_{7}'
'b_{7}'
'a_{8}'
'b_{8}'
'w'];

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1','gauss2','gauss3','gauss4','gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisiranje granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednaÅ?ine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients
    coeff(n,:) = coeff1;
    figure(n) % crtanje grafka
    plot(coeffFour, '-b',ThetaD,W(:,n), 'xr'), grid on
    WHF(:,n)= coeffFour(ThetaD);
    R2(n) = corr(WHF(:,n),W(:,n)).^2;
    xlim([0 2*pi]);
    ylim([y1 y2]);
    yticks(y1:0.2:y2);
    set(gca, 'XTick',[0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

```

```

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaš?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaš?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaš?inu polinoma od dobijenih koeficijenata Fourierjeve jednaš?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:, k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k, :) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:, k), s);
        Koeff(k, :) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end

    figure(n+k) % crtanje grafika
    plot(nq, coeff(:, k), 'xr'), grid on, hold on

    if s <= 5
        plot(GASS(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
    else
        plot(polyval(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
    end

    xlim([nq(1) nq(end)])
    set(gca, 'XTick', nq)

```

```

set(gca,'XTickLabelRotation',90)
set(gcf, 'Position', [100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Gausova jednašina
',num2str(s),' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Polinom
',num2str(s),' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
',num2str(ff),' -stepen'])
    if s <= 5
        disp([' - Gausova jednašina ',num2str(s),'-stepena se koristio u
procesu koficijenata Fourireve jednašine'])
    elseif s >5
        disp([' - polinom ',num2str(s),'-stepena se koristio u procesu
koficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
',num2str(ff),'-series'])
    if s <= 5
        disp([' - Gaussian ',num2str(s),'-series was used to process the
coefficients of the Fourier equation'])
    elseif s >5
        disp([' - a polynomial ',num2str(s),'-series was used to process
the coefficients of the Fourier equation'])
    end
end
for i = 1:length(nq)

```

```

if s <= 5
    a0 = GASS(Koeff(1,:),nq(i));
    a1 = GASS(Koeff(2,:),nq(i));
    b1 = GASS(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq(i));
        b2 = GASS(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq(i));
            b3 = GASS(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq(i));
                b4 = GASS(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq(i));
                    b5 = GASS(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq(i));
                        b6 = GASS(Koeff(13,:),nq(i));
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq(i));
                            b7 = GASS(Koeff(15,:),nq(i));
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq(i));
                                b8 = GASS(Koeff(17,:),nq(i));
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:),nq(i));
    a1 = polyval(Koeff(2,:),nq(i));
    b1 = polyval(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq(i));
        b2 = polyval(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq(i));
            b3 = polyval(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq(i));
                b4 = polyval(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq(i));
                    b5 = polyval(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq(i));
                        b6 = polyval(Koeff(13,:),nq(i));
                        if ff >= 7
                            a7 = polyval(Koeff(14,:),nq(i));
                            b7 = polyval(Koeff(15,:),nq(i));

```

```

        if ff == 8
            a8 = polyval(Koeff(16,:),nq(i));
            b8 = polyval(Koeff(17,:),nq(i));
        end
    end
end
end
end
end
end
end
    w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end

% Calculate R^2
Rsq(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama

```

```

figure(k+n+i)
plot(Theta,W(:,i),'xr'), hold on
plot(Theta,WH(:,i),'-b','LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca,'XTick',[0 45 90 135 180 225 270 315 360])

set(gca,'XTickLabel',{'0\circ','45\circ','90\circ','135\circ','180\circ','225\circ','270\circ','315\circ','360\circ'})
set(gcf,'Position',[100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=',num2str(nq(i)), ' gdje je R^2=',num2str(Rsq(i))])
    legend('Kriva modela','Kriva jedna\?ine')
    disp(['Krive za n_{q}=',num2str(nq(i)), ' gdje je
R^2=',num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=',num2str(nq(i)), ' where is R^2=',num2str(Rsq(i))])
    legend('Curve of model','Curve of equation')
    disp(['Curve for n_{q}=',num2str(nq(i)), ' where is
R^2=',num2str(Rsq(i))])
end
end
if s <= 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end

```

Program za Wh i Wm karakteristiku

%% Kod za pronalazenje jedna\?ine za modele pumpi

close all

clear

clc

warning off

format long e

```

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

```

bojaiz =

```

{'.:r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm','.:c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};

```

```

bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-r','-b','-g','-y','-m','-c','-k'};

```

%% Podaci dobijeni iz modela

run data_model.m

odabir = listdlg('ListString', ...

```

        {'Wh', 'Wm'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski', 'Engleski'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi jezik ispisa');

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5', 'furier3-gauss3', 'furier3-gauss4', 'furier3-
poly8', 'furier4-poly9', 'furier5-poly9', 'furier4-poly8'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5', 'furier2-gauss4', 'furier2-poly7', 'furier2-
poly8', 'furier2-poly9', 'furier2-gauss3', 'furier2-poly6'}, ...
        'SelectionMode', 'single', ...
        'PromptString', 'Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:, TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:, TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

```



```

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7
        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

```

```

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '

```

```

'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w)';

```

```

koeficijenti = {'a_{0}'

```

```

'a_{1}'
'b_{1}'
'a_{2}'
'b_{2}'
'a_{3}'
'b_{3}'
'a_{4}'
'b_{4}'
'a_{5}'
'b_{5}'
'a_{6}'
'b_{6}'
'a_{7}'
'b_{7}'
'a_{8}'
'b_{8}'
'w';

```

```

% ukoliko je druga funkcija Gauss-ova

```

```

if s <= 5

```

```

    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};

```

```

    if s == 1

```

```

        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);

```

```

    elseif s == 2

```

```

        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2);

```

```

    elseif s == 3

```

```

        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);

```

```

    elseif s == 4

```

```

        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);

```

```

    elseif s == 5

```

```

        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);

```

```

    end

```

```

end

```

```

% Definisane granicnih tacki za crtanje

```

```

y1 = round(min(min(W)),1)-0.1;

```

```

y2 = round(max(max(W)),1)+0.1;

```

```

%% Korak 1. Pronaci koeficijente Fourijereve jednašine za svaki nq

```

```

for n = 1:length(nq)

```

```

    coeffFour = fit(ThetaD',W(:,n),step{:});

```

```

    coeff1 = coeffvalues(coeffFour); % get coefficients

```

```

coeff(n,:) = coeff1;
figure(n) % crtanje grafka
plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
WHF(:,n) = coeffFour(ThetaD);
R2(n) = corr(WHF(:,n), W(:,n)).^2;
xlim([0 2*pi]);
ylim([y1 y2]);
yticks(y1:0.2:y2);
set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaÅ?inu polinoma od dobijenih koeficijenata
Fourijereve jednaÅ?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:,k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k,:) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:,k), s);
        Koeff(k,:) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end
end

figure(n+k) % crtanje grafika
plot(nq, coeff(:,k), 'xr'), grid on, hold on

```

```

if s <= 5
    plot(GASS(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
else
    plot(polyval(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
end

xlim([nq(1) nq(end)])
set(gca,'XTick',nq)
set(gca,'XTickLabelRotation',90)
set(gcf,'Position',[100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Gausova jednašina
',num2str(s),' stepena za koeficijent \it' Koefr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Polinom
',num2str(s),' stepena za koeficijent \it' Koefr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Koefr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Koefr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
',num2str(ff),'-stepen'])
    if s <= 5
        disp([' - Gausova jednašina ',num2str(s),'-stepena se koristio u
procesu koeficijenata Fourireve jednašine'])
    elseif s >5
        disp([' - polinom ',num2str(s),'-stepena se koristio u procesu
koeficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
',num2str(ff),'-series'])
    if s <= 5

```



```

a5 = polyval(Koeff(10,:),nq(i));
b5 = polyval(Koeff(11,:),nq(i));
if ff >= 6
    a6 = polyval(Koeff(12,:),nq(i));
    b6 = polyval(Koeff(13,:),nq(i));
    if ff >= 7
        a7 = polyval(Koeff(14,:),nq(i));
        b7 = polyval(Koeff(15,:),nq(i));
        if ff == 8
            a8 = polyval(Koeff(16,:),nq(i));
            b8 = polyval(Koeff(17,:),nq(i));
        end
    end
end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +

```

```

b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end

% Calculate R^2
Rsq(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama
figure(k+n+i)
plot(Theta,W(:,i)', 'xr'), hold on
plot(Theta,WH(:,i)', '-b', 'LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=', num2str(nq(i)), ' gdje je R^2=', num2str(Rsq(i))])
    legend('Kriva modela', 'Kriva jednaĀ?ine')
    disp(['Krive za n_{q}=', num2str(nq(i)), ' gdje je
R^2=', num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=', num2str(nq(i)), ' where is R^2=', num2str(Rsq(i))])
    legend('Curve of model', 'Curve of equation')
    disp(['Curve for n_{q}=', num2str(nq(i)), ' where is
R^2=', num2str(Rsq(i))])
end

figure(100) % dijagram za sve
plot(Theta,W(:,i)',bojaiz{i}), hold on
plot(Theta,WH(:,i)',bojafun{i}), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 1200, 900])
leg{i*2-1} = ['model nq=', num2str(nq(i))]; % legenda za podatke modela
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title('Sve krive modela i funkcija')
    leg{i*2} = ['funkc. za nq=', num2str(nq(i))]; % legenda za podatke
dobijene jednacinom
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title('All curve of model and
equation')
    leg{i*2} = ['funct. for nq=', num2str(nq(i))]; % legend for function
end
end
end

```

```

if s <= 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end
figure(100)
legend(leg,'Location','NorthEastOutside','FontSize',12), legend('boxoff')

```

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469   -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
        -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
        -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
        -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
        -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27   -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544
        -0.34    -0.49    -0.3343 -0.4271 -1.178  -0.287  -0.32    -0.27    -
0.4355 -0.2861 -0.34    -0.25    -0.3662 -0.2943 -0.3932 -0.3398 -0.398  -
0.2873 -0.34    -0.49    -0.34    -0.49    -0.3771 -0.4824 -0.6864 -0.5609 -0.78
-0.4     -0.4751 -0.3178 -0.345  -0.4004 -0.3643 -0.4126 -0.3103 -0.364  -
0.4672 -0.4355

```


-0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
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 0.0253 0.204 -0.0276 0.1934 0.0067 0.1635 0.0477 0.1073 0.021 0.1484
 -0.0198 0.1275

	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									

	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405		
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4993
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6

0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826

0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	

0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
	0.6226								
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14

0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4 0.52	1.07	0.553	1.17	0.524	1.14	
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3 0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497	
0.6854	1.6 0.797	1.1 0.344	1.1059	0.4213	1.1532	0.378	1.36	1.55	
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3 0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509	
0.6873	1.61	0.798	1.1 0.338	1.1079	0.4207	1.1575	0.3712	1.36	
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1 0.333	1.1099	0.42	1.1614	0.3654	
1.37	1.59	1.44	0.52	1.08	0.516	1.2 0.518	1.14	0.387	
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4 1.19	0.433	0.622	0.373	1.38	0.32	1.1532	
0.6907	1.62	0.8 1.1 0.33	1.1117	0.4193	1.1646	0.3608	1.37	1.6	
1.45	0.52	1.09	0.5 1.2 0.519	1.14	0.38	1.1296	0.3765		
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1 0.328	1.1133	0.4185	1.1673	0.3574	
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1 0.328	1.1149	0.4178	1.1693	0.3554	
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3 0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559	
0.6951	1.62	0.806	1.1 0.328	1.1164	0.4169	1.1708	0.3548	1.38	
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3 0.318	1.19	0.41	0.617	0.358	1.4 0.272	1.1566		
0.6963	1.62	0.808	1.1 0.33	1.1177	0.4161	1.1717	0.3556	1.39	
1.64	1.45	0.528	1.1 0.43	1.24	0.535	1.14	0.355	1.1348	
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3 1.19	0.403	0.616	0.358	1.4 0.26	1.1573		
0.6974	1.62	0.81	1.1 0.332	1.1189	0.4151	1.1724	0.3576	1.4 1.65	
1.45	0.53	1.1 0.414	1.24	0.541	1.14	0.35	1.13	0.3128	
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4 0.248	1.1579	
0.6984	1.62	0.812	1.1 0.334	1.12	0.4142	1.1729	0.3602	1.41	
1.66	1.45	0.532	1.1 0.399	1.25	0.548	1.14	0.346	1.1262	
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	

	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.44	1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341
1.1188	0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.47	1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34
1.1119	0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.71	1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059
0.3076	1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205	
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
0.35	1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
0.355	1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
0.361	1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
0.367	1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462
1.1381									

	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		0.3575
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		0.3705
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	

	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564	
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374	
1.2913									
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025	
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74

1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642	
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379	
1.3419									
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71	
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	

0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04

1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									

	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317	
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78	
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22		
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424	
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728	
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759	
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22		
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463		
1.4233										
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243	
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74	
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22		
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421	
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598		
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113		
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218		
1.4151										
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595		
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992		
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1	1.22
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023		
1.4071										
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589		
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102	
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22	
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871		
1.3985										
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581		
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882		
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983	
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668		
1.1733	1.3912									
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57		
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22	
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622		
1.3869										
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556		
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87		
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154		
1.3851										
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539		
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641		
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942	
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469		
1.1475	1.3841									
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52		
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569		
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927	
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395		
1.1416	1.3832									
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719	
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549	

0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9 1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8 1.08
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977

0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695

0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								

	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6 0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988	0.405
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								

	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								

	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767	
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644	
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701	
0.4411	-0.0102								
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864	
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711	
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451
-0.0219									
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974	
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535	
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461
-0.0336									
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11	
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862	
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326	
0.4711	-0.0457								
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-	
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126	
0.4814	-0.058								

	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573	
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407	
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462		
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-	
0.1276										
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236		
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-	
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583	
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596		
0.5528	-0.1378									
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252		
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-	
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587	-
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613	
-0.1451										
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27		
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-	
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59	
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764		
0.5686	-0.1503									
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594	
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407	
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104		
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-	
0.1555										
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312		
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-	
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596	
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976		
0.5839	-0.1624									

	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6 -
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4 -0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6	-0.16
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656
-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179	
0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507	
0.6733	-0.294								

	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27	
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-
0.3232									
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645	
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587	
0.6807	-0.3364								
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303	
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-
0.3506									
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69	
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434	
0.6802	-0.3704								
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
-0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
-0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								

	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								

	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95	
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-
1.2562									
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352	
0.0295	-1.2866								
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-
0.0152	-1.3104								
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-
0.0504	-1.3297								
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-
1.3459									
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-

1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-
0.1599	-1.36								
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-
0.1987	-1.3725								
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-
0.2339	-1.3837								
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457
-1.14	-0.2412	-1.4857	-0.3176	-1.4603	-0.3779	-1.5481	-0.2243	-1.5076	-
0.2892	-1.4035								
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472
-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-
0.3082	-1.4122								
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485
-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-
0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
-1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-
0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
-1.31	-0.3969	-1.5769	-0.4352	-1.4786	-0.483	-1.5536	-0.3691	-1.5189	-
0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-
1.3927	-0.0252	-1.63	0.144	-1.64	0.0825	-1.6675	-0.3851	-1.8762	-0.528

-1.34 -0.4155 -1.578 -0.4459 -1.4791 -0.4986 -1.5513 -0.3849 -1.5183 -
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0.0918 -1.64 0.1044 -1.5142 -2.121 -1.273 0.136 -1.2 -
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-0.5433 -0.5068];

Prilozi

Prilog – P16 Kod razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 13 (Furijerovom funkcijom 4 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 6 reda za Wm karakteristiku) za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih- turbina

Prilog za poglavlje 8.7 Pronalaženje analitičke veze (univerzalne zakonitosti) sa regresionim postupkom za krive Wh i Wm karakteristike za šest modela radijalnih pumpi i trinest modela radijalnih pumpnih-turbina (Varijanta 13 – Ovaj primjer je urađen sa - Furijerovom funkcijom 4 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 6 reda za Wm karakteristiku)

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela pumpne turbine i pumpe – Varijanta 13 (Ovaj primjer je urađen sa - Furijerovom funkcijom 4 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 6 reda za Wm karakteristiku) na osnovu krivih Wh karakteristika i Wm karakteristika za šest modela radijalnih pumpi i za trinest modela radijalnih pumpnih-turbina u programu Matlab:

```
Program za Wh i Wm karakteristiku
%% Kod za pronalazenje jednašine za modele pumpi
close all
clear
clc
warning off
format long e

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...
                {'Wh', 'Wm'}, ...
                'SelectionMode', 'single', ...
                'PromptString', 'Odaberi krive');

jezik = listdlg('ListString', ...
                {'Srpski', 'Engleski'}, ...
                'SelectionMode', 'single', ...
                'PromptString', 'Odaberi jezik ispisa');
```

```

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5','furier3-gauss3','furier3-gauss4','furier3-
poly8','furier4-poly9','furier5-poly9','furier4-poly8'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5','furier2-gauss4','furier2-poly7','furier2-
poly8','furier2-poly9','furier2-gauss3','furier2-poly6'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7

```

```

        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w) '};
koeficijenti = {'a_{0}'
'a_{1}'
'b_{1}'
'a_{2}'
'b_{2}'}

```

```

'a_{3}'
'b_{3}'
'a_{4}'
'b_{4}'
'a_{5}'
'b_{5}'
'a_{6}'
'b_{6}'
'a_{7}'
'b_{7}'
'a_{8}'
'b_{8}'
'w'];

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1','gauss2','gauss3','gauss4','gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2+a(4)*exp(-(x-
a(5))/a(6)).^2+a(7)*exp(-(x-a(8))/a(9)).^2+a(10)*exp(-(x-
a(11))/a(12)).^2+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisiranje granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednašine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients
    coeff(n,:) = coeff1;
    figure(n) % crtanje grafka
    plot(coeffFour, '-b',ThetaD,W(:,n), 'xr'), grid on
    WHF(:,n)= coeffFour(ThetaD);
    R2(n) = corr(WHF(:,n),W(:,n)).^2;
    xlim([0 2*pi]);
    ylim([y1 y2]);
    yticks(y1:0.2:y2);
    set(gca, 'XTick',[0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

```

```

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaš?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaš?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaš?inu polinoma od dobijenih koeficijenata Fourierjeve jednaš?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:, k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k, :) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:, k), s);
        Koeff(k, :) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end

    figure(n+k) % crtanje grafika
    plot(nq, coeff(:, k), 'xr'), grid on, hold on

    if s <= 5
        plot(GASS(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
    else
        plot(polyval(Koeff(k, :), nq(1):0.01:nq(end)), '-b')
    end

    xlim([nq(1) nq(end)])
    set(gca, 'XTick', nq)

```

```

set(gca,'XTickLabelRotation',90)
set(gcf, 'Position', [100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Gausova jednašina
',num2str(s),' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koficijent'), title(['Polinom
',num2str(s),' stepena za koficijent \it' Kofr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Kofr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
',num2str(ff),' -stepen'])
    if s <= 5
        disp([' - Gausova jednašina ',num2str(s),'-stepena se koristio u
procesu koficijenata Fourireve jednašine'])
    elseif s >5
        disp([' - polinom ',num2str(s),'-stepena se koristio u procesu
koficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
',num2str(ff),'-series'])
    if s <= 5
        disp([' - Gaussian ',num2str(s),'-series was used to process the
coefficients of the Fourier equation'])
    elseif s >5
        disp([' - a polynomial ',num2str(s),'-series was used to process
the coefficients of the Fourier equation'])
    end
end
for i = 1:length(nq)

```

```

if s <= 5
    a0 = GASS(Koeff(1,:),nq(i));
    a1 = GASS(Koeff(2,:),nq(i));
    b1 = GASS(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq(i));
        b2 = GASS(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq(i));
            b3 = GASS(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq(i));
                b4 = GASS(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq(i));
                    b5 = GASS(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq(i));
                        b6 = GASS(Koeff(13,:),nq(i));
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq(i));
                            b7 = GASS(Koeff(15,:),nq(i));
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq(i));
                                b8 = GASS(Koeff(17,:),nq(i));
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:),nq(i));
    a1 = polyval(Koeff(2,:),nq(i));
    b1 = polyval(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq(i));
        b2 = polyval(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq(i));
            b3 = polyval(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq(i));
                b4 = polyval(Koeff(9,:),nq(i));
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq(i));
                    b5 = polyval(Koeff(11,:),nq(i));
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq(i));
                        b6 = polyval(Koeff(13,:),nq(i));
                        if ff >= 7
                            a7 = polyval(Koeff(14,:),nq(i));
                            b7 = polyval(Koeff(15,:),nq(i));

```

```

                                if ff == 8
                                    a8 = polyval(Koeff(16,:),nq(i));
                                    b8 = polyval(Koeff(17,:),nq(i));
                                end
                            end
                        end
                    end
                end
            end
        end
        w = polyval(Koeff(end,:),nq(i));
    end
    if ff == 1
        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
    elseif ff == 2
        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
    elseif ff == 3
        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
    elseif ff == 4
        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
    elseif ff == 5
        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
    elseif ff == 6
        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
    elseif ff == 7
        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
    elseif ff == 8
        WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
    end

    % Calculate R^2
    Rsq(i) = corr(WH(:,i),W(:,i)).^2;

    % ispis dijagrama

```



```

figure(k+n+i)
plot(Theta,W(:,i),'xr'), hold on
plot(Theta,WH(:,i),'-b','LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca,'XTick',[0 45 90 135 180 225 270 315 360])

set(gca,'XTickLabel',{'0\circ','45\circ','90\circ','135\circ','180\circ','225
\circ','270\circ','315\circ','360\circ'})
set(gcf,'Position',[100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=',num2str(nq(i)), ' gdje je R^2=',num2str(Rsq(i))])
    legend('Kriva modela','Kriva jednaĀ?ine')
    disp(['Krive za n_{q}=',num2str(nq(i)), ' gdje je
R^2=',num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=',num2str(nq(i)), ' where is R^2=',num2str(Rsq(i))])
    legend('Curve of model','Curve of equation')
    disp(['Curve for n_{q}=',num2str(nq(i)), ' where is
R^2=',num2str(Rsq(i))])
end
end
if s <= 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koeficijenti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end

```

Program za Wh i Wm karakteristiku

```

%% Kod za pronalazenje jednaĀ?ine za modele pumpi
close all
clear
clc
warning off
format long e

nq = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
bojaiz =
{'::r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':.c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-r','-b','-g','-y','-m','-c','-k'};

%% Podaci dobijeni iz modela
run data_model.m

odabir = listdlg('ListString', ...

```

```

        {'Wh','Wm'},...
        'SelectionMode','single',...
        'PromptString','Odaberi krive');

jezik = listdlg('ListString', ...
    {'Srpski','Engleski'},...
    'SelectionMode','single',...
    'PromptString','Odaberi jezik ispisa');

if odabir == 1
    funct = listdlg('ListString', ...
        {'furier3-gauss5','furier3-gauss3','furier3-gauss4','furier3-
poly8','furier4-poly9','furier5-poly9','furier4-poly8'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wh');
elseif odabir == 2
    funct = listdlg('ListString', ...
        {'furier2-gauss5','furier2-gauss4','furier2-poly7','furier2-
poly8','furier2-poly9','furier2-gauss3','furier2-poly6'},...
        'SelectionMode','single',...
        'PromptString','Odaberi funkciju za Wm');
end

%% Definisiranje Thete i granica
jk = size(data);
Theta = 0:1:360; % define theta in degree
ThetaD = deg2rad(Theta); % define theta in radians

if odabir == 1
    TstartW = 1:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wh';
elseif odabir == 2
    TstartW = 2:2:jk(2);
    W = data(:,TstartW);
    Wpol = 'Wm';
end

%% Definisiranje jednačina
% definisanje stepena furiera od odabira
if odabir == 1
    if funct == 1 || funct == 2 || funct == 3 || funct == 4
        ff = 3;
    elseif funct == 5 || funct == 7
        ff = 4;
    elseif funct == 6
        ff = 5;
    end
elseif odabir == 2
    ff = 2;
end

```

```

if odabir == 1
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 3; % gauss
    elseif funct == 3
        s = 4; % gauss
    elseif funct == 4 || funct == 7
        s = 8; % polinom
    elseif funct == 5 || funct == 6
        s = 9; % polinom
    end
elseif odabir == 2
    if funct == 1
        s = 5; % gauss
    elseif funct == 2
        s = 4; % gauss
    elseif funct == 6
        s = 3; % gauss
    elseif funct == 3
        s = 7; % polinom
    elseif funct == 4
        s = 8; % polinom
    elseif funct == 5
        s = 9; % polinom
    elseif funct == 7
        s = 6; % polinom
    end
end

```

```

Func = {'fourier1' 'fourier2' 'fourier3' 'fourier4' 'fourier5' 'fourier6'
'fourier7' 'fourier8'};
step = Func(ff);
izgledFunc = {'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) '
'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) +
b7*sin(7*Theta*w) '

```

```

    'a0 + a1*cos(Theta*w) + b1*sin(Theta*w) + a2*cos(2*Theta*w) +
b2*sin(2*Theta*w) + a3*cos(3*Theta*w) + b3*sin(3*Theta*w) + a4*cos(4*Theta*w)
+ b4*sin(4*Theta*w) + a5*cos(5*Theta*w) + b5*sin(5*Theta*w) +
a6*cos(6*Theta*w) + b6*sin(6*Theta*w) + a7*cos(7*Theta*w) + b7*sin(7*Theta*w)
+ a8*cos(8*Theta*w) + b8*sin(8*Theta*w)');
koeficijenti = {'a_{0}'
    'a_{1}'
    'b_{1}'
    'a_{2}'
    'b_{2}'
    'a_{3}'
    'b_{3}'
    'a_{4}'
    'b_{4}'
    'a_{5}'
    'b_{5}'
    'a_{6}'
    'b_{6}'
    'a_{7}'
    'b_{7}'
    'a_{8}'
    'b_{8}'
    'w'};

% ukoliko je druga funkcija Gauss-ova
if s <= 5
    Func2 = {'gauss1', 'gauss2', 'gauss3', 'gauss4', 'gauss5'};
    if s == 1
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2);
    elseif s == 2
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2);
    elseif s == 3
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);
    elseif s == 4
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);
    elseif s == 5
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);
    end
end

% Definisane granicnih tacki za crtanje
y1 = round(min(min(W)),1)-0.1;
y2 = round(max(max(W)),1)+0.1;

%% Korak 1. Pronaci koeficijente Fourijereve jednaÄ?ine za svaki nq
for n = 1:length(nq)
    coeffFour = fit(ThetaD',W(:,n),step{:});
    coeff1 = coeffvalues(coeffFour); % get coefficients

```

```

coeff(n,:) = coeff1;
figure(n) % crtanje grafka
plot(coeffFour, '-b', ThetaD, W(:,n), 'xr'), grid on
WHF(:,n) = coeffFour(ThetaD);
R2(n) = corr(WHF(:,n), W(:,n)).^2;
xlim([0 2*pi]);
ylim([y1 y2]);
yticks(y1:0.2:y2);
set(gca, 'XTick', [0 pi/4 pi/2 3*pi/4 pi 5*pi/4 3*pi/2 7*pi/4 2*pi])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
    legend('Kriva modela', ['Kriva Fouriera ', num2str(ff), ' stepena'])
    disp(['jednaÅ?ina Fouriera ', num2str(ff), ' stepena za model krive n_{q}=', num2str(nq(n)), ' gdje je R^2=', num2str(R2(n))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve of Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
    legend('The curve of the model', ['Function Fourier ', num2str(ff), ' series'])
    disp(['Function Fourier ', num2str(ff), ' series on model curve for n_{q}=', num2str(nq(n)), ' where is R^2=', num2str(R2(n))])
end
end

disp(' ')
L = size(coeff1);
L = L(2);

%% Korak 2. Pronaci jednaÅ?inu polinoma od dobijenih koeficijenata
Fourijereve jednaÅ?ine
for k=1:L
    if s <= 5
        Pc = fit(nq', coeff(:,k), Func2{s});
        coeff2 = coeffvalues(Pc);
        Koeff(k,:) = coeff2;
    elseif s > 5
        Pc = polyfit(nq', coeff(:,k), s);
        Koeff(k,:) = Pc;
    end
    if k == L
        Koeffr = koeficijenti(18);
    else
        Koeffr = koeficijenti(k);
    end
end

figure(n+k) % crtanje grafika
plot(nq, coeff(:,k), 'xr'), grid on, hold on

```

```

if s <= 5
    plot(GASS(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
else
    plot(polyval(Koeff(k,:),nq(1):0.01:nq(end)),'-b')
end

xlim([nq(1) nq(end)])
set(gca,'XTick',nq)
set(gca,'XTickLabelRotation',90)
set(gcf,'Position',[100, 100, 800, 700])

if jezik == 1 && s <= 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Gausova jednašina
',num2str(s),' stepena za koeficijent \it' Koefr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Gaussian
',num2str(s),' stepena'])
elseif jezik == 1 && s > 5
    xlabel('n_{q}'), ylabel('Koeficijent'), title(['Polinom
',num2str(s),' stepena za koeficijent \it' Koefr{:} '\rm \bf od Fouriera
',num2str(ff),' stepena'])
    legend(['Koeficijent Fouriera ',num2str(ff),' stepena'],['Polinom
',num2str(s),' stepena'])
elseif jezik == 2 && s <= 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Gaussian
',num2str(s),' series of coefficient \it' Koefr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Gaussian
',num2str(s),' series'])
elseif jezik == 2 && s > 5
    xlabel('n_{q}'), ylabel('Coefficient'), title(['Polynom
',num2str(s),' series of coefficient \it' Koefr{:} '\rm \bf from Fourier
',num2str(ff),' series'])
    legend(['Coefficient of Fourer ',num2str(ff),' series'],['Polynom
',num2str(s),' series'])
end
end

%% Korak 3. Razlika izmedju podataka modela i dobijenih podataka jednašinom
if jezik == 1
    disp('Stepeni jednašina koji su se koristili su:')
    disp([' - za Fourierovu jednašinu na modelu koristio se
',num2str(ff),'-stepen'])
    if s <= 5
        disp([' - Gausova jednašina ',num2str(s),'-stepena se koristio u
procesu koeficijenata Fourireve jednašine'])
    elseif s >5
        disp([' - polinom ',num2str(s),'-stepena se koristio u procesu
koeficijenata Fourireve jednašine'])
    end
elseif jezik == 2
    disp('The series of the equation on the models are as follows:')
    disp([' - the Fourier equation was used to precess the model
',num2str(ff),'-series'])
    if s <= 5

```

```

        disp([' - Gaussian ', num2str(s), '-series was used to process the
coefficients of the Fourier equation'])
    elseif s >5
        disp([' - a polynomial ', num2str(s), '-series was used to process
the coefficients of the Fourier equation'])
    end
end
for i = 1:length(nq)
    if s <= 5
        a0 = GASS(Koeff(1,:),nq(i));
        a1 = GASS(Koeff(2,:),nq(i));
        b1 = GASS(Koeff(3,:),nq(i));
        if ff >= 2
            a2 = GASS(Koeff(4,:),nq(i));
            b2 = GASS(Koeff(5,:),nq(i));
            if ff >= 3
                a3 = GASS(Koeff(6,:),nq(i));
                b3 = GASS(Koeff(7,:),nq(i));
                if ff >= 4
                    a4 = GASS(Koeff(8,:),nq(i));
                    b4 = GASS(Koeff(9,:),nq(i));
                    if ff >= 5
                        a5 = GASS(Koeff(10,:),nq(i));
                        b5 = GASS(Koeff(11,:),nq(i));
                        if ff >= 6
                            a6 = GASS(Koeff(12,:),nq(i));
                            b6 = GASS(Koeff(13,:),nq(i));
                            if ff >= 7
                                a7 = GASS(Koeff(14,:),nq(i));
                                b7 = GASS(Koeff(15,:),nq(i));
                                if ff == 8
                                    a8 = GASS(Koeff(16,:),nq(i));
                                    b8 = GASS(Koeff(17,:),nq(i));
                                end
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq(i));
elseif s > 5
    a0 = polyval(Koeff(1,:),nq(i));
    a1 = polyval(Koeff(2,:),nq(i));
    b1 = polyval(Koeff(3,:),nq(i));
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq(i));
        b2 = polyval(Koeff(5,:),nq(i));
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq(i));
            b3 = polyval(Koeff(7,:),nq(i));
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq(i));
                b4 = polyval(Koeff(9,:),nq(i));
                if ff >= 5

```

```

a5 = polyval(Koeff(10,:),nq(i));
b5 = polyval(Koeff(11,:),nq(i));
if ff >= 6
    a6 = polyval(Koeff(12,:),nq(i));
    b6 = polyval(Koeff(13,:),nq(i));
    if ff >= 7
        a7 = polyval(Koeff(14,:),nq(i));
        b7 = polyval(Koeff(15,:),nq(i));
        if ff == 8
            a8 = polyval(Koeff(16,:),nq(i));
            b8 = polyval(Koeff(17,:),nq(i));
        end
    end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq(i));
end
if ff == 1
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w);
elseif ff == 3
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w);
elseif ff == 4
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w);
elseif ff == 6
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w);
elseif ff == 7
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +
b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    WH(:,i) = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) +
a2*cos(2*ThetaD.*w) + b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) +
b3*sin(3*ThetaD.*w) + a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) +
a5*cos(5*ThetaD.*w) + b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) +

```



```

b6*sin(6*ThetaD.*w) + a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) +
a8*cos(8*ThetaD.*w) + b8*sin(8*ThetaD.*w);
end

% Calculate R^2
Rsq(i) = corr(WH(:,i),W(:,i)).^2;

% ispis dijagrama
figure(k+n+i)
plot(Theta,W(:,i)', 'xr'), hold on
plot(Theta,WH(:,i)', '-b', 'LineWidth',3), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 800, 700])
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title(['Krive za
n_{q}=', num2str(nq(i)), ' gdje je R^2=', num2str(Rsq(i))])
    legend('Kriva modela', 'Kriva jednaĀ?ine')
    disp(['Krive za n_{q}=', num2str(nq(i)), ' gdje je
R^2=', num2str(Rsq(i))])
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title(['Curve for
n_{q}=', num2str(nq(i)), ' where is R^2=', num2str(Rsq(i))])
    legend('Curve of model', 'Curve of equation')
    disp(['Curve for n_{q}=', num2str(nq(i)), ' where is
R^2=', num2str(Rsq(i))])
end

figure(100) % dijagram za sve
plot(Theta,W(:,i)',bojaiz{i}), hold on
plot(Theta,WH(:,i)',bojafun{i}), grid on
xlim([0 360])
ylim([y1 y2])
yticks(y1:0.2:y2)
set(gca, 'XTick', [0 45 90 135 180 225 270 315 360])

set(gca, 'XTickLabel', {'0\circ', '45\circ', '90\circ', '135\circ', '180\circ', '225
\circ', '270\circ', '315\circ', '360\circ'})
set(gcf, 'Position', [100, 100, 1200, 900])
leg{i*2-1} = ['model nq=', num2str(nq(i))]; % legenda za podatke modela
if jezik == 1
    xlabel('\Theta'), ylabel(Wpol), title('Sve krive modela i funkcija')
    leg{i*2} = ['funkc. za nq=', num2str(nq(i))]; % legenda za podatke
dobijene jednacinom
elseif jezik == 2
    xlabel('\Theta'), ylabel(Wpol), title('All curve of model and
equation')
    leg{i*2} = ['funct. for nq=', num2str(nq(i))]; % legend for function
end
end
end

```

```

if s <= 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Gauss',num2str(s),'.xlsx'])
elseif s > 5
    writematrix(Koeff,['Koefficienti_',Wpol,' Furier',num2str(ff),'-
Polinom',num2str(s),'.xlsx'])
end
figure(100)
legend(leg,'Location','NorthEastOutside','FontSize',12), legend('boxoff')

```

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469   -0.4478 -0.4845 -0.403   -0.4461 -
0.5537 -0.5108
        -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
        -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
        -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
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-0.4    -0.4751 -0.3178 -0.345  -0.4004 -0.3643 -0.4126 -0.3103 -0.364  -
0.4672 -0.4355

```

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 0.2496 -0.1582

```

-0.0862 -0.193 -0.0936 -0.1197 -0.97 0.0465 -0.112 0.0635 -
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0.0312
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-0.0198 0.1275

```

	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									

	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405		
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6

0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826

0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	

0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
									0.6226
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14

0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	1.55
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	1.6
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172	0.3765	
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	1.65
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702	0.3128	
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	

	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.44	1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341
1.1188	0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.47	1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34
1.1119	0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.71	1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059
0.3076	1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205	
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
0.35	1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
0.355	1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
0.361	1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
0.367	1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462
1.1381									

	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		0.3575
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		0.3705
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	

	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564	
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374	
1.2913									
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025	
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74

1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642	
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379	
1.3419									
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71	
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	

0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04

1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									

	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317	
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78	
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22		
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424	
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728	
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759	
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22		
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463		
1.4233										
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243	
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74	
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22		
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421	
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598		
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113		
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218		
1.4151										
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595		
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992		
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1	1.22
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023		
1.4071										
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589		
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102	
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22	
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871		
1.3985										
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581		
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882		
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983	
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668		
1.1733	1.3912									
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57		
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22	
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622		
1.3869										
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556		
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87		
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154		
1.3851										
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539		
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641		
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942	
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469		
1.1475	1.3841									
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52		
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569		
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927	
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395		
1.1416	1.3832									
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719	
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549	

0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9 1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8 1.08
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977

0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695

0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								

	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6 0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988	0.405
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								

	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								

	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767	
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644	
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701	
0.4411	-0.0102								
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864	
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711	
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451
-0.0219									
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974	
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535	
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461
-0.0336									
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11	
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862	
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326	
0.4711	-0.0457								
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-	
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126	
0.4814	-0.058								

	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573	
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407	
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462		
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-	
0.1276										
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236		
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-	
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583	
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596		
0.5528	-0.1378									
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252		
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-	
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587	-
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613	
-0.1451										
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27		
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-	
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59	
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764		
0.5686	-0.1503									
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594	
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407	
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104		
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-	
0.1555										
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312		
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-	
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596	
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976		
0.5839	-0.1624									

	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656
-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179	
0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507	
0.6733	-0.294								

	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27	
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-
0.3232									
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645	
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587	
0.6807	-0.3364								
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303	
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-
0.3506									
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69	
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434	
0.6802	-0.3704								
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
-0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
-0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								

	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								

	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95	
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-
1.2562									
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352	
0.0295	-1.2866								
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-
0.0152	-1.3104								
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-
0.0504	-1.3297								
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-
1.3459									
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-

1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-
0.1599	-1.36								
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-
0.1987	-1.3725								
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-
0.2339	-1.3837								
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457
-1.14	-0.2412	-1.4857	-0.3176	-1.4603	-0.3779	-1.5481	-0.2243	-1.5076	-
0.2892	-1.4035								
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472
-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-
0.3082	-1.4122								
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485
-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-
0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
-1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-
0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
-1.31	-0.3969	-1.5769	-0.4352	-1.4786	-0.483	-1.5536	-0.3691	-1.5189	-
0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
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-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
-0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896

-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.413
-0.5433 -0.5068];

Prilozi

Prilog – P17 Kod razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za jedan model radijalne pumpe i sedam modela radijalnih pumpnih-turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne Jednačine iz Varijante 6 – Ovaj primjer je urađen sa Polinomima 3, 3, 7 reda)

Prilog za poglavlje 9. 1 Analiza uticaja specifične brzine (nq) na rezultate dobijene proračunom prelaznih procesa na pumpnoj instalaciji (vrijednosti za Wh i Wm karakteristike dobijene modelskim ispitivanjima iz Univerzalne Jednačine iz Varijante 6 - Ovaj primjer je urađen sa Polinomima 3, 3, 7 reda, koriste se u razvijenom numeričkom modelu u programu Matlab za proračun prelaznih procesa).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za jedan model radijalne pumpe i sedam modela radijalnih pumpnih-turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne Jednačine iz Varijante 6 – Ovaj primjer je urađen sa Polinomima 3, 3, 7 reda) u programu Matlab:

```
Start.m
%% program namijenjen za pokretanje vise nq zbog dalje analize
clear all, clc, close all
nqt = [41.6]; % Ovo su nq-ovi koji ce biti upoređjeni[24.8 25 27 28.6 38 41.6
41.8 43.83 50 56];
bojaiz =
{'xr','xb','xg','xy','xm','xc','xk','or','ob','og','oy','om','oc','ok','*r','
*b','*g','*y','*m','*c','*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-r','-b','-g','-y','-m','-c','-k'};
for c = 1:length(nqt)
    nq = nqt(c);
    fhc = char(bojaiz(c));
    fhf = char(bojafun(c));
    tableiso = ['Upoređeni rezultati za nq=', num2str(nq), '.xlsx'];
    leg{2*c-1} = ['mod nq=', num2str(nq)]; % legenda za ispis izvornih
podataka
    leg{2*c} = ['fun nq=', num2str(nq)]; % legenda za ispis funkcija
    run Clprogram.m % pokretanje tackaste verzije
end
```

```
%% Ispisivanje legende
```

```
figure(1)  
subplot(2,1,1)  
legend(leg)  
subplot(2,1,2)  
legend(leg)
```

```
figure(2)  
legend(leg)
```

```
figure(3)  
legend(leg)
```

```
figure(4)  
subplot(2,1,1)  
legend(leg)  
subplot(2,1,2)  
legend(leg)
```

```
figure(5)  
subplot(2,1,1)  
legend(leg)  
subplot(2,1,2)  
legend(leg)
```

```
figure(6)  
subplot(2,1,1)  
legend(leg)  
subplot(2,1,2)  
legend(leg)
```

```
figure(7)  
subplot(2,1,1)  
legend(leg)  
subplot(2,1,2)  
legend(leg)
```

```
Clprogram.m
```

```
%% Transients caused by power failure to pumps
```

```
% clear all, clc, close all
```

```
% Input data
```

```
% nq = [24.8 25 27 28.6 38 41.6 41.8 43.83 50 56];
```

```
% od = menu('Odaberi
```

```
nq', 'nq=24.8', 'nq=25', 'nq=27', 'nq=28.6', 'nq=38', 'nq=41.6', 'nq=41.8', 'nq=43.83
```

```
', 'nq=50', 'nq=56', );
```

```
% nq = nq(od);
```

```
NP = 20; % Number of pipes |20
```

```
NRLP = 4; % Number of reaches on last pipe |20
```

```
IPRINT = 2; % Number of time interval after which conditions
```

```
NPP = 2; % Number of parallel pumps
```

```

G = 9.81;
QO = 0.5; % Steady-state discharge (M3/S)
NO = 1100; % Steady state pump speed (RPM)
TLAST = 30; % Time upto which transient conditions are to be computed

NPC = 55; % Number of points on pump characteristic curve
DTH = 5; % Theta interval for storing pump characteristics
QR = 0.25; % Rated discharge (M3/s)
HR = 60; % Rated head (m)
NR = 1100; % Rated pump speed (RPM)
ER = 0.84; % Pump efficiency
WR2 = 16.85; %
if nq == 24.8
    % podaci
    FH = [-0.54 -0.43 -0.33 -0.23 -0.13 -0.03 0.10 0.23 0.36...
          0.50 0.60 0.70 0.80 0.88 0.97 1.07 1.13 1.14 1.15 1.15...
          1.15 1.15 1.13 1.09 1.06 1.02 0.98 0.93 0.89 0.85 0.82...
          0.80 0.77 0.74 0.72 0.69 0.66 0.61 0.56 0.53 0.50 0.47...
          0.43 0.41 0.39 0.38 0.40 0.44 0.49 0.53 0.56 0.58 0.61...
          0.63 0.64]; % Points of head characteristic of pump
    FB = [-0.35 -0.28 -0.17 0.01 0.10 0.19 0.28 0.39 0.48...
          0.5 0.41 0.42 0.45 0.51 0.56 0.62 0.66 0.68 0.69 0.69...
          0.70 0.70 0.70 0.69 0.69 0.70 0.72 0.75 0.78 0.82 0.88...
          0.93 0.99 1.04 1.05 1.03 0.99 0.94 0.87 0.84 0.78 0.69...
          0.59 0.50 0.40 0.31 0.23 0.14 0.09 0.01 -0.04 -0.10 -0.14...
          -0.18 -0.21]; % Points of head characteristic of pump
elseif nq == 25
    % podaci
    FH = [-0.55 -0.47 -0.38 -0.28 -0.17 -0.09 0.04 0.18 0.33...
          0.50 0.64 0.78 0.90 1.02 1.11 1.19 1.24 1.27 1.28 1.28...
          1.26 1.24 1.20 1.16 1.11 1.07 1.03 0.99 0.95 0.91 0.88...
          0.85 0.82 0.79 0.76 0.72 0.69 0.65 0.61 0.58 0.56 0.53...
          0.51 0.51 0.50 0.50 0.51 0.54 0.56 0.59 0.61 0.63 0.64...
          0.64 0.63]; % Points of head characteristic of pump
    FB = [-0.37 -0.30 -0.21 -0.08 0.02 0.13 0.23 0.32 0.41 0.50 0.55...
          0.59 0.61 0.61 0.60 0.57 0.53 0.49 0.45 0.39 0.36 0.34 0.32...
          0.33 0.35 0.38 0.44 0.52 0.59 0.67 0.74 0.79 0.84 0.86 0.88 0.88...
          0.86 0.82 0.78 0.74 0.68 0.58 0.49 0.40 0.31 0.22 0.14 0.07 0.01...
          -0.04 -0.11 -0.21 -0.35 -0.51 -0.68]; % Points of torque
characteristic of pump
elseif nq == 27
    % podacai
    FH = [ -0.46 -0.39 -0.30 -0.20 -0.11 -0.01 0.09 0.20 0.37 0.50 0.63 0.77
0.88 0.98 1.04...
          1.07 1.08 1.10 1.11 1.11 1.12 1.12 1.11 1.09 1.07 1.04 1.00 0.95 0.89
0.83 0.78 0.73...
          0.72 0.68 0.62 0.55 0.49 0.45 0.41 0.38 0.36 0.34 0.33 0.33 0.32 0.34
0.36 0.41 0.46...
          0.51 0.57 0.64 0.70 0.73 0.74];
    FB = [-0.45 -0.33 -0.22 -0.10 0.04 0.15 0.25 0.36 0.44 0.50 0.46 0.36
0.38 0.40 0.42 0.42...
          0.42 0.42 0.41 0.41 0.41 0.40 0.38 0.38 0.38 0.40 0.42 0.46 0.50 0.56
0.61 0.65 0.71...
          0.75 0.75 0.72 0.69 0.66 0.63 0.58 0.54 0.48 0.41 0.35 0.28 0.21 0.15
0.11 0.03 -0.01...

```

```

        -0.05 -0.10 -0.20 -0.26 -0.31];% Points of head characteristic of
pump
elseif nq == 28.6
    % podaci
    FH = [-0.50 -0.39 -0.29 -0.18 -0.08 0.01 0.12 0.24 0.36 0.50 0.63 0.74
0.84 0.92 1.01 1.06...
        1.10 1.14 1.16 1.17 1.17 1.18 1.16 1.14 1.12 1.09 1.07 1.06 1.04 1.02
1.01 1.00 0.99...
        0.96 0.92 0.87 0.83 0.79 0.74 0.70 0.67 0.63 0.59 0.56 0.53 0.51 0.50
0.51 0.55 0.58 0.62...
        0.66 0.71 0.76 0.80];
    FB = [-0.39 -0.28 -0.15 -0.02 0.07 0.17 0.26 0.39 0.44 0.50 0.54 0.56
0.61 0.62 0.56 0.50...
        0.44 0.39 0.36 0.35 0.37 0.39 0.40 0.42 0.44 0.49 0.54 0.61 0.69 0.77
0.86 0.94 1.02...
        1.07 1.10 1.10 1.08 1.03 0.98 0.93 0.88 0.80 0.71 0.60 0.50 0.40 0.28
0.19 0.11 0.03...
        -0.05 -0.12 -0.18 -0.26 -0.32];% Points of head characteristic of
pump
elseif nq == 38
    % podaci
    FH = [-0.55 -0.47 -0.38 -0.27 -0.17 -0.08 0.03 0.22 0.36 0.50 0.62 0.72
0.81 0.90 0.97 1.03...
        1.07 1.11 1.12 1.13 1.11 1.10 1.10 1.08 1.05 1.03 1.00 0.99 0.97 0.94
0.92 0.90 0.88...
        0.86 0.82 0.78 0.74 0.69 0.65 0.62 0.58 0.54 0.49 0.47 0.45 0.43 0.42
0.46 0.50 0.54 0.59...
        0.63 0.69 0.72 0.75];
    FB = [-0.41 -0.31 -0.20 -0.05 0.06 0.15 0.24 0.36 0.44 0.50 0.54 0.56
0.56 0.54 0.52 0.48...
        0.45 0.43 0.37 0.31 0.30 0.32 0.35 0.38 0.41 0.46 0.52 0.60 0.68 0.76
0.83 0.90 0.97...
        1.02 1.04 1.03 1.01 0.98 0.93 0.88 0.81 0.73 0.62 0.53 0.44 0.34 0.25
0.17 0.11 0.05...
        0.01 -0.02 -0.08 -0.13 -0.18];% Points of head characteristic of pump
elseif nq == 41.6
    % podaci
    FH = [-0.43 -0.34 -0.25 -0.17 -0.09 -0.02 0.06 0.17 0.29 0.50 0.64 0.76
0.86 0.95 1.05 1.12...
        1.19 1.24 1.30 1.34 1.38 1.40 1.42 1.43 1.42 1.39 1.33 1.29 1.23 1.17
1.11 1.06 1.00...
        0.97 0.93 0.87 0.81 0.74 0.68 0.63 0.57 0.50 0.44 0.41 0.39 0.36 0.38
0.43 0.47 0.52 0.56...
        0.61 0.64 0.67 0.67];
    FB = [-0.67 -0.40 -0.30 -0.16 0.01 0.11 0.22 0.33 0.43 0.50 0.54 0.61
0.66 0.69 0.71 0.70...
        0.69 0.63 0.55 0.52 0.55 0.59 0.66 0.72 0.77 0.82 0.83 0.89 0.93 0.97
1.03 1.07 1.08...
        1.13 1.14 1.12 1.07 1.01 0.93 0.87 0.78 0.69 0.58 0.48 0.38 0.28 0.21
0.14 0.09 0.01...
        -0.10 -0.16 -0.22 -0.28 -0.31];% Points of head characteristic of
pump
elseif nq == 41.8
    % podaci

```

```

    FH = [-0.55 -0.44 -0.34 -0.24 -0.14 -0.04 0.03 0.16 0.29 0.50 0.62 0.76
0.96 1.10 1.23 1.42...
    1.56 1.69 1.82 2.02 2.10 2.04 2.04 2.13 2.16 2.10 2.02 1.96 1.82 1.72
1.56 1.44 1.54...
    1.64 1.61 1.44 1.32 1.23 1.30 1.28 1.19 1.04 0.81 0.77 0.83 0.90 0.94
0.98 0.96 0.92 0.90...
    0.88 0.88 0.86 0.86];
    FB = [-0.56 -0.36 -0.20 -0.01 0.09 0.18 0.27 0.38 0.44 0.50 0.59 0.64
0.66 0.66 0.66 0.66...
    0.64 0.59 0.56 0.47 0.41 0.34 0.31 0.31 0.31 0.32 0.34 0.35 0.36 0.37
0.41 0.49 0.69...
    0.90 0.90 0.77 0.74 0.74 0.79 0.76 0.67 0.61 0.50 0.44 0.34 0.25 0.15
0.07 0.00 -0.10...
    -0.18 -0.25 -0.32 -0.42 -0.48];% Points of head characteristic of
pump
elseif nq == 43.83
    % podaci
    FH = [-0.44 -0.36 -0.27 -0.19 -0.09 0.01 0.11 0.21 0.35 0.49 0.62 0.77
0.88 0.98 1.09 1.18...
    1.26 1.37 1.48 1.59 1.70 1.80 1.88 1.92 1.89 1.80 1.71 1.60 1.57 1.53
1.50 1.47 1.45...
    1.44 1.42 1.39 1.30 1.18 1.01 0.86 0.73 0.62 0.55 0.49 0.45 0.42 0.39
0.42 0.46 0.50 0.54...
    0.57 0.59 0.59 0.55];
    FB = [-0.48 -0.41 -0.33 -0.22 -0.06 0.05 0.17 0.30 0.39 0.50 0.57 0.63
0.69 0.74 0.78 0.79...
    0.79 0.65 0.64 0.70 0.79 0.89 1.01 1.09 1.12 1.12 1.12 1.09 1.15 1.19
1.22 1.27 1.32...
    1.36 1.40 1.41 1.38 1.29 1.14 0.99 0.86 0.74 0.64 0.53 0.42 0.33 0.22
0.16 0.04 -0.02...
    -0.09 -0.12 -0.14 -0.17 -0.25];% Points of head characteristic of
pump
elseif nq == 50
    % podaci
    FH = [-0.40 -0.31 -0.22 -0.15 -0.08 -0.01 0.07 0.17 0.34 0.50 0.61 0.70
0.79 0.87 0.94 1.01...
    1.05 1.09 1.13 1.18 1.19 1.21 1.21 1.18 1.13 1.09 1.07 1.05 1.04 1.03
1.04 1.06 1.07...
    1.07 1.06 1.03 1.01 0.95 0.90 0.84 0.77 0.71 0.65 0.58 0.53 0.51 0.47
0.48 0.50 0.54 0.58...
    0.62 0.66 0.68 0.72];
    FB = [-0.44 -0.36 -0.25 -0.11 -0.01 0.10 0.20 0.33 0.44 0.50 0.55 0.60
0.63 0.65 0.65 0.65...
    0.64 0.58 0.52 0.56 0.58 0.61 0.64 0.67 0.69 0.72 0.79 0.87 0.95 1.03
1.13 1.25 1.35...
    1.39 1.38 1.36 1.32 1.27 1.21 1.13 1.02 0.90 0.79 0.65 0.53 0.41 0.29
0.18 0.09 0.03 0.03...
    -0.07 -0.13 -0.18 -0.33];% Points of head characteristic of pump
elseif nq == 56
    % podaci
    FH = [-0.55 -0.46 -0.37 -0.26 -0.16 -0.06 0.03 0.16 0.31 0.50 0.62 0.73
0.83 0.93 1.03 1.11...
    1.17 1.21 1.26 1.36 1.48 1.64 1.80 1.85 1.82 1.74 1.73 1.73 1.71 1.68
1.62 1.52 1.38...

```

```

1.29 1.23 1.16 1.12 1.04 0.94 0.83 0.73 0.62 0.54 0.48 0.41 0.34 0.33
0.37 0.42 0.47 0.52...
0.56 0.61 0.65 0.67];
FB = [-0.51 -0.43 -0.31 -0.19 -0.03 0.08 0.18 0.31 0.40 0.50 0.57 0.64
0.70 0.74 0.76 0.77...
0.76 0.71 0.61 0.70 0.84 1.03 1.20 1.29 1.29 1.26 1.31 1.38 1.44 1.49
1.52 1.51 1.45...
1.42 1.42 1.38 1.38 1.25 1.12 1.01 0.89 0.76 0.65 0.53 0.38 0.27 0.17
0.07 0.01 -0.04...
-0.10 -0.15 -0.19 -0.25 -0.32];% Points of head characteristic of
pump
end

% DATA FOR PIPES
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Pipe length (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Pipe diameter (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Wave velocity (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
friction factor

DT = L(NP)/(NRLP*A(NP)); % Computational time interval (s)

%% Ispisi podataka na prozoru matlaba
disp(' ')
disp('=====')
disp('=====')
disp([' PODACI SA IZVORNIM FH I FB ZA nq=', num2str(nq)])
disp('=====')
disp('=====')
disp(' ')
disp(['Number of pipes = ', num2str(NP)])
disp(['Number of reaches on last pipe = ', num2str(NRLP)])
disp(['Steady state disch. = ', num2str(QO), ' m3/s'])
disp(['Steady state pump speed = ', num2str(NO), ' RPM'])
disp(['Time for which trans. state cond. are to be computed = ', num2str(TLAST), ' s'])
disp(['Number of parallel pumps = ', num2str(NPP)])
disp(' ')
disp(['Number of points on characteristic curve = ', num2str(NPC)])
disp(['Theta interval for storing characteristic curve = ', num2str(DTH)])
disp(['Rated disch. = ', num2str(QR), ' m3/s'])
disp(['Rated head = ', num2str(HR), ' m'])
disp(['Rated pump speed = ', num2str(NO), ' RPM'])
disp(['Pump efficiency = ', num2str(ER)])
disp(['WR2 = ', num2str(WR2), ' kg*m2'])

figure(1)
subplot(2,1,1)
plot(0:270/54:270, FH, fhc), hold on

```



```

grid on, xlabel('\Theta (angle in degrees)'), ylabel('FH'), title('Diagram
for FH')
xlim([0 270])
set(gca,'xTick',[0:40:270 270])
set(gca,'xTickLabels',{'0','40','80','120','160','200','240','270'})
subplot(2,1,2)
plot(0:270/54:270,FB,fhc), hold on
grid on, xlabel('\Theta (angle in degrees)'), ylabel('FB'), title('Diagram
for FB')
xlim([0 270])
set(gca,'xTick',[0:40:270 270])
set(gca,'xTickLabels',{'0','40','80','120','160','200','240','270'})

disp(' ')
Table1 = [[1:1:NP]' L' D' A' F'];
disp('*****')
disp('Pipe No      Length      DIA      Wave vel.  Fri. C factor')
fprintf('   %.0f      %.1f      %.2f      %.1f      %.3f \n',Table1')
disp('*****')
%% CALCULATION OF PIPE CONSTANTS
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % Pipe cross-sectional area (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I) = L(I)/(DT*N(I)); % Wave velocity (m/s)
    % disp([' --- I=',num2str(I),'      A(I)=',num2str(A(I))])
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach friction
factor
end

%% COMPUTATION OF CONSTANTS FOR PUMP
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Rated torque (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% CALCULATE OF STEADY STATE CONDITION
if V == 0
    TH = 0;
elseif V ~= 0

```

```

    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARAB(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARAB(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele koja ce se exportuje u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1 % u Fortranu je oznacen kao red 90
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    %fprintf('%1f %2f %2f %0f %1f %1f %3f %3f
\n',IspisPodatakaTabela)
    % pravljenje tabele za zapisivanje -----
    vel = size(Excel); % ocitava velicinu matrice
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1) Q(I,NN)];
        %fprintf('
%0f %1f %1f %3f %3f
\n',IspisPodatakaTabela(1,4:8))
        % pravljenje tabele za zapisivanje -----
        vel = size(Excel); % ocitava velicinu matrice
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
    end
while 1 == 1 % u Fortranu je oznacen kao red 150
    T = T+DT;
    K = K+1;
    if T > TLAST
        format bank
        for I = 1:NP

```

```

        Table2(I,1) = I;
        Table2(I,2) = HMAX(I);
        Table2(I,3) = HMIN(I);
    end
    Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
    vel = size(Excel);
    Excel = Excel(2:vel(1),:);
    % pravljenje pravilnog ispisa
    p = size(Excel);
    ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
    TABLEe = array2table(ExcelNew,...

'VariableNames',{'Time','Alpha','V','Disch_1_1','Disch_N1_1','Head_1_1','Head
_N1_1','Disch_1_2','Disch_N1_2','Head_1_2','Head_N1_2'}); % ispisivanje
tabele!!!!!!!
        disp(' ')
        disp('

-----')
        disp(' | Pipe No.1
| Pipe No.2 |')
        disp(TABLEe)

disp('*****')

disp('*****')
        disp('Pipe No max. Press min. Press')
        fprintf(' %.0f %.2fm %.2fm \n',Table2')
        break % prekid petlje while i ide na kraj
    end

%% PUMP AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMP.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end
end

```

```

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME STEP
for I = 1:NP
    NN = N(I)+1;
    for J = 1:NN
        Q(I,J) = QP(I,J);
        H(I,J) = HP(I,J);
    end
    if H(I,1) > HMAX(I)
        HMAX(I) = H(I,1);
    end
    if H(I,1) < HMIN(I)
        HMIN(I) = H(I,1);
    end
end
if K == IPRINT
    break % prekida petlju while i vraca na red 90
end
% GO TO 150
end
if T > TLAST
    break
end
end
end
%xlswrite('Podaci.xlsx',Excel)
% tableiso = ['Uporedni rezultati za nq=',num2str(nq),'.xlsx'];
% % writetable(TABLEEe,tableiso)
% xlswrite(tableiso,Excel)
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10

```

```

        tableiso = ['model nq=', num2str(nq), ' pipe 1 section ', num2str(ks), '
', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['model nq=', num2str(nq), ' pipe 2 section ', num2str(ks-
9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(2) % Crtanje Time-Alpha
plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),2), fhc),
grid on, hold on
xlabel('Time [s]'), ylabel('Alpha (dimensional speed)'), title('Diagram Time-
Alpha')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(3) % Crtanje Time-V
plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),3), fhc),
grid on, hold on
xlabel('Time [s]'), ylabel('V (dimensional discharge)'), title('Diagram Time-
V')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(4) % Crtanje Time-Head *1
subplot(2,1,1)
plot(Excel(1:NP:length(Excel(:,1)),1), Excel(1:NP:length(Excel(:,1)),5), fhc),
grid on, hold on
xlabel('Time [s]'), ylabel('Head [m]'), title('Diagram Time-Head(1) for pipe
Nu.1')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
% legend('Pipe No.1', 'Pipe No.2')
subplot(2,1,2)
plot(Excel(1:NP:length(Excel(:,1)),1), Excel(10:NP:length(Excel(:,1)),5), fhc),
grid on, hold on
xlabel('Time [s]'), ylabel('Head [m]'), title('Diagram Time-Head(1) for pipe
Nu.2')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(5) % Crtanje Time-Head *N+1
subplot(2,1,1)
plot(Excel(1:NP:length(Excel(:,1)),1), Excel(9:NP:length(Excel(:,1)),6), fhc),
grid on, hold on
xlabel('Time [s]'), ylabel('Head [m]'), title('Diagram Time-Head(N+1) for
pipe Nu.1')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%legend('Pipe No.1', 'Pipe No.2')
subplot(2,1,2)

```

```

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fbc),
grid on, hold on
xlabel('Time [s]'), ylabel('Head [m]'), title('Diagram Time-Head(N+1) for
pipe Nu.2')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(6) % Crtanje Time-Disch. *1
subplot(2,1,1)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fbc),
grid on, hold on
xlabel('Time [s]'), ylabel('Discharge [m^3/s]'), title('Diagram Time-
Discharge(1) for pipe Nu.1')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%legend('Pipe No.1', 'Pipe No.2')
subplot(2,1,2)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fbc),
grid on, hold on
xlabel('Time [s]'), ylabel('Discharge [m^3/s]'), title('Diagram Time-
Discharge(1) for pipe Nu.2')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(7) % Crtanje Time-Disch. *H+1
subplot(2,1,1)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fbc),
grid on, hold on
xlabel('Time [s]'), ylabel('Discharge [m^3/s]'), title('Diagram Time-
Discharge(N+1) for pipe Nu.1')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%legend('Pipe No.1', 'Pipe No.2')
subplot(2,1,2)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fbc),
grid on, hold on
xlabel('Time [s]'), ylabel('Discharge [m^3/s]'), title('Diagram Time-
Discharge(N+1) for pipe Nu.2')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)

%% Pravljenje nove figure
figure(c*10+1)
subplot(1,2,1)
vrijeme = Excel(1:NP:vel(1)-1); % napravljeno vrijeme
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
surf(vrijeme,duzina,Hnew), grid on, hold on
title(['Head for model n_q=', num2str(nq)])
xlabel('Time [s]'), ylabel('Length [m]'), zlabel('Head [m]')

```

```

xlim([0 TLAST]), ylim([0 sum(L)])

figure(c*10+2)
subplot(1,2,1)
surf(vrijeme,duzina,Qnew), grid on, hold on
title(['Discharge for model n_q=',num2str(nq)])
xlabel('Time [s]'), ylabel('Length [m]'), zlabel('Discharge [m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])

run ClprogramV2.m

```

```

ClprogramV2.m
%% Transients caused by power failure to pumps
% clear all, clc, close all
% Input data

% nq = [24.8 25 27 28.6 38 41.6 41.8 43.83 50 56];
% od = menu('Odaberi
nq','nq=24.8','nq=25','nq=27','nq=28.6','nq=38','nq=41.6','nq=41.8','nq=43.83
','nq=50','nq=56',);
% nq = nq(od);

clear A A1 A2 A3 A4 ALPHA ALPHAE ALSPQ ALPV AN AN1 AR AUNADJ BETA C5 C6 CA CF
CN CP D DALPHA DENOM DT DTH DV
clear ER Excel ExcelNew F F1 F1AL F1V F2 F2AL F2V FB FH G H HMAX HMINHO HP HR
HRES I IP1 IPRINT IspisPodatakaTabela
clear J JJ JM1 JP1 K KK L M MB N N1 NN NN1 NO NP NP1 NPC NPP NR NRLP od p Q
QO QP QR T Table1 Table2 TABLEe TH TH1
clear TLAST TR V VE vel VESQ WR2 Z

NP = 20; % Number of pipes |20
NRLP = 4; % Number of reaches on last pipe |20
IPRINT = 2; % Number of time interval after which conditions
NPP = 2; % Number of parallel pumps
G = 9.81;
QO = 0.5; % Steady-state discharge (M3/S)
NO = 1100; % Steady state pump speed (RPM)
TLAST = 30; % Time upto which transient conditions are to be computed

NPC = 55; % Number of points on pump characteristic curve
DTH = 5; % Theta interval for storing pump characteristics
QR = 0.25; % Rated discharge (M3/s)
HR = 60; % Rated head (m)
NR = 1100; % Rated pump speed (RPM)
ER = 0.84; % Pump efficiency
WR2 = 16.85; %
if nq == 24.8
    % podaci
    FH = [-0.450454109 -0.442177606 -0.38374537 -0.28870977 -0.168489243
-0.032595869 0.111152698 0.256436418 0.39825064 0.532737921 0.657033376
0.76912301 0.867714502 0.952119926 1.022149851 1.078018306 1.120258077
1.149645794 1.167136282 1.173805648 1.170802568 1.159307234 1.140497445

```

```

1.115521299 1.085475954 1.051391932 1.014222431 0.974837106 0.934019801
0.89246969 0.850805293 0.809570847 0.769244484 0.730247698 0.692955562
0.657707159 0.62481571 0.594577845 0.567281508 0.543211943 0.522655249
0.505898949 0.493229066 0.484923158 0.481238775 0.482396828 0.488559315
0.499800886 0.516073707 0.537165099 0.562647407 0.591819589 0.623639963
0.656649607 0.688885867]; % Points of head characteristic of pump
    FB = [-0.337958501 -0.29209709 -0.202353931 -0.08850713 0.034286084
0.154825846 0.265262289 0.360542167 0.437907239 0.496442249 0.536670299
0.560193414 0.569376129 0.567069882 0.556376031 0.54044531 0.522311515
0.504757245 0.490209485 0.480662865 0.477628378 0.482105379 0.494574665
0.515010453 0.542909053 0.577332047 0.616961789 0.660167019 0.705076414
0.749657874 0.791801352 0.829403037 0.8604487 0.883094003 0.895739592
0.89709876 0.886255513 0.86271083 0.826414926 0.77778333 0.717694587
0.647467388 0.568814929 0.483774325 0.394608866 0.303680938 0.21329341
0.125497289 0.041863464 -0.036783662 -0.110672846 -0.181435175 -
0.252497916 -0.329525256 -0.420908112]; % Points of head characteristic
of pump
elseif nq == 25
    % podaci
    FH = [-0.454182179 -0.444269462 -0.38464468 -0.288814052 -
0.168141817 -0.032081089 0.111611372 0.256675912 0.398165712 0.53227694
0.656192758 0.767940653 0.866262509 0.950496893 1.020472977 1.076415559
1.118860619 1.148580857 1.166520661 1.173739949 1.171366326 1.16055501
1.14245597 1.118187711 1.088817168 1.055345146 1.018696744 0.979716224
0.939165762 0.897727524 0.856008516 0.814547655 0.773824504 0.734269115
0.696272432 0.660196684 0.626385241 0.595171345 0.566885188 0.541858771
0.520427988 0.502931386 0.489705042 0.481073007 0.477332758 0.478735103
0.485457991 0.497573664 0.515008604 0.537495716 0.564518189 0.595244491
0.628453935 0.662452261 0.694976687]; % Points of head characteristic of pump
    FB = [-0.342406466 -0.294071946 -0.202495898 -0.087405088
0.03610416 0.156899281 0.26720132 0.362029114 0.438695592 0.496353979
0.535591697 0.558069753 0.566205407 0.562895896 0.551281021 0.534542377
0.515737012 0.497663317 0.482756925 0.473014413 0.469942599 0.47453122
0.487246778 0.508045354 0.536402167 0.57135568 0.611564025 0.655371563
0.700883339 0.746045243 0.788727661 0.826810398 0.858266676 0.881243981
0.894139562 0.895668369 0.884921211 0.861410931 0.825104391 0.776438043
0.716314895 0.646080645 0.567476775 0.482568405 0.39364469 0.303089542
0.213220481 0.126093395 0.043271001 -0.034447204 -0.107335708 -
0.177096685 -0.247258829 -0.323623547 -0.414760707]; % Points of
torque characteristic of pump
elseif nq == 27
    % podacai
    FH = [-0.482075859 -0.459174979 -0.390225009 -0.288327723 -
0.16438075 -0.027335173 0.115566533 0.258571491 0.397215584 0.528140065
0.648924859 0.757937832 0.854199276 0.937260866 1.007098367 1.064017328
1.108571035 1.141489983 1.163622122 1.175883138 1.179216025 1.174559221
1.162822547 1.144870221 1.121510214 1.093489184 1.061492271 1.026147
0.988030557 0.947679686 0.90560249 0.862291369 0.818236368 0.773938201
0.729920192 0.686738409 0.644989241 0.605313687 0.568397601 0.534967168
0.505778863 0.481603155 0.463201209 0.451293859 0.446522094 0.449398333
0.460247738 0.479138828 0.505802653 0.539539784 0.579114394 0.622634661
0.667418782 0.709845836 0.745190773];
    FB = [-0.381140102 -0.313091634 -0.20646414 -0.080774244
0.049217204 0.172805806 0.282704474 0.374462101 0.445937645 0.496827262
0.528242097 0.542334361 0.541969303 0.530440715 0.511227564 0.4877894

```



```

0.46339813 0.441003809 0.423132034 0.411810593 0.408522965 0.414186306
0.429151527 0.453223099 0.485696195 0.525408786 0.570806321 0.620016608
0.670932503 0.721300048 0.768809661 0.811188002 0.846288144 0.872175654
0.887208211 0.890106386 0.880013195 0.856540048 0.819796714 0.770402923
0.709479226 0.63861472 0.559809286 0.475387923 0.387884829 0.299894833
0.213889798 0.131997626 0.055741468 -0.014263228 -0.078656214 -
0.139726871 -0.201857938 -0.272020938 -0.360325659];% Points of head
characteristic of pump
elseif nq == 28.6
    % podaci
    FH = [-0.493323581 -0.464018378 -0.390685252 -0.286166599 -
0.161073543 -0.024057618 0.117939156 0.259454958 0.396298767
0.525360043 0.644436637 0.752080099 0.847457526 0.930229125 1.000440637
1.058429785 1.104745896 1.140081873 1.165217643 1.180974282 1.188177925
1.187632667 1.180101572 1.166294979 1.146865238 1.122407056 1.09346259
1.060530458 1.024077823 0.984554706 0.942409686 0.898106143 0.852138207
0.805045565 0.757426284 0.709946819 0.663348339 0.618448558 0.576138208
0.537371318 0.503148458 0.474492108 0.452413299 0.437868698 0.431707285
0.434605781 0.446991987 0.468955192 0.500142806 0.539642372 0.585848126
0.636311248 0.687572975 0.734979723 0.772479384];
    FB = [-0.405176556 -0.327340633 -0.212602672 -0.080662188
0.053670283 0.179746909 0.290419247 0.38143535 0.450894832 0.498759349
0.526416027 0.536291311 0.531512742 0.515616158 0.492295814 0.465194919
0.43773409 0.412975209 0.393518197 0.38142819 0.378190615 0.384691666
0.401221675 0.427498883 0.462711088 0.505572692 0.554394623 0.60716465
0.661635557 0.715418712 0.766080494 0.811239097 0.848659194 0.876341966
0.892607996 0.89617051 0.886196481 0.862353078 0.824836966 0.77438395
0.71225646 0.640206375 0.560410684 0.47537748 0.387819783 0.300494688
0.216005339 0.136563226 0.063708293 -0.00201563 -0.061432593 -0.117155976
-0.174062136 -0.239818749 -0.32547036];% Points of head characteristic
of pump
elseif nq == 38
    % podaci
    FH = [-0.43573157 -0.41391261 -0.349982505 -0.255767392 -
0.141023201 -0.013696278 0.119837489 0.254554179 0.386583118
0.513027082 0.631800532 0.741485056 0.841201127 0.930495333 1.009242208
1.077559807 1.135738162 1.18417976 1.223351174 1.253744995 1.2758512
1.290137089 1.297034936 1.296936493 1.290193479 1.277123199 1.258018427
1.233160695 1.202836123 1.167352932 1.127059774 1.082364024 1.033749164
0.981790404 0.927167679 0.870675152 0.813226374 0.755854228 0.6997048
0.646024322 0.596138308 0.551422046 0.51326156 0.483004196 0.461897966
0.451018789 0.451184765 0.462856623 0.486023481 0.520073055 0.563645461
0.614469737 0.669182237 0.723126025 0.770130415];
    FB = [-0.456723277 -0.392925438 -0.279004872 -0.139212074
0.008100558 0.149606949 0.276211087 0.38232326 0.465205798 0.524385304
0.56112839 0.577977889 0.578346564 0.566165299 0.54558277 0.520713594
0.495431952 0.473207688 0.45698187 0.449078824 0.451151623 0.46415804
0.48836396 0.523371236 0.568167007 0.621191451 0.680420993 0.743463947
0.807665596 0.870219713 0.928283505 0.979092991 1.020075808 1.04895843
1.063864815 1.063403469 1.046739912 1.013651567 0.964562051 0.900551867
0.823342502 0.735250917 0.639111439 0.538162038 0.435891996 0.335847961
0.241395381 0.155432322 0.080052655 0.016155627 -0.037001211 -0.082308699
-0.125375404 -0.175162592 -0.244687849];% Points of head characteristic
of pump
elseif nq == 41.6

```

```

% podaci
FH = [-0.395823161 -0.383846174 -0.329220192 -0.24328426 -
0.135470562 -0.013537404 0.116216617 0.248756502 0.380132065
0.507315734 0.628056187 0.740747093 0.844310211 0.938092109 1.021773757
1.095292255 1.158773964 1.212478281 1.256751333 1.291988841 1.318607413
1.33702353 1.347639477 1.350835483 1.34696733 1.33636868 1.319357391
1.29624508 1.267349177 1.233006753 1.193589353 1.149518124 1.101278466
1.049433489 0.99463552 0.93763493 0.879285526 0.820545782 0.762475161
0.706224783 0.653021703 0.604146057 0.560900339 0.524570059 0.496375041
0.477410638 0.468578095 0.470503345 0.483443476 0.50718014 0.540899165
0.583055617 0.631223584 0.681929926 0.73047127];
FB = [-0.453723477 -0.409444849 -0.306542532 -0.171147653 -
0.023189688 0.122696025 0.25633897 0.371279265 0.46408548 0.533741365
0.581098393 0.608391008 0.618811482 0.616141277 0.604435813 0.587759544
0.569968229 0.55453531 0.544419289 0.541969006 0.548863712 0.566084838
0.593916365 0.631970684 0.67923685 0.734148128 0.794665729 0.85837564
0.922595435 0.984487979 1.041178915 1.089874841 1.127979058 1.153201818
1.163661936 1.157976696 1.135336925 1.095564152 1.039146739 0.967251888
0.881710425 0.784971252 0.680022372 0.570275387 0.459410364 0.351177965
0.249155747 0.156455533 0.075378732 0.007016541 -0.049208107 -0.096059923
-0.139075092 -0.187212634 -0.253576421];% Points of head characteristic
of pump
% elseif nq == 41.8
% % podaci
% FH = [-0.55 -0.44 -0.34 -0.24 -0.14 -0.04 0.03 0.16 0.29 0.50 0.62 0.76
0.96 1.10 1.23 1.42...
% 1.56 1.69 1.82 2.02 2.10 2.04 2.13 2.16 2.10 2.02 1.96 1.82
1.72 1.56 1.44 1.54...
% 1.64 1.61 1.44 1.32 1.23 1.30 1.28 1.19 1.04 0.81 0.77 0.83 0.90
0.94 0.98 0.96 0.92 0.90...
% 0.88 0.88 0.86 0.86];
% FB = [-0.56 -0.36 -0.20 -0.01 0.09 0.18 0.27 0.38 0.44 0.50 0.59 0.64
0.66 0.66 0.66 0.66...
% 0.64 0.59 0.56 0.47 0.41 0.34 0.31 0.31 0.31 0.32 0.34 0.35 0.36
0.37 0.41 0.49 0.69...
% 0.90 0.90 0.77 0.74 0.74 0.79 0.76 0.67 0.61 0.50 0.44 0.34 0.25
0.15 0.07 0.00 -0.10...
% -0.18 -0.25 -0.32 -0.42 -0.48];% Points of head characteristic of
pump
elseif nq == 43.83
% podaci
FH = [-0.377190534 -0.369352102 -0.319115613 -0.23739625 -
0.133319196 -0.014434505 0.113085175 0.244263351 0.37515424
0.502692458 0.624557174 0.739050065 0.844986385 0.941598501 1.028451209
1.105368167 1.172368775 1.229614829 1.277366285 1.315945455 1.345708975
1.367026865 1.380268019 1.385791451 1.383942629 1.375054225 1.359450617
1.337455458 1.309401671 1.275643162 1.236567615 1.192609683 1.144263899
1.09209666 1.036756587 0.978982612 0.919609108 0.859567406 0.799883012
0.741667873 0.686107006 0.634438828 0.587928523 0.547833755 0.515362087
0.49161941 0.477548726 0.473858614 0.480940702 0.498775484 0.526825807
0.563917362 0.608105498 0.656527712 0.705241115];
FB = [-0.450718592 -0.417175214 -0.32081733 -0.188563203 -
0.041018172 0.106605333 0.243646956 0.363233619 0.461587639 0.5374046
0.59129786 0.625306546 0.642463902 0.64642285 0.641135628 0.630584365
0.618559457 0.608482604 0.603271373 0.605242147 0.616048318 0.636650596

```

```

0.667316286 0.707644403 0.756613476 0.812648918 0.873706814 0.937370987
1.000960214 1.061642441 1.116552878 1.162912809 1.198146006 1.219989593
1.226596223 1.216624442 1.189314083 1.144543567 1.082865969 1.005520712
0.914417742 0.812091057 0.701618453 0.58650434 0.470522488 0.357515583
0.251148439 0.154611724 0.070273084 -0.000727497 -0.058941225 -
0.107136054 -0.15088741 -0.199237226 -0.265424415];% Points of head
characteristic of pump
elseif nq == 50
    % podaci
    FH = [-0.384609829 -0.36818024 -0.315319965 -0.234986345 -
0.134693059 -0.020688293 0.101881993 0.228825097 0.356766281 0.48302656
0.605512952 0.722620597 0.833146113 0.936211605 1.031198706 1.117692037
1.195431493 1.264272731 1.32415526 1.375077526 1.417078376 1.4502243
1.474601842 1.490314561 1.497483952 1.496253702 1.486796682 1.469324068
1.444095965 1.411432957 1.371727943 1.325457672 1.273193357 1.215609766
1.153492179 1.087740602 1.01937063 0.949510355 0.879392699 0.810342583
0.743758301 0.681086506 0.623790199 0.573309101 0.531011814 0.498139157
0.475738057 0.464585415 0.465101303 0.477250916 0.500434647 0.53336569
0.573934557 0.619059907 0.664525062];
    FB = [-0.45407485 -0.42822964 -0.338636852 -0.211579564 -
0.067194907 0.079622733 0.218397123 0.342321035 0.447579409 0.532741661
0.598219998 0.645790579 0.678174381 0.698674615 0.71086754 0.718343529
0.724495238 0.732349714 0.744441315 0.762722267 0.788507732 0.822452208
0.864554144 0.914185589 0.970143745 1.030721267 1.093792154 1.15691009
1.217416087 1.272552257 1.319578599 1.355889614 1.379127627 1.387289645
1.378824613 1.352717913 1.308559955 1.246595713 1.167752052 1.073639698
0.966526699 0.849280232 0.725273591 0.598255232 0.472176693 0.350976264
0.238315242 0.137263633 0.049932132 -0.022952747 -0.082533556 -
0.132369963 -0.179053111 -0.232889435 -0.308657099];% Points of head
characteristic of pump
elseif nq == 56
    % podaci
    FH = [-0.533578085 -0.459869963 -0.367941541 -0.263235968 -
0.150055207 -0.031750698 0.08910596 0.210571348 0.331196651
0.449911212 0.565922276 0.678629978 0.787556623 0.892289318 0.992435004
1.087586951 1.177301759 1.261085922 1.338391019 1.408616565 1.471119602
1.525230055 1.570270935 1.60558242 1.630548882 1.64462791 1.647380374
1.638500604 1.617845712 1.585463137 1.541615444 1.486801445 1.421772693
1.347544398 1.265399824 1.17688722 1.083808335 0.988197576 0.892290861
0.798483214 0.709274173 0.627200044 0.554752066 0.494279545 0.447877002
0.417254387 0.403589426 0.407361141 0.428163606 0.464498985 0.513548913
0.57092327 0.630385403 0.683552846 0.719572603];
    FB = [-0.501239605 -0.423814802 -0.307537314 -0.171899749 -
0.031365522 0.103838501 0.227002139 0.334281754 0.424116813 0.496710074
0.553568378 0.59710098 0.630272384 0.656306632 0.678439998 0.699719046
0.722840994 0.750033357 0.782969797 0.82271916 0.86972463 0.923809969
0.984209788 1.04962081 1.118271064 1.188003985 1.256374353 1.320753035
1.378437482 1.42676493 1.463225268 1.485570515 1.491917863 1.480843247
1.451462385 1.403496244 1.337317891 1.253977677 1.155203705 1.043374544
0.921461134 0.792934841 0.661638608 0.531618169 0.406910261 0.291284805
0.187937994 0.099133259 0.025787044 -0.033003637 -0.080494914 -
0.122894102 -0.170025097 -0.236064192 -0.340349349];% Points of head
characteristic of pump
end

```

```

% DATA FOR PIPES
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Pipe length (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Pipe diameter (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Wave velocity (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
friction factor

DT = L(NP)/(NRLP*A(NP)); % Computational time interval (s)

%% Ispisi podataka na prozoru matlaba
disp(' ')
disp('=====')
disp([' PODACI SA IZVORNIM FH I FB ZA nq=', num2str(nq)])
disp('=====')
disp(' ')
disp(['Number of pipes = ', num2str(NP)])
disp(['Number of reaches on last pipe = ', num2str(NRLP)])
disp(['Steady state disch. = ', num2str(QO), ' m3/s'])
disp(['Steady state pump speed = ', num2str(NO), ' RPM'])
disp(['Time for which trans. state cond. are to be computed =
', num2str(TLAST), ' s'])
disp(['Number of parallel pumps = ', num2str(NPP)])
disp(' ')
disp(['Number of points on characteristic curve = ', num2str(NPC)])
disp(['Theta interval for storing characteristic curve = ', num2str(DTH)])
disp(['Rated disch. = ', num2str(QR), ' m3/s'])
disp(['Rated head = ', num2str(HR), ' m'])
disp(['Rated pump speed = ', num2str(NO), ' RPM'])
disp(['Pump efficiency = ', num2str(ER)])
disp(['WR2 = ', num2str(WR2), ' kg*m2'])

figure(1)
subplot(2,1,1)
plot(0:270/54:270, FH, fhf), hold on
% grid on, xlabel('\Theta (angle in degrees)'), ylabel('FH'), title('Diagram
for FH')
% xlim([0 270])
% set(gca, 'xTick', [0:40:270 270])
% set(gca, 'xTickLabels', {'0', '40', '80', '120', '160', '200', '240', '270'})
subplot(2,1,2)
plot(0:270/54:270, FB, fhf), hold on
% grid on, xlabel('\Theta (angle in degrees)'), ylabel('FB'), title('Diagram
for FB')
% xlim([0 270])
% set(gca, 'xTick', [0:40:270 270])
% set(gca, 'xTickLabels', {'0', '40', '80', '120', '160', '200', '240', '270'})

```

```

disp(' ')
Table1 = [[1:1:NP]' L' D' A' F'];
disp('*****')
disp('Pipe No      Length      DIA      Wave vel.      Fri. C factor')
fprintf('      %.0f      %.1f      %.2f      %.1f      %.3f \n',Table1')
disp('*****')
%% CALCULATION OF PIPE CONSTANTS
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % Pipe cross-sectional area (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I) = L(I)/(DT*N(I)); % Wave velocity (m/s)
    % disp([' --- I=',num2str(I),'      A(I)=',num2str(A(I))])
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach friction
factor
end

%% COMPUTATION OF CONSTANTS FOR PUMPV2
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Rated torque (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% CALCULATE OF STEADY STATE CONDITION
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARABV2(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARABV2(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN

```

```

        H(I+1,1) = H(I,NN);
    end
    Q(I,J) = QO;
end
HMAX(I) = H(I,1);
HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele koja ce se exportuje u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1 % u Fortranu je oznacen kao red 90
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    %fprintf('%1f %2f %2f %0f %1f %1f %3f %3f
\n',IspisPodatakaTabela)
    % pravljenje tabele za zapisivanje -----
    vel = size(Excel); % ocitava velicinu matrice
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1) Q(I,NN)];
        %fprintf('
%0f %1f %1f %3f %3f
\n',IspisPodatakaTabela(1,4:8))
        % pravljenje tabele za zapisivanje -----
        vel = size(Excel); % ocitava velicinu matrice
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
    end
    while 1 == 1 % u Fortranu je oznacen kao red 150
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
            Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
            vel = size(Excel);
            Excel = Excel(2:vel(1),:);
            % pravljenje pravilnog ispisa
            p = size(Excel);
            ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)

```

```

Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
    TABLEe = array2table(ExcelNew,...

'VariableNames',{'Time','Alpha','V','Disch_1_1','Disch_N1_1','Head_1_1','Head
_N1_1','Disch_1_2','Disch_N1_2','Head_1_2','Head_N1_2'}); % ispisivanje
tabele!!!!!!

    disp(' ')
    disp('

-----')
    disp('          |                               Pipe No.1
|          Pipe No.2                               |')
    disp(TABLEe)

disp('*****
*****')

disp('*****
*****')
    disp('Pipe No  max. Press  min. Press')
    fprintf('   %.0f          %.2fm          %.2fm \n',Table2')
    break % prekid petlje while i ide na kraj
end

%% PUMPV2 AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMPV2.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
    end
end

```

```

        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME STEP
for I = 1:NP
    NN = N(I)+1;
    for J = 1:NN
        Q(I,J) = QP(I,J);
        H(I,J) = HP(I,J);
    end
    if H(I,1) > HMAX(I)
        HMAX(I) = H(I,1);
    end
    if H(I,1) < HMIN(I)
        HMIN(I) = H(I,1);
    end
end
if K == IPRINT
    break % prekida petlju while i vraća na red 90
end
% GO TO 150
end
if T > TLAST
    break
end
end
end
%xlswrite('Podaci.xlsx',Excel)
% tableiso = ['Uporedni rezultati za nq=',num2str(nq),'.xlsx'];
% % writetable(TABLEe,tableiso)
% xlswrite(tableiso,Excel)
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['Function nq=',num2str(nq),' pipe 1 section ',num2str(ks),' ',num2str(50*ks-50),'-',num2str(50*ks),'.xlsx'];
        xlswrite(tableiso,Excel(ks:length(L):ddd(1),:))
    elseif ks >= 10
        tableiso = ['Function nq=',num2str(nq),' pipe 2 section ',num2str(ks-9),' ',num2str(50*ks-50),'-',num2str(50*ks),'.xlsx'];
        xlswrite(tableiso,Excel(ks:length(L):ddd(1),:))
    end
end
end

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(2) % Crtanje Time-Alpha

```



```

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),2),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Alpha (dimensional speed)'), title('Diagram Time-
Alpha')
xlim([0 TLAST])
set(gca,'xTick',0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(3) % Crtanje Time-V
plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),3),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('V (dimensional discharge)'), title('Diagram Time-
V')
xlim([0 TLAST])
set(gca,'xTick',0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(4) % Crtanje Time-Head *1
subplot(2,1,1)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Head [m]'), title('Diagram Time-Head(1) for pipe
Nu.1')
xlim([0 TLAST])
set(gca,'xTick',0:1:TLAST)
% legend('Pipe No.1','Pipe No.2')
subplot(2,1,2)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Head [m]'), title('Diagram Time-Head(1) for pipe
Nu.2')
xlim([0 TLAST])
set(gca,'xTick',0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(5) % Crtanje Time-Head *N+1
subplot(2,1,1)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Head [m]'), title('Diagram Time-Head(N+1) for
pipe Nu.1')
xlim([0 TLAST])
set(gca,'xTick',0:1:TLAST)
%legend('Pipe No.1','Pipe No.2')
subplot(2,1,2)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Head [m]'), title('Diagram Time-Head(N+1) for
pipe Nu.2')
xlim([0 TLAST])
set(gca,'xTick',0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(6) % Crtanje Time-Disch. *1
subplot(2,1,1)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Discharge [m^3/s]'), title('Diagram Time-
Discharge(1) for pipe Nu.1')

```

```

xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%legend('Pipe No.1', 'Pipe No.2')
subplot(2,1,2)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Discharge [m^3/s]'), title('Diagram Time-
Discharge(1) for pipe Nu.2')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
figure(7) % Crtanje Time-Disch. *H+1
subplot(2,1,1)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Discharge [m^3/s]'), title('Diagram Time-
Discharge(N+1) for pipe Nu.1')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
%legend('Pipe No.1', 'Pipe No.2')
subplot(2,1,2)
plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
xlabel('Time [s]'), ylabel('Discharge [m^3/s]'), title('Diagram Time-
Discharge(N+1) for pipe Nu.2')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)

%% Pravljenje nove figure
figure(c*10+1)
subplot(1,2,2)
vrijeme = Excel(1:NP:vel(1)-1); % napravljeno vrijeme
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
surf(vrijeme,duzina,Hnew), grid on, hold on
title(['Head for function n_q=',num2str(nq)])
xlabel('Time [s]'), ylabel('Length [m]'), zlabel('Head [m]')
xlim([0 TLAST]), ylim([0 sum(L)])

figure(c*10+2)
subplot(1,2,2)
surf(vrijeme,duzina,Qnew), grid on, hold on
title(['Discharge for function n_q=',num2str(nq)])
xlabel('Time [s]'), ylabel('Length [m]'), zlabel('Discharge [m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])

PARAB.m
%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

```

```

if nq == 24.8
    % podaci
    FH = [-0.54 -0.43 -0.33 -0.23 -0.13 -0.03 0.10 0.23 0.36...
          0.50 0.60 0.70 0.80 0.88 0.97 1.07 1.13 1.14 1.15 1.15...
          1.15 1.15 1.13 1.09 1.06 1.02 0.98 0.93 0.89 0.85 0.82...
          0.80 0.77 0.74 0.72 0.69 0.66 0.61 0.56 0.53 0.50 0.47...
          0.43 0.41 0.39 0.38 0.40 0.44 0.49 0.53 0.56 0.58 0.61...
          0.63 0.64]; % Points of head characteristic of pump
    FB = [-0.35 -0.28 -0.17 0.01 0.10 0.19 0.28 0.39 0.48...
          0.5 0.41 0.42 0.45 0.51 0.56 0.62 0.66 0.68 0.69 0.69...
          0.70 0.70 0.70 0.69 0.69 0.70 0.72 0.75 0.78 0.82 0.88...
          0.93 0.99 1.04 1.05 1.03 0.99 0.94 0.87 0.84 0.78 0.69...
          0.59 0.50 0.40 0.31 0.23 0.14 0.09 0.01 -0.04 -0.10 -0.14...
          -0.18 -0.21]; % Points of head characteristic of pump
elseif nq == 25
    % podaci
    FH = [-0.55 -0.47 -0.38 -0.28 -0.17 -0.09 0.04 0.18 0.33...
          0.50 0.64 0.78 0.90 1.02 1.11 1.19 1.24 1.27 1.28 1.28...
          1.26 1.24 1.20 1.16 1.11 1.07 1.03 0.99 0.95 0.91 0.88...
          0.85 0.82 0.79 0.76 0.72 0.69 0.65 0.61 0.58 0.56 0.53...
          0.51 0.51 0.50 0.50 0.51 0.54 0.56 0.59 0.61 0.63 0.64...
          0.64 0.63]; % Points of head characteristic of pump
    FB = [-0.37 -0.30 -0.21 -0.08 0.02 0.13 0.23 0.32 0.41 0.50 0.55...
          0.59 0.61 0.61 0.60 0.57 0.53 0.49 0.45 0.39 0.36 0.34 0.32...
          0.33 0.35 0.38 0.44 0.52 0.59 0.67 0.74 0.79 0.84 0.86 0.88 0.88...
          0.86 0.82 0.78 0.74 0.68 0.58 0.49 0.40 0.31 0.22 0.14 0.07 0.01...
          -0.04 -0.11 -0.21 -0.35 -0.51 -0.68]; % Points of torque
characteristic of pump
elseif nq == 27
    % podacai
    FH = [ -0.46 -0.39 -0.30 -0.20 -0.11 -0.01 0.09 0.20 0.37 0.50 0.63 0.77
0.88 0.98 1.04...
          1.07 1.08 1.10 1.11 1.11 1.12 1.12 1.11 1.09 1.07 1.04 1.00 0.95 0.89
0.83 0.78 0.73...
          0.72 0.68 0.62 0.55 0.49 0.45 0.41 0.38 0.36 0.34 0.33 0.33 0.32 0.34
0.36 0.41 0.46...
          0.51 0.57 0.64 0.70 0.73 0.74];
    FB = [-0.45 -0.33 -0.22 -0.10 0.04 0.15 0.25 0.36 0.44 0.50 0.46 0.36
0.38 0.40 0.42 0.42...
          0.42 0.42 0.41 0.41 0.41 0.40 0.38 0.38 0.38 0.40 0.42 0.46 0.50 0.56
0.61 0.65 0.71...
          0.75 0.75 0.72 0.69 0.66 0.63 0.58 0.54 0.48 0.41 0.35 0.28 0.21 0.15
0.11 0.03 -0.01...
          -0.05 -0.10 -0.20 -0.26 -0.31];% Points of head characteristic of
pump
elseif nq == 28.6
    % podaci
    FH = [-0.50 -0.39 -0.29 -0.18 -0.08 0.01 0.12 0.24 0.36 0.50 0.63 0.74
0.84 0.92 1.01 1.06...
          1.10 1.14 1.16 1.17 1.17 1.18 1.16 1.14 1.12 1.09 1.07 1.06 1.04 1.02
1.01 1.00 0.99...
          0.96 0.92 0.87 0.83 0.79 0.74 0.70 0.67 0.63 0.59 0.56 0.53 0.51 0.50
0.51 0.55 0.58 0.62...
          0.66 0.71 0.76 0.80];

```

```

    FB = [-0.39 -0.28 -0.15 -0.02 0.07 0.17 0.26 0.39 0.44 0.50 0.54 0.56
0.61 0.62 0.56 0.50...
    0.44 0.39 0.36 0.35 0.37 0.39 0.40 0.42 0.44 0.49 0.54 0.61 0.69 0.77
0.86 0.94 1.02...
    1.07 1.10 1.10 1.08 1.03 0.98 0.93 0.88 0.80 0.71 0.60 0.50 0.40 0.28
0.19 0.11 0.03...
    -0.05 -0.12 -0.18 -0.26 -0.32];% Points of head characteristic of
pump
elseif nq == 38
    % podaci
    FH = [-0.55 -0.47 -0.38 -0.27 -0.17 -0.08 0.03 0.22 0.36 0.50 0.62 0.72
0.81 0.90 0.97 1.03...
    1.07 1.11 1.12 1.13 1.11 1.10 1.10 1.08 1.05 1.03 1.00 0.99 0.97 0.94
0.92 0.90 0.88...
    0.86 0.82 0.78 0.74 0.69 0.65 0.62 0.58 0.54 0.49 0.47 0.45 0.43 0.42
0.46 0.50 0.54 0.59...
    0.63 0.69 0.72 0.75];
    FB = [-0.41 -0.31 -0.20 -0.05 0.06 0.15 0.24 0.36 0.44 0.50 0.54 0.56
0.56 0.54 0.52 0.48...
    0.45 0.43 0.37 0.31 0.30 0.32 0.35 0.38 0.41 0.46 0.52 0.60 0.68 0.76
0.83 0.90 0.97...
    1.02 1.04 1.03 1.01 0.98 0.93 0.88 0.81 0.73 0.62 0.53 0.44 0.34 0.25
0.17 0.11 0.05...
    0.01 -0.02 -0.08 -0.13 -0.18];% Points of head characteristic of pump
elseif nq == 41.6
    % podaci
    FH = [-0.43 -0.34 -0.25 -0.17 -0.09 -0.02 0.06 0.17 0.29 0.50 0.64 0.76
0.86 0.95 1.05 1.12...
    1.19 1.24 1.30 1.34 1.38 1.40 1.42 1.43 1.42 1.39 1.33 1.29 1.23 1.17
1.11 1.06 1.00...
    0.97 0.93 0.87 0.81 0.74 0.68 0.63 0.57 0.50 0.44 0.41 0.39 0.36 0.38
0.43 0.47 0.52 0.56...
    0.61 0.64 0.67 0.67];
    FB = [-0.67 -0.40 -0.30 -0.16 0.01 0.11 0.22 0.33 0.43 0.50 0.54 0.61
0.66 0.69 0.71 0.70...
    0.69 0.63 0.55 0.52 0.55 0.59 0.66 0.72 0.77 0.82 0.83 0.89 0.93 0.97
1.03 1.07 1.08...
    1.13 1.14 1.12 1.07 1.01 0.93 0.87 0.78 0.69 0.58 0.48 0.38 0.28 0.21
0.14 0.09 0.01...
    -0.10 -0.16 -0.22 -0.28 -0.31];% Points of head characteristic of
pump
elseif nq == 41.8
    % podaci
    FH = [-0.55 -0.44 -0.34 -0.24 -0.14 -0.04 0.03 0.16 0.29 0.50 0.62 0.76
0.96 1.10 1.23 1.42...
    1.56 1.69 1.82 2.02 2.10 2.04 2.13 2.16 2.10 2.02 1.96 1.82 1.72
1.56 1.44 1.54...
    1.64 1.61 1.44 1.32 1.23 1.30 1.28 1.19 1.04 0.81 0.77 0.83 0.90 0.94
0.98 0.96 0.92 0.90...
    0.88 0.88 0.86 0.86];
    FB = [-0.56 -0.36 -0.20 -0.01 0.09 0.18 0.27 0.38 0.44 0.50 0.59 0.64
0.66 0.66 0.66 0.66...
    0.64 0.59 0.56 0.47 0.41 0.34 0.31 0.31 0.31 0.32 0.34 0.35 0.36 0.37
0.41 0.49 0.69...

```

```

0.90 0.90 0.77 0.74 0.74 0.79 0.76 0.67 0.61 0.50 0.44 0.34 0.25 0.15
0.07 0.00 -0.10...
-0.18 -0.25 -0.32 -0.42 -0.48];% Points of head characteristic of
pump
elseif nq == 43.83
    % podaci
    FH = [-0.44 -0.36 -0.27 -0.19 -0.09 0.01 0.11 0.21 0.35 0.49 0.62 0.77
0.88 0.98 1.09 1.18...
1.26 1.37 1.48 1.59 1.70 1.80 1.88 1.92 1.89 1.80 1.71 1.60 1.57 1.53
1.50 1.47 1.45...
1.44 1.42 1.39 1.30 1.18 1.01 0.86 0.73 0.62 0.55 0.49 0.45 0.42 0.39
0.42 0.46 0.50 0.54...
0.57 0.59 0.59 0.55];
    FB = [-0.48 -0.41 -0.33 -0.22 -0.06 0.05 0.17 0.30 0.39 0.50 0.57 0.63
0.69 0.74 0.78 0.79...
0.79 0.65 0.64 0.70 0.79 0.89 1.01 1.09 1.12 1.12 1.12 1.09 1.15 1.19
1.22 1.27 1.32...
1.36 1.40 1.41 1.38 1.29 1.14 0.99 0.86 0.74 0.64 0.53 0.42 0.33 0.22
0.16 0.04 -0.02...
-0.09 -0.12 -0.14 -0.17 -0.25];% Points of head characteristic of
pump
elseif nq == 50
    % podaci
    FH = [-0.40 -0.31 -0.22 -0.15 -0.08 -0.01 0.07 0.17 0.34 0.50 0.61 0.70
0.79 0.87 0.94 1.01...
1.05 1.09 1.13 1.18 1.19 1.21 1.21 1.18 1.13 1.09 1.07 1.05 1.04 1.03
1.04 1.06 1.07...
1.07 1.06 1.03 1.01 0.95 0.90 0.84 0.77 0.71 0.65 0.58 0.53 0.51 0.47
0.48 0.50 0.54 0.58...
0.62 0.66 0.68 0.72];
    FB = [-0.44 -0.36 -0.25 -0.11 -0.01 0.10 0.20 0.33 0.44 0.50 0.55 0.60
0.63 0.65 0.65 0.65...
0.64 0.58 0.52 0.56 0.58 0.61 0.64 0.67 0.69 0.72 0.79 0.87 0.95 1.03
1.13 1.25 1.35...
1.39 1.38 1.36 1.32 1.27 1.21 1.13 1.02 0.90 0.79 0.65 0.53 0.41 0.29
0.18 0.09 0.03 0.03...
-0.07 -0.13 -0.18 -0.33];% Points of head characteristic of pump
elseif nq == 56
    % podaci
    FH = [-0.55 -0.46 -0.37 -0.26 -0.16 -0.06 0.03 0.16 0.31 0.50 0.62 0.73
0.83 0.93 1.03 1.11...
1.17 1.21 1.26 1.36 1.48 1.64 1.80 1.85 1.82 1.74 1.73 1.73 1.71 1.68
1.62 1.52 1.38...
1.29 1.23 1.16 1.12 1.04 0.94 0.83 0.73 0.62 0.54 0.48 0.41 0.34 0.33
0.37 0.42 0.47 0.52...
0.56 0.61 0.65 0.67];
    FB = [-0.51 -0.43 -0.31 -0.19 -0.03 0.08 0.18 0.31 0.40 0.50 0.57 0.64
0.70 0.74 0.76 0.77...
0.76 0.71 0.61 0.70 0.84 1.03 1.20 1.29 1.29 1.26 1.31 1.38 1.44 1.49
1.52 1.51 1.45...
1.42 1.42 1.38 1.38 1.25 1.12 1.01 0.89 0.76 0.65 0.53 0.38 0.27 0.17
0.07 0.01 -0.04...
-0.10 -0.15 -0.19 -0.25 -0.32];% Points of head characteristic of
pump
end

```

```

DX = 270/55;
I = fix(X/DX);
R = (X-I*DX)/DX;
if I == 0
    R = R-1;
end
I = I+1;
if I < 2
    I = 2;
end

if J == 1
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1))+R*(FH(I+1)+FH(I-1)-2*FH(I));
elseif J == 2
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1))+R*(FB(I+1)+FB(I-1)-2*FB(I));
end
end

PARABV2.m
%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

if nq == 24.8
    % podaci
    FH = [-0.450454109 -0.442177606 -0.38374537 -0.28870977 -0.168489243
-0.032595869 0.111152698 0.256436418 0.39825064 0.532737921 0.657033376
0.76912301 0.867714502 0.952119926 1.022149851 1.078018306 1.120258077
1.149645794 1.167136282 1.173805648 1.170802568 1.159307234 1.140497445
1.115521299 1.085475954 1.051391932 1.014222431 0.974837106 0.934019801
0.89246969 0.850805293 0.809570847 0.769244484 0.730247698 0.692955562
0.657707159 0.62481571 0.594577845 0.567281508 0.543211943 0.522655249
0.505898949 0.493229066 0.484923158 0.481238775 0.482396828 0.488559315
0.499800886 0.516073707 0.537165099 0.562647407 0.591819589 0.623639963
0.656649607 0.688885867]; % Points of head characteristic of pump
    FB = [-0.337958501 -0.29209709 -0.202353931 -0.08850713 0.034286084
0.154825846 0.265262289 0.360542167 0.437907239 0.496442249 0.536670299
0.560193414 0.569376129 0.567069882 0.556376031 0.54044531 0.522311515
0.504757245 0.490209485 0.480662865 0.477628378 0.482105379 0.494574665
0.515010453 0.542909053 0.577332047 0.616961789 0.660167019 0.705076414
0.749657874 0.791801352 0.829403037 0.8604487 0.883094003 0.895739592
0.89709876 0.886255513 0.86271083 0.826414926 0.77778333 0.717694587
0.647467388 0.568814929 0.483774325 0.394608866 0.303680938 0.21329341
0.125497289 0.041863464 -0.036783662 -0.110672846 -0.181435175 -
0.252497916 -0.329525256 -0.420908112]; % Points of head characteristic
of pump
elseif nq == 25
    % podaci
    FH = [-0.454182179 -0.444269462 -0.38464468 -0.288814052 -
0.168141817 -0.032081089 0.111611372 0.256675912 0.398165712 0.53227694
0.656192758 0.767940653 0.866262509 0.950496893 1.020472977 1.076415559
1.118860619 1.148580857 1.166520661 1.173739949 1.171366326 1.16055501
1.14245597 1.118187711 1.088817168 1.055345146 1.018696744 0.979716224
0.939165762 0.897727524 0.856008516 0.814547655 0.773824504 0.734269115

```

```

0.696272432 0.660196684 0.626385241 0.595171345 0.566885188 0.541858771
0.520427988 0.502931386 0.489705042 0.481073007 0.477332758 0.478735103
0.485457991 0.497573664 0.515008604 0.537495716 0.564518189 0.595244491
0.628453935 0.662452261 0.694976687]; % Points of head characteristic of pump
    FB = [-0.342406466 -0.294071946 -0.202495898 -0.087405088
0.03610416 0.156899281 0.26720132 0.362029114 0.438695592 0.496353979
0.535591697 0.558069753 0.566205407 0.562895896 0.551281021 0.534542377
0.515737012 0.497663317 0.482756925 0.473014413 0.469942599 0.47453122
0.487246778 0.508045354 0.536402167 0.57135568 0.611564025 0.655371563
0.700883339 0.746045243 0.788727661 0.826810398 0.858266676 0.881243981
0.894139562 0.895668369 0.884921211 0.861410931 0.825104391 0.776438043
0.716314895 0.646080645 0.567476775 0.482568405 0.39364469 0.303089542
0.213220481 0.126093395 0.043271001 -0.034447204 -0.107335708 -
0.177096685 -0.247258829 -0.323623547 -0.414760707]; % Points of
torque characteristic of pump
elseif nq == 27
    % podacai
    FH = [-0.482075859 -0.459174979 -0.390225009 -0.288327723 -
0.16438075 -0.027335173 0.115566533 0.258571491 0.397215584 0.528140065
0.648924859 0.757937832 0.854199276 0.937260866 1.007098367 1.064017328
1.108571035 1.141489983 1.163622122 1.175883138 1.179216025 1.174559221
1.162822547 1.144870221 1.121510214 1.093489184 1.061492271 1.026147
0.988030557 0.947679686 0.90560249 0.862291369 0.818236368 0.773938201
0.729920192 0.686738409 0.644989241 0.605313687 0.568397601 0.534967168
0.505778863 0.481603155 0.463201209 0.451293859 0.446522094 0.449398333
0.460247738 0.479138828 0.505802653 0.539539784 0.579114394 0.622634661
0.667418782 0.709845836 0.745190773];
    FB = [-0.381140102 -0.313091634 -0.20646414 -0.080774244
0.049217204 0.172805806 0.282704474 0.374462101 0.445937645 0.496827262
0.528242097 0.542334361 0.541969303 0.530440715 0.511227564 0.4877894
0.46339813 0.441003809 0.423132034 0.411810593 0.408522965 0.414186306
0.429151527 0.453223099 0.485696195 0.525408786 0.570806321 0.620016608
0.670932503 0.721300048 0.768809661 0.811188002 0.846288144 0.872175654
0.887208211 0.890106386 0.880013195 0.856540048 0.819796714 0.770402923
0.709479226 0.63861472 0.559809286 0.475387923 0.387884829 0.299894833
0.213889798 0.131997626 0.055741468 -0.014263228 -0.078656214 -
0.139726871 -0.201857938 -0.272020938 -0.360325659]; % Points of head
characteristic of pump
elseif nq == 28.6
    % podaci
    FH = [-0.493323581 -0.464018378 -0.390685252 -0.286166599 -
0.161073543 -0.024057618 0.117939156 0.259454958 0.396298767
0.525360043 0.644436637 0.752080099 0.847457526 0.930229125 1.000440637
1.058429785 1.104745896 1.140081873 1.165217643 1.180974282 1.188177925
1.187632667 1.180101572 1.166294979 1.146865238 1.122407056 1.09346259
1.060530458 1.024077823 0.984554706 0.942409686 0.898106143 0.852138207
0.805045565 0.757426284 0.709946819 0.663348339 0.618448558 0.576138208
0.537371318 0.503148458 0.474492108 0.452413299 0.437868698 0.431707285
0.434605781 0.446991987 0.468955192 0.500142806 0.539642372 0.585848126
0.636311248 0.687572975 0.734979723 0.772479384];
    FB = [-0.405176556 -0.327340633 -0.212602672 -0.080662188
0.053670283 0.179746909 0.290419247 0.38143535 0.450894832 0.498759349
0.526416027 0.536291311 0.531512742 0.515616158 0.492295814 0.465194919
0.43773409 0.412975209 0.393518197 0.38142819 0.378190615 0.384691666
0.401221675 0.427498883 0.462711088 0.505572692 0.554394623 0.60716465

```

```

0.661635557 0.715418712 0.766080494 0.811239097 0.848659194 0.876341966
0.892607996 0.89617051 0.886196481 0.862353078 0.824836966 0.77438395
0.71225646 0.640206375 0.560410684 0.47537748 0.387819783 0.300494688
0.216005339 0.136563226 0.063708293 -0.00201563 -0.061432593 -0.117155976
-0.174062136 -0.239818749 -0.32547036];% Points of head characteristic
of pump
elseif nq == 38
    % podaci
    FH = [-0.43573157 -0.41391261 -0.349982505 -0.255767392 -
0.141023201 -0.013696278 0.119837489 0.254554179 0.386583118
0.513027082 0.631800532 0.741485056 0.841201127 0.930495333 1.009242208
1.077559807 1.135738162 1.18417976 1.223351174 1.253744995 1.2758512
1.290137089 1.297034936 1.296936493 1.290193479 1.277123199 1.258018427
1.233160695 1.202836123 1.167352932 1.127059774 1.082364024 1.033749164
0.981790404 0.927167679 0.870675152 0.813226374 0.755854228 0.6997048
0.646024322 0.596138308 0.551422046 0.51326156 0.483004196 0.461897966
0.451018789 0.451184765 0.462856623 0.486023481 0.520073055 0.563645461
0.614469737 0.669182237 0.723126025 0.770130415];
    FB = [-0.456723277 -0.392925438 -0.279004872 -0.139212074
0.008100558 0.149606949 0.276211087 0.38232326 0.465205798 0.524385304
0.56112839 0.577977889 0.578346564 0.566165299 0.54558277 0.520713594
0.495431952 0.473207688 0.45698187 0.449078824 0.451151623 0.46415804
0.48836396 0.523371236 0.568167007 0.621191451 0.680420993 0.743463947
0.807665596 0.870219713 0.928283505 0.979092991 1.020075808 1.04895843
1.063864815 1.063403469 1.046739912 1.013651567 0.964562051 0.900551867
0.823342502 0.735250917 0.639111439 0.538162038 0.435891996 0.335847961
0.241395381 0.155432322 0.080052655 0.016155627 -0.037001211 -0.082308699
-0.125375404 -0.175162592 -0.244687849];% Points of head characteristic
of pump
elseif nq == 41.6
    % podaci
    FH = [-0.395823161 -0.383846174 -0.329220192 -0.24328426 -
0.135470562 -0.013537404 0.116216617 0.248756502 0.380132065
0.507315734 0.628056187 0.740747093 0.844310211 0.938092109 1.021773757
1.095292255 1.158773964 1.212478281 1.256751333 1.291988841 1.318607413
1.33702353 1.347639477 1.350835483 1.34696733 1.33636868 1.319357391
1.29624508 1.267349177 1.233006753 1.193589353 1.149518124 1.101278466
1.049433489 0.99463552 0.93763493 0.879285526 0.820545782 0.762475161
0.706224783 0.653021703 0.604146057 0.560900339 0.524570059 0.496375041
0.477410638 0.468578095 0.470503345 0.483443476 0.50718014 0.540899165
0.583055617 0.631223584 0.681929926 0.73047127];
    FB = [-0.453723477 -0.409444849 -0.306542532 -0.171147653 -
0.023189688 0.122696025 0.25633897 0.371279265 0.46408548 0.533741365
0.581098393 0.608391008 0.618811482 0.616141277 0.604435813 0.587759544
0.569968229 0.55453531 0.544419289 0.541969006 0.548863712 0.566084838
0.593916365 0.631970684 0.67923685 0.734148128 0.794665729 0.85837564
0.922595435 0.984487979 1.041178915 1.089874841 1.127979058 1.153201818
1.163661936 1.157976696 1.135336925 1.095564152 1.039146739 0.967251888
0.881710425 0.784971252 0.680022372 0.570275387 0.459410364 0.351177965
0.249155747 0.156455533 0.075378732 0.007016541 -0.049208107 -0.096059923
-0.139075092 -0.187212634 -0.253576421];% Points of head characteristic
of pump
% elseif nq == 41.8
% % podaci

```



```

%      FH = [-0.55 -0.44 -0.34 -0.24 -0.14 -0.04 0.03 0.16 0.29 0.50 0.62 0.76
0.96 1.10 1.23 1.42...
%      1.56 1.69 1.82 2.02 2.10 2.04 2.04 2.13 2.16 2.10 2.02 1.96 1.82
1.72 1.56 1.44 1.54...
%      1.64 1.61 1.44 1.32 1.23 1.30 1.28 1.19 1.04 0.81 0.77 0.83 0.90
0.94 0.98 0.96 0.92 0.90...
%      0.88 0.88 0.86 0.86];
%      FB = [-0.56 -0.36 -0.20 -0.01 0.09 0.18 0.27 0.38 0.44 0.50 0.59 0.64
0.66 0.66 0.66 0.66...
%      0.64 0.59 0.56 0.47 0.41 0.34 0.31 0.31 0.31 0.32 0.34 0.35 0.36
0.37 0.41 0.49 0.69...
%      0.90 0.90 0.77 0.74 0.74 0.79 0.76 0.67 0.61 0.50 0.44 0.34 0.25
0.15 0.07 0.00 -0.10...
%      -0.18 -0.25 -0.32 -0.42 -0.48];% Points of head characteristic of
pump
elseif nq == 43.83
    % podaci
    FH = [-0.377190534 -0.369352102 -0.319115613 -0.23739625 -
0.133319196 -0.014434505 0.113085175 0.244263351 0.37515424
0.502692458 0.624557174 0.739050065 0.844986385 0.941598501 1.028451209
1.105368167 1.172368775 1.229614829 1.277366285 1.315945455 1.345708975
1.367026865 1.380268019 1.385791451 1.383942629 1.375054225 1.359450617
1.337455458 1.309401671 1.275643162 1.236567615 1.192609683 1.144263899
1.09209666 1.036756587 0.978982612 0.919609108 0.859567406 0.799883012
0.741667873 0.686107006 0.634438828 0.587928523 0.547833755 0.515362087
0.49161941 0.477548726 0.473858614 0.480940702 0.498775484 0.526825807
0.563917362 0.608105498 0.656527712 0.705241115];
    FB = [-0.450718592 -0.417175214 -0.32081733 -0.188563203 -
0.041018172 0.106605333 0.243646956 0.363233619 0.461587639 0.5374046
0.59129786 0.625306546 0.642463902 0.64642285 0.641135628 0.630584365
0.618559457 0.608482604 0.603271373 0.605242147 0.616048318 0.636650596
0.667316286 0.707644403 0.756613476 0.812648918 0.873706814 0.937370987
1.000960214 1.061642441 1.116552878 1.162912809 1.198146006 1.219989593
1.226596223 1.216624442 1.189314083 1.144543567 1.082865969 1.005520712
0.914417742 0.812091057 0.701618453 0.58650434 0.470522488 0.357515583
0.251148439 0.154611724 0.070273084 -0.000727497 -0.058941225 -
0.107136054 -0.15088741 -0.199237226 -0.265424415];% Points of head
characteristic of pump
elseif nq == 50
    % podaci
    FH = [-0.384609829 -0.36818024 -0.315319965 -0.234986345 -
0.134693059 -0.020688293 0.101881993 0.228825097 0.356766281 0.48302656
0.605512952 0.722620597 0.833146113 0.936211605 1.031198706 1.117692037
1.195431493 1.264272731 1.32415526 1.375077526 1.417078376 1.4502243
1.474601842 1.490314561 1.497483952 1.496253702 1.486796682 1.469324068
1.444095965 1.411432957 1.371727943 1.325457672 1.273193357 1.215609766
1.153492179 1.087740602 1.01937063 0.949510355 0.879392699 0.810342583
0.743758301 0.681086506 0.623790199 0.573309101 0.531011814 0.498139157
0.475738057 0.464585415 0.465101303 0.477250916 0.500434647 0.53336569
0.573934557 0.619059907 0.664525062];
    FB = [-0.45407485 -0.42822964 -0.338636852 -0.211579564 -
0.067194907 0.079622733 0.218397123 0.342321035 0.447579409 0.532741661
0.598219998 0.645790579 0.678174381 0.698674615 0.71086754 0.718343529
0.724495238 0.732349714 0.744441315 0.762722267 0.788507732 0.822452208
0.864554144 0.914185589 0.970143745 1.030721267 1.093792154 1.15691009

```

```

1.217416087 1.272552257 1.319578599 1.355889614 1.379127627 1.387289645
1.378824613 1.352717913 1.308559955 1.246595713 1.167752052 1.073639698
0.966526699 0.849280232 0.725273591 0.598255232 0.472176693 0.350976264
0.238315242 0.137263633 0.049932132 -0.022952747 -0.082533556 -
0.132369963 -0.179053111 -0.232889435 -0.308657099];% Points of head
characteristic of pump
elseif nq == 56
    % podaci
    FH = [-0.533578085 -0.459869963 -0.367941541 -0.263235968 -
0.150055207 -0.031750698 0.08910596 0.210571348 0.331196651 -
0.449911212 0.565922276 0.678629978 0.787556623 0.892289318 0.992435004
1.087586951 1.177301759 1.261085922 1.338391019 1.408616565 1.471119602
1.525230055 1.570270935 1.60558242 1.630548882 1.64462791 1.647380374
1.638500604 1.617845712 1.585463137 1.541615444 1.486801445 1.421772693
1.347544398 1.265399824 1.17688722 1.083808335 0.988197576 0.892290861
0.798483214 0.709274173 0.627200044 0.554752066 0.494279545 0.447877002
0.417254387 0.403589426 0.407361141 0.428163606 0.464498985 0.513548913
0.57092327 0.630385403 0.683552846 0.719572603];
    FB = [-0.501239605 -0.423814802 -0.307537314 -0.171899749 -
0.031365522 0.103838501 0.227002139 0.334281754 0.424116813 0.496710074
0.553568378 0.59710098 0.630272384 0.656306632 0.678439998 0.699719046
0.722840994 0.750033357 0.782969797 0.82271916 0.86972463 0.923809969
0.984209788 1.04962081 1.118271064 1.188003985 1.256374353 1.320753035
1.378437482 1.42676493 1.463225268 1.485570515 1.491917863 1.480843247
1.451462385 1.403496244 1.337317891 1.253977677 1.155203705 1.043374544
0.921461134 0.792934841 0.661638608 0.531618169 0.406910261 0.291284805
0.187937994 0.099133259 0.025787044 -0.033003637 -0.080494914 -
0.122894102 -0.170025097 -0.236064192 -0.340349349];% Points of head
characteristic of pump
end

DX = 270/55;
I = fix(X/DX);
R = (X-I*DX)/DX;
if I == 0
    R = R-1;
end
I = I+1;
if I < 2
    I = 2;
end

if J == 1
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1))+R*(FH(I+1)+FH(I-1)-2*FH(I));
elseif J == 2
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1))+R*(FB(I+1)+FB(I-1)-2*FB(I));
end
end

PUMP.m
%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

```

```

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA = ALPHA + DALPHA;
while 1 == 1 % red 8 u Fortranu
    JJ = JJ+1;
    if VE == 0 && ALPHA == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0
            TH1 = TH1+2*pi;
        end
    end
    M = fix(TH/DTH)+1;
    if M == NPC
        M = NPC-1;
    end
    A1 = FH(M)*M-FH(M+1)*(M-1);
    A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
    A3 = FB(M)*M-FB(M+1)*(M-1);
    A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
    ALPSQ = ALPHA*ALPHA;
    VESQ = VE*VE;
    ALPV = ALPSQ+VESQ;
    F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
    F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
    F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
    F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
    F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
    F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
    DENOM = F1AL*F2V-F1V*F2AL;
    DALPHA = (F2*F1V-F1*F2V)/DENOM;
    DV = (F1*F2AL-F2*F1AL)/DENOM;
    ALPHA = ALPHA + DALPHA;
    VE = VE+DV;
    if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
        TH = atan2(ALPHA,VE);
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        BETA = PARAB(TH,2,nq);
        MB = fix(TH/DTH)+1;
        BETA = BETA*(ALPHA*ALPHA+V*V);
        if MB == M
            DALPHA = ALPHA - ALPHA;
            DV = VE - V;
            ALPHA = ALPHA;
            V = VE;
        end
    end
end

```

```

        break
    else
        % vraca na pocetak
    end
end
if JJ > 30 % ide na ispisivanje podataka
    break
end
end
end

```

PUMPV2.m

```
%% SUBROUTINE PUMP
```

```
KK = 0;
```

```
JJ = 0;
```

```
%% COMPUTATION OF PUMP DISCHARGE
```

```
VE = V+DV;
```

```
ALPHA = ALPHA + DALPHA;
```

```
while 1 == 1 % red 8 u Fortranu
```

```
    JJ = JJ+1;
```

```
    if VE == 0 && ALPHA == 0
```

```
        TH = 0;
```

```
        TH1 = 0;
```

```
    else
```

```
        TH = atan2(ALPHA,VE);
```

```
        TH1 = TH;
```

```
        TH = rad2deg(TH);
```

```
        if TH < 0
```

```
            TH = TH+360;
```

```
        end
```

```
        if TH1 < 0
```

```
            TH1 = TH1+2*pi;
```

```
        end
```

```
    end
```

```
M = fix(TH/DTH)+1;
```

```
if M == NPC
```

```
    M = NPC-1;
```

```
end
```

```
A1 = FH(M)*M-FH(M+1)*(M-1);
```

```
A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
```

```
A3 = FB(M)*M-FB(M+1)*(M-1);
```

```
A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
```

```
ALPSQ = ALPHA*ALPHA;
```

```
VESQ = VE*VE;
```

```
ALPV = ALPSQ+VESQ;
```

```
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
```

```
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
```

```
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
```

```
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
```

```
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
```

```
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
```

```
DENOM = F1AL*F2V-F1V*F2AL;
```

```
DALPHA = (F2*F1V-F1*F2V)/DENOM;
```

```
DV = (F1*F2AL-F2*F1AL)/DENOM;
```

```

ALPHA_E = ALPHA_E + DALPHA;
VE = VE + DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA_E, VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH + 360;
    end
    BETA = PARAB(TH, 2, nq);
    MB = fix(TH/DTH) + 1;
    BETA = BETA * (ALPHA * ALPHA + V * V);
    if MB == M
        DALPHA = ALPHA_E - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA_E;
        V = VE;
        break
    else
        % vraca na pocetak
    end
end
if JJ > 30 % ide na ispisivanje podataka
    break
end
end
end

```

Prilozi

Prilog – P18 Kod razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 7 – Ovaj primjer je urađen sa Furijerovom funkcijom 3 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wm karakteristiku)

Prilog za poglavlje 9.2 Analiza uticaja specifične brzine (nq) na rezultate dobijene proračunom prelaznih procesa na pumpnoj instalaciji (vrijednosti za Wh i Wm karakteristike dobijene modelskim ispitivanjima i iz Univerzalne jednačine iz Varijante 7 – Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wm karakteristiku, koriste se u razvijenom numeričkom modelu u programu Matlab za proračun prelaznih procesa).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 7 – Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 5 reda – Gausov model od 5 pikova za Wm karakteristiku) u programu Matlab:

```
Start.m
%% Program namijenjen za pokretanje više nq-ova za analizu trazijenta
clear
close all
clc
nqt = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
```

```

bojaiz =
{'.:r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':.c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k', '--r', '--b', '--g', '--y', '--
m', '--c', '--k', '-.r', '-.b', '-.g', '-.y', '-.m', '-.c', '-.k'};

%% Podaci dobijeni iz modela
run data_model.m

%% Odabir udara
varijanta = listdlg('ListString', ...
    {'1. Wh [f3-g5] <-> Wm [f2-g5]', '2. Wh [f3-g3] <-> Wm [f2-
g4]', '3. Wh [f3-g4] <-> Wm [f2-p7]', '4. Wh [f3-p8] <-> Wm [f2-p8]', '5. Wh
[f4-p9] <-> Wm [f2-p9]', '6. Wh [f5-p9] <-> Wm [f2-g3]', '7. Wh [f4-p8] <-> Wm
[f2-p6]'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi varijante za udar');

jnk = size(data);
Theta = 0:1:360;
ThetaD = deg2rad(Theta);
dataWh = data(:,1:2:jnk(2));
dataWm = data(:,2:2:jnk(2));

%% Pokretanje analize za sve modele
vs = 1:length(nqt);

%% Pokretanje analize za sve modele
for c = vs
    nq = nqt(c);
    fhc = char(bojaiz(c));
    fhf = char(bojafun(c));
    tableiso = ['Uporedni rezultati za nq=', num2str(nq), '.xlsx'];
    leg{c*2-1} = ['model nq=', num2str(nq)]; % legenda za podatke modela
    leg{c*2} = ['funkc. za nq=', num2str(nq)]; % legenda za podatke dobijene
jdnacinom
    run Clprogram.m % pokretanje koda za analizu trazijenta
end

%% Ispis legende na dijagrame
figure(1) % Dijagram za Wh
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(2) % Dijagram za Wm
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
leg([5 6 7 8]) = [];
figure(3) % Dijagram Time-Alpha
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(4) % Dijagram Time-V
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(5) % Dijagram Time-Head (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(6) % Dijagram Time-Head (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(7) % Dijagram Time-Head (spoj cijevi sa strane cijevi 1)

```

```

legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(8) % Dijagram Time-Head (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(9) % Dijagram Time-Discharge (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(10) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(11) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(12) % Dijagram Time-Discharge (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')

```

Clprogram.m

```
%% Trazijenti uzrokovani prestankom rada pumpi
```

```

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åe se izraÅunati prijelazni uslovi

```

```

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

```

```
%% Podaci
```

```

FB = dataWm(:,c);
FH = dataWh(:,c);

```

```
% Podaci za cijevi
```

```

% u sistemu su dvije cijevi ali zbog boljeg raÅuna podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

```

```
DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)
```

```
%% Ispis podataka
```

```

if c ~= 3 && c ~= 4
    disp(' ')

```



```

disp('=====')
disp([' Wh i Wm od modela za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅunati uslov prolaznog stanja = ',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅnih taÅaka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Diagram za Wh
figure(1)
plot(Theta,FH,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wh'), title('Dijagram za Wh')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100, 100, 1000, 900])
% Diagram za Wm
figure(2)
plot(Theta,FB,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wm'), title('Dijagram za Wm')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100, 100, 1000, 900])

if c ~= 3 && c ~= 4
disp(' ')
Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f      %.1f      %.2f      %.1f      %.3f \n',Table1')

disp('*****')

```

```

%% PRORAČUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % Površina poprečnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I) = L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach faktor
end
trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMP
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARAB(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARAB(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1) - (J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);

```

```

T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljjenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljjenje tabele za ispis -----
--
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
--
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
            Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
            vel = size(Excel);
            Excel = Excel(2:vel(1),:);
            p = size(Excel);
            ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
            TABLEe = array2table(ExcelNew,...

'VariableNames',{'Vrijeme','Alpha','V','Disch_1_1','Disch_N1_1','Pad_1_1','Pa
d_N1_1','Disch_1_2','Disch_N1_2','Pad_1_2','Pad_N1_2'});
            disp(' ')
            disp('
-----')
            disp('
| Cijev No.2 | Cijev No.1 |')

```

```

disp(TABLEe)

disp('*****')

disp('*****')

disp('Cijev No max. Pritisak min. Pritisak')
fprintf(' %.0f %.2fm %.2fm \n',Table2')
break
end

%% PUMP AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMP.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

```

```

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
    end
    if T > TLAST
        break
    end
    end
    end
    ddd = size(Excel);
    for ks = 1:length(L)
        if ks < 10
            tableiso = ['model nq=', num2str(nq), ' cijev 1 presjek
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
            xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
        elseif ks >= 10
            tableiso = ['model nq=', num2str(nq), ' cijev 2 presjek
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
            xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
        end
    end
    end

    % Dijagram Time-Alpha
    figure(3)

    plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),2), fhc, 'Mar
kerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:len
gth(Excel(:,1)),1))), grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
        title('Dijagram Vrijeme-Alfa')
        xlim([0 TLAST])
        set(gca, 'xTick', 0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-V
    figure(4)

    plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),3), fhc, 'Mar
kerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:len
gth(Excel(:,1)),1))), grid on, hold on

```

```

    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
title('Dijagram Vrijeje-V')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (connection pump and pipe Nu.1)
    figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
    figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
    figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (end of pipe Nu.2)
    figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

```

```

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of model (during the transient process)
figure(4*(c-1)+13)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);

```

```

for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 700])

% Diagram for Discharge of model (during the transient process)
figure(4*(c-1)+14)
s1 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s1.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 700])
end
run ClprogramV2.m

```

ClprogramV2.m

```

%% Trazijenti uzrokovani prestankom rada pumpi

clear A A1 A2 A3 A4 ALPHA ALPHAe ALSPQ ALPV AN AN1 AR AUNADJ BETA C5 C6 CA CF
CN CP D DALPHA DENOM DT DTH DV
clear ER Excel ExcelNew F F1 F1AL F1V F2 F2AL F2V FB FH G H HMAX HMINHO HP HR
HRES I IP1 IPRINT IspisPodatakaTabela
clear J JJ JM1 JP1 K KK L M MB N N1 NN NN1 NO NP NP1 NPC NPP NR NRLP od p Q
QO QP QR T Table1 Table2 TABLEe TH TH1
clear TLAST TR V VE vel VESQ WR2 Z

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åt se izraÅunati prijelazni uslovi

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe

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QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci dobijeni od Fouriereve jednacine i polinoma

FH = jedWh(nq,ThetaD,varijanta);
FB = jedWm(nq,ThetaD,varijanta);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÅ?una podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od Fourierove jednacine za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅ?unati uslov prolaznog stanja =
',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅ?nih taÅ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

```

```

% Dijagram za Wh
figure(1)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

%Digram za Wm
figure(2)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÄUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % Površina popreÄnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach Darcy-
Weisbach faktor trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMPV2
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);

```

```

    TH = rad2deg(TH); % *57.2985
end
Z = jedWh(nq,deg2rad(TH),varijanta);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = jedWm(nq,deg2rad(TH),varijanta);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljenje tabele za ispis -----
        --
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
        --
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
            end
        end
    end
end

```

```

        Table2(I,3) = HMIN(I);
    end
    Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
    vel = size(Excel);
    Excel = Excel(2:vel(1),:);
    p = size(Excel);
    ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
    TABLEe = array2table(ExcelNew,...

'VariableNames',{ 'Vrijeme', 'Alpha', 'V', 'Disch_1_1', 'Disch_N1_1', 'Pad_1_1', 'Pa
d_N1_1', 'Disch_1_2', 'Disch_N1_2', 'Pad_1_2', 'Pad_N1_2'});
    disp(' ')
    disp('

-----
-----')
    disp('          |          Cijev No.1
|          Cijev No.2          |')
    disp(TABLEe)

disp('*****')

disp('*****')

    disp('Cijev No   max. Pritisak   min. Pritisak')
    fprintf('   %.0f       %.2fm       %.2fm \n',Table2')
    break
end

%% PUMPV2 AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMPV2.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION

```

```

    if NP ~= 1
        for I = 1:NP1
            N1 = fix(N(I));
            NN = fix(N(1))+1;
            IP1 = I+1;
            CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
            CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
            HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
            HP(IP1,1) = HP(I,NN);
            QP(I,NN) = CP-CA(I)*HP(I,NN);
            QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
        end
    end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
for I = 1:NP
    NN = N(I)+1;
    for J = 1:NN
        Q(I,J) = QP(I,J);
        H(I,J) = HP(I,J);
    end
    if H(I,1) > HMAX(I)
        HMAX(I) = H(I,1);
    end
    if H(I,1) < HMIN(I)
        HMIN(I) = H(I,1);
    end
end
if K == IPRINT
    break
end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 1 presjek
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlsxwrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 2 presjek
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlsxwrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end

```

```

        end
    end

    % Dijagram Time-Alpha
    figure(3)

    plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),2),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
    title('Dijagram Vrijeme-Alfa')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-V
    figure(4)

    plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),3),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
    title('Dijagram Vrijeme-V')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (connection pump and pipe Nu.1)
    figure(5)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
    figure(6)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
    figure(7)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')

```

```

xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhf),
grid on, hold on

```

```

xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of function (during the transient process)
figure(4*(c-1)+15)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s2 = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za funkciju n_q=', num2str(nq), ' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s2.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])

% Diagram for Discharge of function (during the transient process)
figure(4*(c-1)+16)
s3 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za funkciju n_q=', num2str(nq), ' (tokom procesa
trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s3.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])
end

```

jedWh.m

```

function FH = jedWh(nq,ThetaD,varijanta)

%% obrada koeficijenata
% ff - jednacina furiera
if varijanta == 1
    ff = 3;

```



```

Koeff = [0.715731479330851  29.904965832957600  1.160146567645740
0.521115135250857  24.984627647082200  2.924225219363250  0.669699222908911
48.171790875051100  16.877203146165100  1.093124325893790
16.530859288034800  1.124728037889720  0.000000000000000
123.069952639871000  5.297192353276950
-0.961523123293475  20.821344093580800  6.602453878194210
64.257648057580600  33.955125342916500  9.386353220569020  -
64.928459861354100  33.949656843977400  9.303213895257580  -0.553408365350271
43.537626921051000  2.662769940796440  -0.832693428738023
52.435524425571700  11.860111687227100
1.752508344167960  19.813538033814300  1.338739746534640
423.391777872348000  29.423080141571000  0.233823124130313
14.034992024690400  192.667467724811000  84.128246511778100  -
2.249991305664610  52.979879468544200  2.414940141168370  -0.139425746706312
35.411065094104200  4.635405982702990
-0.228259772514762  17.940643343430100  3.150874761319510
1.622551266692810  19.737858950059500  0.948089552133070
1543.400636295410000  39.201326063337000  9.564845520862440  -
1495.340285273880000  39.202390860318100  9.536202355573940  -
48.504466641276900  39.166154370154600  10.532068185319700
52.774979545222600  19.948207260269500  0.382110550217316
0.263177598029735  36.944649226057900  1.154196394902190  -
0.441810896482947  20.178226600166000  1.910754413463700  -
49.076267398946200  50.575884925920200  12.341447824439800  49.056404431938300
50.553491696140300  12.272979751954900
-0.181804234398022  19.327153282371900  4.958850828789490
0.000000000000000  26.029637164455600  0.002684600837807  -
0.191627659558586  33.994394599288800  8.496759972665970  -0.239544485919972
52.539088076212200  3.537489182415010  -0.007662269518264
41.686968452601200  0.721756412942864
0.171794030111370  54.965027620881700  4.393250547557860
0.122789542611869  42.736325018115600  5.331583584358960  0.125185937307061
21.167598454897700  3.168706724130010  11.350749739153300
27.800622272514600  0.367470386336513  0.084923558027068
35.178568691978200  2.660337169981850
0.683974778070928  28.479136553910500  10.684175903899800
1.059245427535040  51.273284066137800  20.043005489689600  1.540300759195000
16.534305521866800  0.955404836859471  0.081554743811410
39.737742947716300  2.241646592944000  0.413184604032852
21.483285325409600  4.496030498742180];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);

```

```

elseif varijanta == 2

```

```

    ff = 3;
    Koeff = [0.547307872624346  29.8839532563986  0.793246192203723
2.309685047217230  332.7703121851250  239.007138115351  0.102040658730334
43.9750016600212  1.73890423394828
-0.640843699205076  20.9637652502637  0.804458763664244
0.178200238232620  21.3675216323105  10.513306899753500  -
10.439195981271300  1627.61262058135  958.911327386202
1.696914405871140  19.9667095602136  1.078693182634310
2563039855.449910  29.4645537432429  0.139184491455413  1.055669091064470
174.558135048266  134.204326548231

```

```

-0.340698312375039 25.8630362606411 12.577242648008500 -
89.040274353193300 47.1888824574428 7.037219629716410 88.861378955054300
47.1851558391851 7.0037284373794
10.5212705783009 19.7443505022493 0.555280900913813
0.207955165908923 36.9386083983734 0.865490915538270 -
0.102485396609892 97.7537061085187 109.176933764359
-0.181478865700741 19.3076730512134 4.891681598994380 -
0.190652562739006 34.0378712221283 8.685029036984850 -0.489680873225789
52.7736206038725 2.493916983317
15253182234484.2 84.3913147403198 4.992659747586930
0.114843207641356 42.5555276529245 10.898582871234300 0.119438110316359
21.1098882550937 3.364929063690
0.957616501610985 25.1725505727929 23.954052282718500
0.840879738870500 57.5954963477624 19.356757711087200 0.429351737084564
16.5531614483509 0.912340659718];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);

elseif varijanta == 3
ff = 3;
Koeff = [0.541944061628251 29.9112840097684 0.609750024000405
367254.1154988030 1015.46632507675000 268.780244089738000 -
3.248115803823190 47.7527080555991 7.827871488938230 3.067613744326430
47.2745171219860 6.891644922616810
3558.27595727144 39.7803874584052 0.563866270550681 -
0.655122677605182 20.95809611855700 0.861535581007935 0.252438714671051
21.9706860056295 9.098398307081290 -219.142591015502000
5061.2938487694700 2096.985480589480000
1.753257619552930 19.7830735192274 1.646973739848750
0.355840125132201 27.87904920014190 4.399464526021200 0.394297739432654
42.6492408057384 6.113929831752710 57896858542275.2 824.9561617359720
135.150482547991000
0.618074311043399 20.9226089916430 0.746923433999019 -
0.458971083290531 22.67025888312530 9.181967353715210 -0.345830048302581
38.8447829814503 5.582997567637060 -0.346484063699974 54.5007057843973
12.019061272874800
17.203169456107400 19.9690362476728 0.396904337894192
0.215222047721478 36.91309306257100 0.867897634939713
10.307109676216700 68.7429160784018 24.928074260382400 -
11.451540447036400 71.7431334141354 26.729143588279700
-0.470905359789293 19.4695226030676 1.502145727627460 -
10772207070505.6 -8.57928427228217 4.288602187187170 -0.179943541469161
33.3340542180074 10.491749904664400 -0.436896743949830 52.7842153808616
2.562788678310650
1.861727066250480 82.6985044398997 17.083425428977600
0.118891597708152 40.96725307422590 6.788150256519830 0.125236941932015
21.1702636510723 3.150101855672350 70.626163963485500 27.7996969197635
0.311483670611709
0.947005281756741 24.7563868076686 24.717484926063400
0.859059033541582 59.50554823472470 21.118815767490900 0.373618340978890
16.5470804169307 0.943324093728692 0.138683979457977 39.7531160229800
1.300939985544000];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);

```

```

elseif varijanta == 4
    ff = 3;
    Koeff = [-0.000000000719419155449666    0.0000002001394994474110    -
0.000023764960141    0.001569835734795    -0.0629469913535133    1.5648923022590600
-23.49247414158300    194.2309419847820    -675.488282721413
    -0.000000001523016309455770    0.0000004174874484811200    -
0.000048925444901    0.003197857344233    -0.1273605203951220    3.1614422875066100
-47.71855216007930    400.1219953806810    -1426.944971356050
    0.000000001522718068577850    -0.0000004154618973418480
0.000048438943916    -0.003147986716868    0.1245587951729840    -
3.0683940191356800    45.89313605637810    -380.5847947191610    1339.261581398480
    0.000000001110692155909410    -0.0000003026294716142210
0.000035209457530    -0.002281832835106    0.0899894602976154    -
2.2091496314307000    32.93945956558710    -272.5966545465320    958.297581351687
    0.000000000192612735161932    -0.0000000554425448082238
0.000006805925116    -0.000464329017993    0.0192103854214338    -
0.4923109589792610    7.61341706522743    -64.8226372153901    232.338425397081
    -0.000000000208891289028475    0.0000000582810601414563    -
0.000006936942087    0.000459275162479    -0.0184691388695222    0.4612827535088290
-6.98004516655937    58.4680159026686    -207.691669186717
    0.000000000138464448665096    -0.0000000386868107512570
0.000004628910294    -0.000309251125959    0.0125921729738134    -
0.3192838510771930    4.91194626223695    -41.8338962620285    150.852627955751
    -0.000000000136873279061494    0.0000000374362153743245    -
0.000004373515728    0.000284635370486    -0.0112700102873447    0.2775625886048120
-4.14612160321041    34.3004656268043    -119.239865644071];
elseif varijanta == 5
    ff = 4;
    Koeff = [0.0000000001483124577611510    -0.000000045665937634766600
0.0000061357877970046800    -0.0004718019124193200    0.022858794966160900    -
0.72290265217385900    14.904405618379200    -192.929777701929
1420.95321736821    -4531.661823027010
    0.0000000000149746639175877    -0.000000005590353141930380
0.0000008865274868445490    -0.0000787571629071348    0.004331881715268490    -
0.15325392842910800    3.491252098236360    -49.42289555231910
394.7563686236520    -1356.839102956130
    -0.0000000001561615533164640    0.000000048994403816912600    -
0.0000067063266430236000    0.0005251084191534630    -0.025891781569837900
0.83274221924664700    -17.448846331869500    229.409121150463    -1715.40142142772
5554.050146978870
    -0.0000000001098353663449900    0.000000034356138354869400    -
0.0000046876609075013900    0.0003658027867456140    -0.017971975524956000
0.57583846875931900    -12.018955721533900    157.410871214888    -1172.76778277565
3784.379042484440
    0.0000000000429066366325918    -0.000000013387389445635400
0.0000018202543097994200    -0.0001414450183278470    0.006917574426346170    -
0.22068409136372600    4.590359053360550    -60.0139643577423
447.3984941818910    -1448.690295678320
    0.0000000000210850648552858    -0.000000006507143318240710
0.0000008770652486108870    -0.0000677216662989428    0.003298958943502670    -
0.10506395814251700    2.185881397049690    -28.6264928632753
213.9661655604780    -694.969331998672
    -0.0000000000329196048129478    0.000000010260353632250700    -
0.0000013949316249789700    0.0001084823448101510    -0.005313764954737800

```

```

0.16986189813235100 -3.540469620672820 46.35938029125110 -
345.7782831314710 1118.675045669680
-0.000000000000440744767636384 0.000000000223304346718617 -
0.0000000409439272033431 0.0000039087285884900 -0.000221844837318895
0.00790572650884895 -0.178925823761283 2.50042322174394 -19.6975324318129
66.9223375772029
0.0000000000458451701841957 -0.000000014416839451208000
0.0000019773158226702200 -0.0001550616904532190 0.007652651619037800 -
0.24616732022711200 5.154659912457500 -67.67115282446900
504.9029624675620 -1630.22245311844
0.0000000000101532875002068 -0.000000003220251903217280
0.0000004458615800541910 -0.0000353162944111337 0.001760537106148740 -
0.05716707191022150 1.206609576121150 -15.93021615975910
119.1678726400810 -383.488164180874];

```

```

elseif varijanta == 6

```

```

    ff = 5;

```

```

    Koef = [0.00000000000222752081735310 0.000000000000746043787443621
-0.0000000996979953557631 0.0000159910305085119 -0.00121789304382982
0.0541251324010482 -1.479805955797970 24.54960898214220 -
226.5789008824530 890.0673521014990
-0.00000000009853455894028930 0.000000029878451956899500000
-0.0000039529040602605100 0.0002993908888804500 -0.01430271029464040
0.4468440858784710 -9.127515208869680 117.51306604849600 -
864.9233259684540 2770.6755281101000
0.00000000006537081513489800 -
0.000000020305871676726200000 0.0000027635851293094100 -
0.0002163535500722580 0.01074058682124290 -0.3507198849776120
7.532893564066130 -102.57471636511800 802.5496341138720 -
2741.9375456265100
0.00000000001517519230302730 -
0.000000004960321329257650000 0.0000007154612462950320 -
0.0000597592595735836 0.00318296067274276 -0.1119422123509300
2.593431424771730 -38.04673273729810 319.4800663849460 -
1164.8959434468200
0.00000000024101930392032400 -
0.000000075238124405045100000 0.0000102508513132967000 -
0.0007994551828851060 0.03930161429305600 -1.2620431310661400
26.452038063744100 -348.69706904620800 2621.3372269439900 -
8555.6667189565200
0.00000000007788660088205660 -
0.000000024469978478046000000 0.0000033590198876066700 -
0.0002642302707014880 0.01311594213135450 -0.4256881437796030
9.025483550010260 -120.42925435045800 916.7327929538220 -
3029.9959514784600
-0.00000000003942001698406580 0.000000012217715847756700000
-0.0000016524894036455000 0.0001279340042024160 -0.00624384792629115
0.1990913323318370 -4.144782214762320 54.28923693214120 -
405.6852302594130 1316.8944618435100
0.00000000002457664382015730 -
0.000000008065392363847570000 0.0000011563609185520000 -
0.0000949274326042762 0.00490942641771828 -0.1656095133279460
3.637771032702450 -50.09613392005990 391.9116353377320 -
1325.5420757321700

```

```

0.00000000000949183684374935 -
0.000000002789641097342930000 0.0000003522864135437280 -
0.0000249166136057757 0.00107645967120288 -0.0289579453589674
0.469648850383232 -4.10250314680034 13.0347850621519 21.7580121829851
-0.00000000001809371173010940 0.000000005464185550308950000
-0.0000007221076652398840 0.0000548527943207524 -0.00264173379308249
0.0837145630047144 -1.746333116178210 23.12148877661600 -
176.1485818612130 587.3167315808940
-0.00000000000016802677567676 0.000000000560037280421419000
-0.0000001480108904131520 0.0000172709274948416 -0.00113336595664109
0.0454661343704326 -1.138536354368660 17.34989300307600 -
146.9199722947070 528.7883109465540
-0.00000000003508718158417060 0.000000010821734507197800000
-0.0000014561447524457000 0.0001121394252697340 -0.00544471830155742
0.1727836184680380 -3.582741239557160 46.79409137265480 -
349.1752107088000 1134.2056385207600];

```

```

elseif varijanta == 7
ff = 4;

```

```

Koeff = [-0.0000000007491715910670530 0.0000002091199311599920 -
0.00002490561744261790 0.001649271355949260 -0.06625528487281190
1.649038275173740 -24.76603550373240 204.7071071755390 -
711.4458471321500
-0.0000000010552420263987900 0.0000002881296126501090 -
0.00003363538470894380 0.002190419745732360 -0.08695421372091220
2.152897424241530 -32.44390700103780 271.9556476709870 -
971.1233567020060
0.0000000017005212852224300 -0.0000004660035178201750
0.00005456116608651340 -0.003559792726267500 0.14134330099473000 -
3.491969172977950 52.34569984559540 -434.7882844670870 1531.6580309777400
0.0000000010922471894073500 -0.0000002985640906956940
0.00003484597422847180 -0.002264894468442660 0.08954685687252240 -
2.202463228792380 32.87429142040740 -272.0556032536690 955.2517556144620
-0.0000000003930166973677600 0.0000001056755859092100 -
0.00001215839446054350 0.000781681754508763 -0.03071670486874540
0.755595348162435 -11.36437220232550 95.5397852324739 -
343.5058680103350
-0.0000000001214833445735680 0.0000000344915483728896 -
0.00000418797866792135 0.000283674943609533 -0.01171069210109040
0.301412052180571 -4.71924013416871 41.0566979362727 -
151.8625503481100
0.0000000002905762450021240 -0.0000000794415646938760
0.00000928872584457214 -0.000606074541814293 0.02411168834328690 -
0.598292940602111 9.03356140457960 -75.8188885722162 270.7354853335900
0.0000000000898237887908671 -0.0000000233314630185466
0.00000258067289746543 -0.000158815832950063 0.00595434699964155 -
0.139534434253989 2.00068577224751 -16.0831758472293 55.5696823478691
-0.0000000005325251158750800 0.0000001453112760685980 -
0.00001692065356855950 0.001096531963795250 -0.04318969609679080
1.057265931630640 -15.68971110071670 128.9466149671200 -
449.3476014531690
-0.0000000001453056302934750 0.0000000401292250758960 -
0.00000472232655328813 0.000308559341052150 -0.01221380495566130
0.299163515371805 -4.41793426917184 35.9051675777457 -
121.9609013937540];

```

```

end

if varijanta <= 3
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end

w = GASS(Koeff(end,:),nq);
elseif varijanta > 3
    a0 = polyval(Koeff(1,:),nq);
    a1 = polyval(Koeff(2,:),nq);
    b1 = polyval(Koeff(3,:),nq);
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq);
        b2 = polyval(Koeff(5,:),nq);
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq);
            b3 = polyval(Koeff(7,:),nq);
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq);
                b4 = polyval(Koeff(9,:),nq);
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq);
                    b5 = polyval(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq);
                        b6 = polyval(Koeff(13,:),nq);
                    end
                end
            end
        end
    end
end

```


jedWm.m

```
function FB = jedWm(nq,ThetaD,varijanta)
    %% obrada koeficijenata
    % ff - jednacina furiera
    ff = 2;
    if varijanta == 1

        Koeff = [0.2550536698126430 25.6186085901353 0.963267711627744
0.337927288514508 29.637663415084500 0.981293292472372 28966.07550917390
65.2509909609433 2.950351977592590 0.185993555581020 47.9268600950130
10.89020139569180 -2.407235575701770 54.4146992436426 2.260359124540420
-16620771727066.700 -4276.11273885084 805.599265318033 -
1109258261.09874 33.423922310980700 0.516355342831691 -
1.4553184642107200 29.6434273874913 0.628339785251443 1.315730559665290
68.9333960383609 25.364244941314900 7.696586293536820 0.579956382013546
55.0333295151463 324.12069894061200 29.5305502765131 0.289320739965899
0.851923564873571 72.185467156661800 24.553017487914800
0.2390879654207820 42.9992939636545 1.374890393223450 50.9868054813579
36.6261473513520 0.300523766914872 752.53901374966 -1196.893315916210
458.209590154823 0.7969616045235030 30.5481737462861 0.323116981487847
0.216205675422239 37.812036149190800 2.998374370756010
0.8786364970989780 26.5875750425643 0.285662853532393 0.269509239517786
49.8968970919004 8.755147692392940 0.241373123080481 17.1299699732532
8.327848676217870 15609923231.145100 33.4088970423167 0.493221992181572
0.339811595529765 17.156363734307600 9.158788121298710
0.2970961874516290 39.1121374566248 3.812809161841930 0.180831886464536
27.4815736160715 3.148470805194080 0.296441327664035 48.7546142263852
6.731023198418530 0.0919924360474903 28.1156484740068 6.426286057995100
0.292910452594169 9.913508345404570 14.563949274160200
0.0709808075667553 42.4620025926456 8.149659108637010 0.938585093478700
59.5435118000423 85.9380912870727 0.258296343141102 34.5462796697432
0.881787048543951];
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2); % gauss 5

    elseif varijanta == 2

        Koeff = [0.2565340720957820 25.6190131658440 0.96484041817702
0.337554045255185 29.64017983253620 0.993738454543427 6780.105336248370
62.82816172127180 2.08283834103938 0.1616247773253950 45.5723867370634
9.277040323333352 -0.3100589044418280 25.4140487351679 1.16073952528412 -
0.586466836958781 31.24387084830800 4.686691909238580 -0.689118271729782
15.29679545017730 7.02390267918711 -0.8437096316550170 49.5825278216519
19.33923546847640 0.5840877456326120 30.3360080363224 5.36367655198547
108489741386884.00 949.80157258851400 157.090639472185000 0.464910905673951
```



```

42.33396678859710    8.81291764030294    0.6778739307366020    16.5739817924808
8.85392533399651
    0.4789170184810000    30.4766951062495    0.41602004860087
0.210129349908645    37.92996540846660    2.963816417541680    0.234552442063483
16.72048667075920    11.78352371078880    0.2705319174861940    49.9406202391671
8.62217289280991
    0.1814128688279530    40.0671301335334    7.67279200097386
0.363099490980210    7.49261833332073    30.091218205065800    0.068035782523532
51.70049384794580    4.24714421064911    0.1451378767477920    50.2963385279459
4.53382541975554
    0.0938567377090819    28.2172498839754    8.47530755567248
13990856363678.50    -2854.41429239682000    520.586129016091000
0.595661587390582    64.00343615978220    34.61157020854780
0.0658942084280693    42.9262124546354    7.64207254916681];
    GAUSS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2); % gauss 4

```

```
elseif varijanta == 3
```

```

    Koef = [0.000000001588890538391660 -0.0000003723117619424390
0.0000361422316558991 -0.001879364783403500 0.05641884501931590 -
0.9769263981065590 9.047712009035270 -34.666264303019000
-0.000000005684378149240630 0.0000013892024063298300 -
0.0001412588614686960 0.007725561947790710 -0.24470767032302400
4.4760105970231800 -43.672315511169600 174.519303665407000
0.000000005171184954836380 -0.0000012584894288055900
0.0001275738899707780 -0.006966559417897400 0.22080363358228700 -
4.0525365367820300 39.807951121075600 -160.624767567671000
-0.000000000617386024430864 0.0000001288300696868020 -
0.0000108068313108032 0.000465041564602690 -0.01081710278781060
0.1300433475802940 -0.671498532271456 0.864664277333494
-0.000000001150232150863960 0.0000002724498733260970 -
0.0000268503891151348 0.001424304326770460 -0.04385349511440470
0.7833281383274020 -7.526171798354300 30.394030483031300
0.00000000237800574036084 -0.0000000526584190793892
0.0000047464956991714 -0.000223461047310198 0.00584470233506904 -
0.0827567012675461 0.556205464096055 -0.190662750191647];

```

```
elseif varijanta == 4
```

```

    Koef = [-0.0000000006840884836399160 0.00000002033163725719810 -
0.000002567631155366350 0.000179570915438446 -0.007590747230637750
0.1982381601756740 -3.119852248198430 27.05342651952840 -99.0588045403801
-0.00000000040377961670024300 0.00000010494369507546700 -
0.000011568554439610600 0.000705321374079300 -0.025985571487810600
0.5923733518557350 -8.172496124873870 62.60546400655040 -
205.5542663092460
0.00000000050022893093365100 -0.00000013188219890021500
0.000014794437926265900 -0.000921225773664998 0.034797025323916800 -
0.8162277754127460 11.617271283441200 -91.85600077612810 310.2355426650230
0.00000000024881599502151600 -0.00000006878832130251460
0.000008113624322572120 -0.000532484238887428 0.021238426010244700 -
0.5266409305167510 7.924272316416050 -66.16170746138060 235.0725826112420

```

```
-0.00000000010541975058365400 0.00000002773281049058800 -
0.000003110592356459330 0.000194176808864644 -0.007377079229240390
0.1746936254601530 -2.518974327501390 20.22108573021130 -68.8364885751104
-0.00000000000612377653155314 0.00000000191560096445476 -
0.000000249177520075123 0.000017585846582828 -0.000734728677582416
0.0185399868579404 -0.274585672858887 2.16802870900847 -
5.9549101557933];
```

elseif varijanta == 5

```
Koeff = [0.000000000011680825665761900 -0.0000000036059735381334700
0.00000048710546843449600 -0.000037764389345331000
0.001849995311944690000 -0.059307127211933400 1.24220734128243000 -
16.364129806873900 122.84280925203100 -399.932227420309
-0.000000000008286958410112770 0.0000000021059446353916400 -
0.00000022620886526139200 0.000013401775540240400 -0.000479760733857257000
0.010704599425104200 -0.14827028363717600 1.223652782979380 -
5.35228604771694 7.90029710565952
-0.000000000043548432865377100 0.0000000136889711318116000 -
0.00000187210754186201000 0.000146014927381898000 -0.007148898950970430000
0.227605938501780000 -4.70835176538847000 60.994562633398300 -
448.97780213128700 1431.95128707579
-0.000000000019500134886293700 0.0000000061544763133041900 -
0.00000084802712938707700 0.000066871588176315400 -0.003321114253612500000
0.107574479152904000 -2.26945778527578000 30.034455812136700 -
226.07385214071800 737.354912413844
0.0000000000012792679350824100 -0.0000000039797118643547200
0.00000053893707999339800 -0.000041657597046220100
0.002023602595716880000 -0.064016146126722200 1.31803429062862000 -
17.023924653370700 125.12829808155000 -398.348916411191
-0.000000000000116173506560012 0.0000000000290596348520913 -
0.00000000272677229678402 0.000000100877427722979 0.000000972375484845918 -
0.000220375207931837 0.00815702558494035 -0.142862607203483
1.21534019161962 -2.96252574948479];
```

elseif varijanta == 6

```
Koeff = [0.2396989599392460 25.6152513832965 0.921235726763537
0.356686480636697 29.6181439335044 0.863734999340850 0.177838213610671
54.50312851955850 19.06095070390450
-161604085071244.00 -1348.64837068958 237.118925186141000 -
0.431556584079404 31.5813678777715 4.979020168320690 -0.732700395540283
51.37050333406420 15.82124676270580
397.8922912225740 61.7661994698937 2.035702378740950
0.000000000000000 124.4074888973250 7.597395711925160
26.516151737300700 1115.66434507875000 572.44162899584500
1067684.0290807000 30.3755017996734 0.134329574271467 -
29282515.95866490 29.8365501392376 0.243334753472403 0.202057948914174
23.56465837532410 83.95311922599840
-4.1467342213550000 27.4518852445997 14.438662577382400
4.390855444171340 27.3740653678572 15.381516045760300 0.267119335754774
52.08208840300900 2.63767879223153
0.0757698656680684 26.2601890811220 6.898666253721750
0.971459766358391 45.8125229368510 54.950393330768900 0.419411152377490
6.00706284706127 13.56218462897350];
```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2); % gauss3

elseif varijanta == 7

    Koeff = [0.00000001667646610748540 -0.000003612804128723200
0.000315826181509237 -0.01420006601425680 0.344661600855802 -
4.25705497946271 20.86120312692360
-0.00000000243290800565087 0.000000967837775954358 -
0.000127902625673005 0.00793691727028947 -0.252072151343157
3.92651204989357 -24.13448331084370
0.00000000750720462958153 -0.000001812394333393670
0.000177883963489826 -0.00903186574287275 0.248688633617358 -
3.49359119179948 20.09429218921680
-0.00000002231684060267700 0.000004640553453036450 -
0.000387931116614583 0.01662287981585140 -0.383478472141252
4.49825797298139 -20.71132320249870
-0.00000000914709978171369 0.000001929139249688860 -
0.000164841787528002 0.00726905862181974 -0.173397935542602
2.10543615712011 -9.80350153749406
0.00000000555932574850391 -0.000001203423506701000
0.000105081202115758 -0.00472444461105914 0.115038160743676 -
1.43504638795362 8.11983020733536];

```

end

```

if varijanta <= 2 || varijanta == 6
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end

```

```

        end
    end
end
w = GASS(Koeff(end,:),nq);
else
a0 = polyval(Koeff(1,:),nq);
a1 = polyval(Koeff(2,:),nq);
b1 = polyval(Koeff(3,:),nq);
if ff >= 2
    a2 = polyval(Koeff(4,:),nq);
    b2 = polyval(Koeff(5,:),nq);
    if ff >= 3
        a3 = polyval(Koeff(6,:),nq);
        b3 = polyval(Koeff(7,:),nq);
        if ff >= 4
            a4 = polyval(Koeff(8,:),nq);
            b4 = polyval(Koeff(9,:),nq);
            if ff >= 5
                a5 = polyval(Koeff(10,:),nq);
                b5 = polyval(Koeff(11,:),nq);
                if ff >= 6
                    a6 = polyval(Koeff(12,:),nq);
                    b6 = polyval(Koeff(13,:),nq);
                    if ff >= 7
                        a7 = polyval(Koeff(14,:),nq);
                        b7 = polyval(Koeff(15,:),nq);
                        if ff == 8
                            a8 = polyval(Koeff(16,:),nq);
                            b8 = polyval(Koeff(17,:),nq);
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wm
if ff == 1
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +

```

```

a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);
elseif ff == 6
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
elseif ff == 7
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
end

end

end

```

PARAB.m

```

%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

    nq2 = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95
35.89 37.4 38 41.6 43.83 50 56];
    nqC = find(nq2 == nq);
    data_im = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42
-0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
    -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
    -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
    -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
    -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27    -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816

```

-0.433 -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
 0.4855 -0.4544
 -0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008
 -0.19 -0.311 -0.1943 -0.2412 -1.063 -0.0839 -0.205 -0.0669 -
 0.2953 -0.0887 -0.19 -0.113 -0.228 -0.1468 -0.2671 -0.1816 -0.2519 -
 0.1122 -0.19 -0.311 -0.19 -0.311 -0.2187 -0.3009 -0.4577 -0.4055 -0.53
 -0.191 -0.342 -0.1465 -0.2203 -0.2552 -0.238 -0.2922 -0.1946 -0.205 -
 0.3299 -0.2808
 -0.17 -0.287 -0.1749 -0.2168 -1.045 -0.0584 -0.187 -0.0414 -
 0.2755 -0.048 -0.17 -0.095 -0.2082 -0.126 -0.2475 -0.1578 -0.231 -0.091
 -0.17 -0.287 -0.17 -0.287 -0.1975 -0.2764 -0.4267 -0.3862 -0.496 -
 0.161 -0.3187 -0.1177 -0.2025 -0.2291 -0.2222 -0.2707 -0.1812 -0.1791 -
 0.3077 -0.2581
 -0.151 -0.263 -0.1561 -0.1923 -1.027 -0.0329 -0.169 -0.0159 -
 0.255 -0.018 -0.151 -0.0774 -0.1891 -0.1043 -0.2283 -0.1319 -0.2102 -
 0.0581 -0.151 -0.263 -0.151 -0.263 -0.1773 -0.2519 -0.3966 -0.3669 -0.463
 -0.131 -0.2993 -0.0872 -0.188 -0.2014 -0.2064 -0.2472 -0.1676 -0.1473 -
 0.2873 -0.2314
 -0.13 -0.24 -0.1357 -0.1685 -1.008 -0.007 -0.15 0.01 -
 0.2346 0.009 -0.13 -0.06 -0.1693 -0.0814 -0.2096 -0.1034 -0.1893 -
 0.0279 -0.13 -0.24 -0.13 -0.24 -0.1553 -0.2282 -0.3662 -0.3502 -0.43

-0.1 -0.2786 -0.0555 -0.1743 -0.1617 -0.1907 -0.2211 -0.154 -0.1178 -
 0.2698 -0.1989
 -0.108 -0.217 -0.1146 -0.1445 -0.989 0.0196 -0.131 0.0366 -
 0.2135 0.0391 -0.108 -0.0426 -0.1492 -0.0572 -0.1915 -0.0722 -0.1684 0.0005
 -0.108 -0.217 -0.108 -0.217 -0.1325 -0.2045 -0.3363 -0.3338 -0.398 -
 0.0686 -0.2582 -0.0269 -0.1598 -0.1182 -0.1749 -0.1924 -0.1404 -0.0915 -
 0.2496 -0.1582
 -0.0862 -0.193 -0.0936 -0.1197 -0.97 0.0465 -0.112 0.0635 -
 0.1954 0.06 -0.0862 -0.0251 -0.1291 -0.0318 -0.1732 -0.0387 -0.1475 0.0245
 -0.0862 -0.193 -0.0862 -0.193 -0.1098 -0.1798 -0.3065 -0.3157 -0.366 -
 0.0371 -0.2372 -0.0017 -0.1445 -0.0806 -0.1591 -0.1611 -0.1266 -0.0677 -
 0.2277 -0.1083
 -0.0637 -0.169 -0.0721 -0.0949 -0.9511 0.073 -0.0931 0.09 -
 0.1749 0.0764 -0.0637 -0.00726 -0.1083 -0.0055 -0.1541 -0.0036 -0.1266
 0.0422 -0.0637 -0.169 -0.0637 -0.169 -0.0865 -0.1553 -0.2765 -0.297 -
 0.334 -0.00643 -0.2157 0.0212 -0.1286 -0.0487 -0.1393 -0.1277 -0.1127 -
 0.0454 -0.2072 -0.0708
 -0.0415 -0.145 -0.0513 -0.0704 -0.9337 0.099 -0.0757 0.116 -
 0.1553 0.0914 -0.0415 0.011 -0.0872 0.0162 -0.1341 0.0216 -0.1058 0.0608
 -0.0415 -0.145 -0.0415 -0.145 -0.0635 -0.1308 -0.2466 -0.2771 -0.302
 0.0228 -0.193 0.0426 -0.1121 -0.0197 -0.1187 -0.0886 -0.0987 -0.0237 -
 0.1874 -0.0495
 -0.02 -0.12 -0.0314 -0.0457 -0.918 0.123 -0.06 0.14 -
 0.1346 0.1063 -0.02 0.03 -0.0661 0.0364 -0.1134 0.043 -0.0849 0.0797
 -0.02 -0.12 -0.02 -0.12 -0.0411 -0.1056 -0.2168 -0.2538 -0.27 0.05
 -0.1723 0.0629 -0.0965 0.0079 -0.0981 -0.0615 -0.0845 -0.003 -0.1677 -
 0.0308
 0.000468 -0.0943 -0.0129 -0.021 -0.9042 0.145 -0.0462 0.162
 -0.115 0.1223 0.000459 0.0497 -0.0453 0.057 -0.0922 0.0645 -0.064
 0.0975 0.000471 -0.0943 0.000459 -0.0944 -0.0197 -0.0801 -0.1873 -
 0.2275 -0.238 0.0746 -0.1549 0.0824 -0.0825 0.0328 -0.0774 -0.0445 -
 0.0701 0.0175 -0.1491 -0.012
 0.0202 -0.0681 0.005 0.0037 -0.891 0.166 -0.033 0.183 -
 0.0936 0.1395 0.0202 0.0699 -0.0258 0.0778 -0.0731 0.086 -0.0431 0.1135
 0.0202 -0.0682 0.0202 -0.0682 0.0012 -0.0542 -0.1571 -0.1983 -0.205
 0.0971 -0.1394 0.1014 -0.0684 0.0539 -0.0568 -0.0249 -0.0556 0.0383 -
 0.1298 0.0086
 0.0398 -0.0418 0.0231 0.0282 -0.8767 0.186 -0.0187 0.203 -
 0.0725 0.1579 0.0397 0.0902 -0.0063 0.0988 -0.0536 0.1077 -0.0223 0.1285
 0.0398 -0.0418 0.0397 -0.0419 0.0219 -0.0284 -0.1262 -0.1678 -0.171 0.118
 -0.1221 0.12 -0.0542 0.0753 -0.0362 0.0003 -0.0408 0.0595 -0.1083
 0.0312
 0.0595 -0.0157 0.042 0.0523 -0.85957 0.205 -0.00157
 0.222 -0.0519 0.177 0.0595 0.11 0.0138 0.1196 -0.0332 0.1294 -
 0.0014 0.1489 0.0595 -0.0157 0.0595 -0.0158 0.0411 -0.0027 -0.0944 -
 0.1377 -0.136 0.139 -0.1027 0.1384 -0.0396 0.0969 -0.0156 0.0292 -
 0.0258 0.0812 -0.0898 0.0559
 0.08 0.01 0.06 0.0758 -0.838 0.223 0.02 0.24 -
 0.0307 0.1943 0.08 0.13 0.0348 0.1405 -0.0116 0.1512 0.0183 0.1705
 0.08 0.01 0.08 0.01 0.0524 0.0227 -0.0617 -0.1081 -0.1 0.16
 -0.0809 0.1567 -0.0245 0.1188 0.005 0.057 -0.0105 0.1033 -0.0665
 0.0822
 0.102 0.0349 0.07 0.0987 -0.8109 0.241 0.0471 0.258 -
 0.0084 0.2096 0.102 0.149 0.0571 0.1609 0.011 0.1731 0.0424 0.1901
 0.102 0.0349 0.102 0.0351 0.0597 0.0475 -0.0278 -0.0806 -0.0628 0.182

-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	
0.075	0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	
0.2408	0.168	0.107	0.169	0.107	0.0775	0.145	0.073	0.143	
0.0471	0.249	0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	
0.1868	0.0108	0.1665							
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	
0.215	0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	
0.3814	0.27	0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191
0.344	0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	
0.1404	0.2953								
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	
0.2911	0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	
0.4118	0.333	0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285

0.389 0.2836 0.3965 0.2221 0.3796 0.2747 0.3437 0.2233 0.3843
 0.2256 0.3524
 0.356 0.326 0.305 0.437 -0.296 0.451 0.373 0.45
 0.317 0.4491 0.357 0.369 0.3302 0.3969 0.3027 0.4256 0.3105
 0.4226 0.355 0.327 0.357 0.333 0.323 0.43 0.295 0.39 0.318
 0.402 0.3108 0.4125 0.2456 0.4025 0.3023 0.3608 0.2886 0.409 0.253
 0.3725
 0.378 0.353 0.323 0.449 -0.238 0.468 0.392 0.461
 0.3413 0.4689 0.379 0.389 0.3588 0.4122 0.3381 0.4361 0.3359
 0.4335 0.378 0.353 0.379 0.358 0.348 0.445 0.324 0.408 0.35
 0.416 0.3381 0.4276 0.2691 0.4211 0.3298 0.3787 0.3185 0.4264
 0.2845 0.3877
 0.4 0.38 0.347 0.46 -0.178 0.481 0.41 0.47
 0.3653 0.4868 0.4 0.41 0.3862 0.428 0.3721 0.4465 0.3629 0.4444
 0.4 0.38 0.4 0.38 0.374 0.463 0.353 0.426 0.38 0.43
 0.3652 0.442 0.2944 0.4377 0.3574 0.3971 0.3487 0.4422 0.3175 0.405
 0.421 0.408 0.374 0.469 -0.113 0.49 0.427 0.477
 0.3902 0.4958 0.419 0.431 0.368 0.452 0.3989 0.4613 0.3906
 0.4573 0.422 0.407 0.419 0.397 0.399 0.478 0.38 0.442 0.406
 0.445 0.3923 0.4559 0.3201 0.454 0.3843 0.4142 0.3793 0.4562
 0.3521 0.4251
 0.442 0.435 0.404 0.478 -0.0423 0.495 0.444 0.483
 0.4171 0.4976 0.438 0.452 0.388 0.462 0.423 0.477 0.4178
 0.4691 0.443 0.433 0.438 0.41 0.425 0.487 0.408 0.456 0.43
 0.46 0.4189 0.4686 0.3973 0.4741 0.41 0.4356 0.4104 0.4687
 0.3928 0.4482
 0.461 0.461 0.436 0.486 0.0249 0.496 0.462 0.488
 0.4454 0.4989 0.457 0.471 0.43 0.478 0.4479 0.4879 0.4452
 0.4798 0.463 0.458 0.457 0.419 0.451 0.491 0.437 0.47 0.453
 0.474 0.4449 0.4795 0.4298 0.4793 0.4389 0.4608 0.442 0.4802
 0.4292 0.4675
 0.481 0.483 0.468 0.493 0.0819 0.498 0.48 0.494
 0.4735 0.4997 0.477 0.487 0.471 0.491 0.474 0.4942 0.4726
 0.4901 0.482 0.48 0.477 0.425 0.476 0.495 0.468 0.485 0.476
 0.488 0.4719 0.4899 0.4775 0.4886 0.475 0.4824 0.4719 0.4905
 0.4652 0.4846
 0.5 0.5 0.5 0.5 0.13 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
 0.5 0.5 0.5 0.5 0.5 0.5 0.429 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
 0.4993 0.5 0.5 0.5 0.5 0.5
 0.519 0.512 0.53 0.507 0.172 0.504 0.522 0.508
 0.5246 0.479 0.526 0.509 0.526 0.508 0.5251 0.5081 0.5272
 0.5096 0.517 0.516 0.526 0.432 0.523 0.51 0.532 0.513 0.527
 0.51 0.5278 0.5097 0.5239 0.5091 0.533 0.514 0.5258 0.5092
 0.5295 0.515
 0.538 0.519 0.559 0.514 0.208 0.51 0.545 0.516
 0.5476 0.4474 0.554 0.514 0.553 0.515 0.5499 0.5164 0.5543
 0.5187 0.535 0.531 0.555 0.434 0.546 0.524 0.561 0.524 0.555
 0.519 0.554 0.5185 0.5524 0.5175 0.5589 0.531 0.5495 0.5186
 0.5534 0.5307
 0.558 0.523 0.586 0.52 0.241 0.518 0.568 0.525
 0.5688 0.4339 0.583 0.517 0.579 0.522 0.5759 0.5207 0.5813
 0.5275 0.553 0.545 0.586 0.435 0.568 0.542 0.587 0.535 0.584
 0.527 0.5784 0.5264 0.5832 0.5262 0.5763 0.5488 0.5712 0.5289
 0.5781 0.5457

	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	
0.7066	0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	
0.5686	0.77	0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74
0.57	0.7249	0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	
0.7374	0.6415								
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	
0.7829	0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	
0.6064	0.881	0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795
0.58	0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	
0.8184	0.6917								

	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	
0.8538	0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299
0.942	0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	
0.871	0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	
0.6296	0.955	0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88
0.573	0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	
0.9201	0.7368								
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	
0.9923	0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	

0.5485	1.15	1.17	1.19	0.502	0.95	0.647	1	0.594	1.02
0.543	0.9925	0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	
1.0508	0.7691								
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	
1.0109	0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	
0.5382	1.2	1.2	1.21	0.504	0.964	0.626	1.02	0.591	0.534
1.0043	0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	
0.7717									
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
0.6226	1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32
1.3	1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342
0.483									
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	
1.1321	0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	
0.4584	1.36	1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11
0.488	1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	
1.1592	0.7732								
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	
1.1382	0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	
0.4468	1.36	1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12
0.48	1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	
1.1403	0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355
1.36	1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13

0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	
1.1497	0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378
1.55	1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.36
1.1231	0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	
0.6545									
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	
1.1509	0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712
1.36	1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	
1.1532	0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608
1.6	1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296
0.3765									
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	
1.1559	0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548
1.38	1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36
1.139	0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	
0.6614									

	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566	
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39	
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348	
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804		
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573	
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4	1.65
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128	
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702			
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248		
1.1579	0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	
1.41	1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	
1.1262	0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827		
0.7266										
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236		
1.1584	0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	
1.43	1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	
1.1224	0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058		
0.7534										
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226		
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664	1.44
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188	
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807		
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217		
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698	
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34	
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535		
0.8102										
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21		
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739	1.47
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119	
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441		
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206		
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779	
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34	
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135		
0.8811										
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204		
1.1599	0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	
1.5	1.71	1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	
1.1059	0.3076	1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548		
0.9205										
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205		
1.16	0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834		
0.3852	1.51	1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	
0.343	1.1048	0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042		
1.5851	0.962									
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207		
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832		
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13	
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113		
1.6192	1									
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21		
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182		
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13	0.35

1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	
1.1378	0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	
0.4086	1.62	1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12
1.1046	0.3575	1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	0.38
1.2002									
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	
1.1307	0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118
1.69	1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.64
0.3642	1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253	
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	
1.1231	0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151
1.65	1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391
0.3705	1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472	1.1006
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	
1.115	0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184
1.66	1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397
1.0979	0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	
1.2651									
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	
1.0985	0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	
0.4254	1.69	1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11
0.41	1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	
1.8592	1.2904								
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								

	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	
1.075	0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	
0.4385	1.72	1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09
0.438	1.0719	0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	
1.8449	1.2968								
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	
1.0604	0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498
1.74	1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46
1.0598	0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	
1.2929									
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									

	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	
0.9975	0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	
0.5221	1.79	1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04
0.564	1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	
1.7374	1.2913								
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	
0.9903	0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324
1.78	1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581
1.0112	0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	
1.3025									
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	
0.968	0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	
0.5705	1.74	1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03
0.642	1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	
1.7379	1.3419								
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	
0.9396	0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618
1.69	1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	
0.9193	0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	
0.6477	1.66	1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05
0.752	0.9842	0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	
1.7315	1.4101								
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792

1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	
0.8915	0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	
0.7115	1.58	1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06
0.828	0.9676	0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	
1.7116	1.4585								
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	
0.8851	0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728
1.55	1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846
0.9629	0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	
1.4696									
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	
0.877	0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	
0.7445	1.52	1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06
0.863	0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	
1.6976	1.4801								
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	
0.847	0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	
0.7938	1.43	1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06
0.92	0.9425	0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	
1.6708	1.5054								
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	
0.8327	0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	
0.8443	1.34	1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05
0.981	0.9268	0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636
1.5246									
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	
0.8287	0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	
0.8616	1.31	1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05

1	0.9218	0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221
1.5268									
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	
0.8049	0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467
1.14	1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08
0.9008	0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	
1.5154									
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	
0.7922	0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	
0.9809	1.08	1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04
1.1	0.8937	0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754
1.5003									
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03

1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	
0.7558	1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442
0.939	1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	
0.736	1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	
1.0912	0.801	1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03
1.21	0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	
1.2689	1.4245								
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	
0.7317	1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976
0.78	0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	
0.7243	1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033
0.74	0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									

	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	1.22
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	
0.6719	1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	
1.0904	0.549	0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913
1.21	0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135
1.382									
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	
0.656	0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	
1.0727	0.514	0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888
1.19	0.7408	1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	
1.1152	1.3697								
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	
0.6385	0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	
1.0506	0.491	0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868
1.17	0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	
1.0851	1.3164								

	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	
0.6102	0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	
1.0298	0.459	0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84
1.13	0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	
1.0311	1.2234								
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	
0.6	0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228
0.447	0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12
0.6762	0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	
1.1977									
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	
0.5885	0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	
1.0115	0.434	0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821
1.1	0.6669	0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894
1.1722									
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	
0.5433	0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946
0.374	0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	

0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	
0.531	0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	
0.9257	0.369	0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741
0.981	0.6178	0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	
0.8157	0.9903								
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	
0.5253	0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	
0.9159	0.37	0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733
0.961	0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	
0.7954	0.9668								
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	
0.513	0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	
0.8968	0.376	0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717
0.921	0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	
0.7537	0.9185								
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	
0.4714	0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809
0.38	0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8
0.5492									
0.7307	0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66

0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858		
0.6099	0.7441									
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202		
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229		
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65	
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628		
0.5935	0.7206									
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198		
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145		
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639	
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394		
0.5778	0.6973									
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195		
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058		
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629	
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154		
0.5624	0.6745									
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19		
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117	
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7	0.4968
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522		
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184		
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897		
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612	
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647		
0.5331	0.6296									
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176		
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827		
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604	
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379		
0.5205	0.606									
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168		
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756		
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597	
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71		
0.5091	0.5818									
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159		
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684		
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589	
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812		
0.4977	0.5568									
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15		
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609		
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58	
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523		
0.4856	0.5304									
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142		
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585	
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568	
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732		
0.5026										
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133		
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471		
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559	

0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.405	0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335
0.2	0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	
0.39	0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	
0.3396	0.353	0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496

0.298	0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	
0.3304	0.206								
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	
0.4661	0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	
0.1609	0.379	-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508
0.141	0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	
0.3924	0.0552								
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114

0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767	
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644	
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701	
0.4411	-0.0102								
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864	
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711	
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451
-0.0219									
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974	
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535	
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461
-0.0336									
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11	
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862	
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326	
0.4711	-0.0457								
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-	
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126	
0.4814	-0.058								
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14	
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552	
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051	
0.4917	-0.0703								
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157	
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222	
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-
0.0172	0.502	-0.0824							
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	
0.5558	-0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-
0.0278	0.405	-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	
0.564	-0.00923	0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-
0.0276	0.5123	-0.0942							
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19	
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57

-0.02 0.59 0.0088 0.5683 -0.104 0.5465 -0.0942 0.5853 -0.0365
 0.5226 -0.1057
 0.613 -0.292 0.594 -0.0466 -0.808 -0.0611 0.918 -0.205
 0.5674 -0.0583 0.732 0.0616 0.602 0.019 0.5911 -0.0613 0.6345 -
 0.0718 0.407 -0.42 0.721 -0.127 0.611 -0.00338 0.576 -0.0552
 0.575 -0.0324 0.5985 0.0009 0.5768 -0.1155 0.5534 -0.1014 0.5931 -
 0.0445 0.5328 -0.1168
 0.618 -0.314 0.604 -0.0559 -0.829 -0.0724 0.926 -0.22
 0.573 -0.0698 0.735 0.0438 0.608 0.00985 0.6037 -0.0713 0.6425 -
 0.0915 0.407 -0.44 0.724 -0.153 0.621 -0.00826 0.584 -0.066
 0.579 -0.0462 0.6068 -0.0065 0.5853 -0.1269 0.5598 -0.1074 0.6009 -
 0.052 0.543 -0.1276
 0.623 -0.336 0.614 -0.0646 -0.85 -0.0842 0.932 -0.236
 0.5784 -0.0808 0.738 0.0262 0.616 0.00106 0.6166 -0.0819 0.6505 -
 0.1077 0.408 -0.46 0.727 -0.179 0.631 -0.0147 0.592 -0.0767 0.583
 -0.0608 0.6146 -0.0135 0.5939 -0.1406 0.5656 -0.1128 0.6085 -0.0596
 0.5528 -0.1378
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 0.1189 0.408 -0.48 0.73 -0.205 0.642 -0.0224 0.6 -0.0875 0.587 -
 0.0756 0.6236 -0.0208 0.6025 -0.1542 0.571 -0.118 0.6161 -0.0675 0.5613
 -0.1451
 0.631 -0.38 0.631 -0.0796 -0.892 -0.11 0.94 -0.27
 0.5888 -0.1013 0.743 -0.01 0.634 -0.0151 0.6425 -0.1062 0.6667 -
 0.1255 0.408 -0.5 0.732 -0.23 0.652 -0.0311 0.608 -0.0984 0.59
 -0.09 0.6363 -0.0289 0.6108 -0.1674 0.5762 -0.1228 0.6236 -0.0764
 0.5686 -0.1503
 0.635 -0.402 0.639 -0.0859 -0.913 -0.125 0.943 -0.29
 0.594 -0.1108 0.744 -0.0291 0.643 -0.0231 0.6552 -0.1202 0.6753 -
 0.1343 0.407 -0.52 0.734 -0.254 0.661 -0.041 0.616 -0.109 0.593
 -0.104 0.6503 -0.038 0.6187 -0.1795 0.5811 -0.1267 0.631 -0.0865
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 0.5994 -0.1198 0.745 -0.0489 0.652 -0.0313 0.6676 -0.1358 0.6844 -
 0.145 0.406 -0.54 0.735 -0.278 0.671 -0.0522 0.625 -0.121 0.596
 -0.116 0.6628 -0.0494 0.6259 -0.1897 0.5854 -0.1306 0.6384 -0.0976
 0.5839 -0.1624
 0.64 -0.446 0.653 -0.0976 -0.958 -0.158 0.944 -0.334
 0.6048 -0.1285 0.745 -0.0691 0.66 -0.0399 0.6806 -0.1573 0.6942 -
 0.1565 0.405 -0.56 0.735 -0.301 0.681 -0.0647 0.633 -0.132 0.598
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 0.5929 -0.171
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 0.6101 -0.1369 0.745 -0.0896 0.669 -0.0485 0.6934 -0.1823 0.7047 -
 0.1707 0.404 -0.58 0.735 -0.325 0.692 -0.0784 0.642 -0.144 0.599
 -0.14 0.6837 -0.0758 0.639 -0.2098 0.5915 -0.1401 0.6531 -0.121
 0.6023 -0.1807
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 0.6153 -0.145 0.744 -0.11 0.677 -0.0577 0.7043 -0.2049 0.7153 -
 0.1868 0.402 -0.6 0.735 -0.35 0.701 -0.0917 0.651 -0.157 0.6 -
 0.15 0.6919 -0.0896 0.6457 -0.2219 0.5939 -0.1468 0.6601 -0.1328 0.6116
 -0.191
 0.642 -0.512 0.671 -0.117 -1.04 -0.221 0.936 -0.402
 0.6202 -0.1529 0.743 -0.13 0.685 -0.0679 0.7121 -0.2209 0.726 -
 0.2033 0.4 -0.62 0.733 -0.376 0.71 -0.103 0.66 -0.17 0.6 -0.16

0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
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0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656
-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179	
0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507	
0.6733	-0.294								
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	
0.6429	-0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-
0.3297	0.36	-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56
-0.27	0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	
0.6797	-0.3232								
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645	
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587	
0.6807	-0.3364								
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	
0.644	-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-
0.352	0.346	-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54

-0.303 0.7756 -0.2324 0.6684 -0.3469 0.4711 -0.3634 0.7285 -0.3987
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 0.3598 0.338 -0.86 0.645 -0.678 0.798 -0.261 0.712 -0.327 0.528
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 0.6425 -0.2925 0.643 -0.391 0.753 -0.24 0.7475 -0.3306 0.8099 -
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 0.34 0.7813 -0.2778 0.6584 -0.3979 0.4158 -0.5722 0.7186 -0.4758 0.6763
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 0.54 -0.82 0.714 -0.272 -1.42 -0.56 0.77 -0.73
 0.6405 -0.3401 0.63 -0.41 0.75 -0.261 0.7475 -0.3354 0.8092 -
 0.3728 0.32 -0.9 0.62 -0.73 0.8 -0.306 0.708 -0.363 0.5 -0.36
 0.7812 -0.2978 0.6527 -0.4118 0.394 -0.6061 0.7109 -0.4977 0.6713 -
 0.4209
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 0.6645 -0.4443
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 0.6354 -0.4259 0.606 -0.446 0.736 -0.307 0.7474 -0.3472 0.8026 -
 0.4192 0.3 -0.94 0.596 -0.778 0.792 -0.356 0.691 -0.408 0.467 -
 0.405 0.774 -0.3381 0.6403 -0.4314 0.3555 -0.6746 0.6928 -0.5354 0.6556
 -0.4682
 0.503 -0.886 0.698 -0.376 -1.48 -0.611 0.718 -0.781
 0.6326 -0.4489 0.594 -0.464 0.726 -0.333 0.7473 -0.3549 0.7971 -
 0.4227 0.289 -0.96 0.585 -0.802 0.784 -0.381 0.68 -0.431 0.448
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 0.6451 -0.4949
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 0.6292 -0.4653 0.582 -0.482 0.713 -0.36 0.7473 -0.3643 0.7904 -
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 0.6247 -0.4803 0.57 -0.5 0.698 -0.388 0.7473 -0.3757 0.7818 -
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 0.4837 0.254 -1.04 0.532 -0.902 0.733 -0.48 0.629 -0.522 0.369
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 0.334 -1.23 0.392 -1.1325 -1.72 -0.828 0.537 -0.889
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0.6188 -0.8319 -0.12 -0.739 -0.3198 -0.7565 -0.525 -0.9368 -0.5497 -
0.8875 -0.252 -1.13 -0.178 -1.13 -0.2251 -1.13 -0.5827 -1.13 -0.692
-1.13 -0.5902 -0.9869 -0.5774 -1.0242 -0.6049 -1.0524 -0.5068 -1.1885 -
0.5839 -1.1014
-0.21 -1.11 -0.2357 -1.0442 -2.557 -0.953 -0.3 -0.88 -
0.6147 -0.8117 -0.13 -0.72 -0.3235 -0.738 -0.5223 -0.9194 -0.547 -
0.8687 -0.26 -1.11 -0.19 -1.11 -0.2367 -1.1109 -0.5915 -1.1179 -0.7
-1.1 -0.5903 -0.9762 -0.5732 -0.9953 -0.5999 -1.0267 -0.5063 -1.1715 -
0.5812 -1.0825
-0.222 -1.08 -0.2483 -1.0182 -2.571 -0.937 -0.314 -0.864 -
0.6119 -0.7915 -0.141 -0.7 -0.3277 -0.7187 -0.5194 -0.9037 -0.5441 -
0.8493 -0.269 -1.08 -0.202 -1.08 -0.2484 -1.0809 -0.6012 -1.0879 -0.709
-1.07 -0.5902 -0.9643 -0.5687 -0.9655 -0.5941 -1.0028 -0.5056 -1.1528 -
0.5796 -1.0632
-0.235 -1.06 -0.2616 -0.9982 -2.585 -0.917 -0.328 -0.844 -
0.6103 -0.7714 -0.153 -0.68 -0.3323 -0.6991 -0.5165 -0.8893 -0.5412 -
0.8289 -0.28 -1.06 -0.213 -1.06 -0.2592 -1.0618 -0.6106 -1.0757 -0.718
-1.04 -0.5898 -0.9503 -0.5639 -0.9338 -0.5882 -0.9809 -0.5048 -1.1321 -
0.5789 -1.0435
-0.247 -1.03 -0.2736 -0.9708 -2.597 -0.896 -0.34 -0.823 -
0.6095 -0.7514 -0.165 -0.66 -0.337 -0.6793 -0.5136 -0.8757 -0.5388 -
0.8075 -0.29 -1.03 -0.225 -1.03 -0.2711 -1.0318 -0.6218 -1.0457 -0.729
-1.01 -0.5892 -0.9335 -0.5596 -0.8991 -0.5824 -0.96 -0.5038 -1.1093 -
0.5789 -1.023
-0.259 -1.01 -0.2853 -0.9502 -2.608 -0.874 -0.351 -0.801 -
0.6091 -0.7313 -0.178 -0.64 -0.3423 -0.6594 -0.511 -0.8628 -0.5372 -
0.7868 -0.3 -1.01 -0.237 -1.01 -0.283 -1.0127 -0.6322 -1.0336 -0.739
-0.98 -0.5884 -0.9134 -0.5557 -0.8604 -0.5773 -0.9379 -0.5026 -1.0845 -
0.5794 -1.002
-0.27 -0.98 -0.2957 -0.9228 -2.617 -0.853 -0.36 -0.78 -
0.6088 -0.7113 -0.19 -0.62 -0.3472 -0.6394 -0.5087 -0.8502 -0.5367 -0.766
-0.31 -0.98 -0.25 -0.98 -0.2958 -0.9827 -0.6437 -1.0036 -0.75 -0.95
-0.5874 -0.8895 -0.5516 -0.8225 -0.573 -0.9105 -0.5012 -1.0582 -0.5801 -
0.9803
-0.28 -0.955 -0.3049 -0.8992 -2.624 -0.833 -0.367 -0.76 -
0.6081 -0.6913 -0.202 -0.601 -0.3524 -0.6199 -0.5068 -0.838 -0.5373 -
0.7454 -0.319 -0.955 -0.264 -0.955 -0.3094 -0.9583 -0.6545 -0.9833 -0.76
-0.919 -0.5862 -0.8623 -0.5472 -0.7902 -0.5699 -0.879 -0.4996 -1.0312 -
0.581 -0.958
-0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
-0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
0.5818 -0.9351
-0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
-0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
0.5825 -0.9119
-0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79

-0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
 0.583 -0.8882
 -0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
 0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
 -0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
 -0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
 0.8643
 -0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
 0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
 0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811
 -0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
 0.5825 -0.8403
 -0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
 0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
 0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822
 -0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
 0.5814 -0.81
 -0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
 0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
 0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
 -0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
 0.5794 -0.7783
 -0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
 0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
 0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
 -0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
 0.5765 -0.7458
 -0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
 0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
 -0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
 -0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
 0.7117
 -0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
 0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
 0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
 -0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
 0.5683 -0.6754
 -0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
 0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
 0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
 -0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
 0.5636 -0.6363
 -0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
 0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
 0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
 -0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
 0.5572 -0.5948
 -0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
 0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
 0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
 -0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
 0.5503 -0.5514
 -0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
 0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
 0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96

```
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134 -  
0.5433 -0.5068];
```

```
FH = data_im(:,(nqC-1)*2+1);  
FB = data_im(:,(nqC-1)*2+2);
```

```
DX = 1;  
I = fix(X/DX);  
R = (X-I*DX)/DX;  
if I == 0  
    R = R-1;  
end  
I = I+1;  
if I < 2  
    I = 2;  
end  
if J == 1  
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1)+R*(FH(I+1)+FH(I-1)-2*FH(I)));  
elseif J == 2  
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1)+R*(FB(I+1)+FB(I-1)-2*FB(I)));  
end  
end
```

PUMP.m

```
%% SUBROUTINE PUMP  
KK = 0;  
JJ = 0;  
  
%% COMPUTATION OF PUMP DISCHARGE  
VE = V+DV;  
ALPHAE = ALPHA + DALPHA;  
while 1 == 1  
    JJ = JJ+1;  
    if VE == 0 && ALPHAE == 0  
        TH = 0;  
        TH1 = 0;  
    else  
        TH = atan2(ALPHAE,VE);  
        TH1 = TH;  
        TH = rad2deg(TH);  
        if TH < 0  
            TH = TH+360;  
        end  
        if TH1 < 0  
            TH1 = TH1+2*pi;  
        end  
    end  
    M = fix(TH/DTH)+1;  
    if M == NPC  
        M = NPC-1;  
    end  
    A1 = FH(M)*M-FH(M+1)*(M-1);  
    A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));  
    A3 = FB(M)*M-FB(M+1)*(M-1);
```

```

A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = PARAB(TH,2,nq);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

PUMPV2.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHA == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA,VE);
        TH1 = TH;
    end
end

```

```

    TH = rad2deg (TH);
    if TH < 0
        TH = TH+360;
    end
    if TH1 < 0
        TH1 = TH1+2*pi;
    end
end
M = fix (TH/DTH)+1;
if M == NPC
    M = NPC-1;
end
A1 = FH (M) *M-FH (M+1) * (M-1);
A2 = (FH (M+1) -FH (M)) / (deg2rad (DTH));
A3 = FB (M) *M-FB (M+1) * (M-1);
A4 = (FB (M+1) -FB (M)) / (deg2rad (DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs (DV) <= 0.001 && abs (DALPHA) <= 0.001
    TH = atan2 (ALPHA,VE);
    TH = rad2deg (TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = jedWm (nq,deg2rad (TH),varijanta);
    MB = fix (TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

data-model.m


```

data = [-0.44   -0.61   -0.42   -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44   -0.34   -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44   -0.61   -0.44   -0.61   -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58   -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
      -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54   -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
      -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
      -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
      -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27   -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544
      -0.34   -0.49   -0.3343 -0.4271 -1.178  -0.287  -0.32   -0.27   -
0.4355 -0.2861 -0.34   -0.25   -0.3662 -0.2943 -0.3932 -0.3398 -0.398  -
0.2873 -0.34   -0.49   -0.34   -0.49   -0.3771 -0.4824 -0.6864 -0.5609 -0.78
-0.4    -0.4751 -0.3178 -0.345  -0.4004 -0.3643 -0.4126 -0.3103 -0.364  -
0.4672 -0.4355
      -0.318  -0.464  -0.3146 -0.3997 -1.164  -0.256  -0.306  -0.239  -
0.413  -0.2699 -0.318  -0.23   -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
0.2614 -0.318  -0.464  -0.318  -0.464  -0.354  -0.456  -0.6534 -0.5388 -0.744
-0.369  -0.457  -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
0.4484 -0.4136
      -0.295  -0.438  -0.2936 -0.3722 -1.148  -0.225  -0.29   -0.208  -
0.3933 -0.2511 -0.295  -0.21   -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
0.2355 -0.295  -0.438  -0.295  -0.438  -0.3298 -0.4296 -0.6194 -0.5167 -0.707
-0.338  -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
0.4309 -0.3886
      -0.273  -0.411  -0.2733 -0.3444 -1.132  -0.195  -0.274  -0.178  -
0.3733 -0.2299 -0.273  -0.189  -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
0.2103 -0.273  -0.411  -0.273  -0.411  -0.3066 -0.4024 -0.5864 -0.4913 -0.671
-0.309  -0.4229 -0.257  -0.2916 -0.34   -0.3103 -0.3654 -0.2546 -0.3091 -
0.4151 -0.3608
      -0.251  -0.385  -0.2527 -0.3172 -1.115  -0.165  -0.257  -0.148  -
0.3544 -0.2064 -0.251  -0.169  -0.288  -0.207  -0.3259 -0.246  -0.3145 -
0.1826 -0.251  -0.385  -0.251  -0.385  -0.2834 -0.3761 -0.5533 -0.4685 -0.635
-0.279  -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
0.3941 -0.3351
      -0.23   -0.36   -0.2329 -0.2914 -1.098  -0.137  -0.24   -0.12   -
0.3346 -0.1724 -0.23   -0.15   -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
0.1548 -0.23   -0.36   -0.23   -0.36   -0.2612 -0.3507 -0.5213 -0.4466 -0.6
-0.25   -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
0.3738 -0.3187

```

	-0.21	-0.335	-0.2137	-0.2658	-1.081	-0.11	-0.223	-0.093	-
0.315	-0.1331	-0.21	-0.131	-0.2478	-0.1672	-0.2867	-0.2044	-0.2728	-
0.1324	-0.21	-0.335	-0.21	-0.335	-0.24	-0.3254	-0.4895	-0.4248	-0.565
-0.221	-0.3635	-0.1753	-0.2381	-0.2791	-0.2538	-0.3121	-0.208	-0.2289	-
0.3532	-0.3008								
	-0.19	-0.311	-0.1943	-0.2412	-1.063	-0.0839	-0.205	-0.0669	-
0.2953	-0.0887	-0.19	-0.113	-0.228	-0.1468	-0.2671	-0.1816	-0.2519	-
0.1122	-0.19	-0.311	-0.19	-0.311	-0.2187	-0.3009	-0.4577	-0.4055	-0.53
-0.191	-0.342	-0.1465	-0.2203	-0.2552	-0.238	-0.2922	-0.1946	-0.205	-
0.3299	-0.2808								
	-0.17	-0.287	-0.1749	-0.2168	-1.045	-0.0584	-0.187	-0.0414	-
0.2755	-0.048	-0.17	-0.095	-0.2082	-0.126	-0.2475	-0.1578	-0.231	-0.091
-0.17	-0.287	-0.17	-0.287	-0.1975	-0.2764	-0.4267	-0.3862	-0.496	-
0.161	-0.3187	-0.1177	-0.2025	-0.2291	-0.2222	-0.2707	-0.1812	-0.1791	-
0.3077	-0.2581								
	-0.151	-0.263	-0.1561	-0.1923	-1.027	-0.0329	-0.169	-0.0159	-
0.255	-0.018	-0.151	-0.0774	-0.1891	-0.1043	-0.2283	-0.1319	-0.2102	-
0.0581	-0.151	-0.263	-0.151	-0.263	-0.1773	-0.2519	-0.3966	-0.3669	-0.463
-0.131	-0.2993	-0.0872	-0.188	-0.2014	-0.2064	-0.2472	-0.1676	-0.1473	-
0.2873	-0.2314								
	-0.13	-0.24	-0.1357	-0.1685	-1.008	-0.007	-0.15	0.01	-
0.2346	0.009	-0.13	-0.06	-0.1693	-0.0814	-0.2096	-0.1034	-0.1893	-
0.0279	-0.13	-0.24	-0.13	-0.24	-0.1553	-0.2282	-0.3662	-0.3502	-0.43
-0.1	-0.2786	-0.0555	-0.1743	-0.1617	-0.1907	-0.2211	-0.154	-0.1178	-
0.2698	-0.1989								
	-0.108	-0.217	-0.1146	-0.1445	-0.989	0.0196	-0.131	0.0366	-
0.2135	0.0391	-0.108	-0.0426	-0.1492	-0.0572	-0.1915	-0.0722	-0.1684	0.0005
-0.108	-0.217	-0.108	-0.217	-0.1325	-0.2045	-0.3363	-0.3338	-0.398	-
0.0686	-0.2582	-0.0269	-0.1598	-0.1182	-0.1749	-0.1924	-0.1404	-0.0915	-
0.2496	-0.1582								
	-0.0862	-0.193	-0.0936	-0.1197	-0.97	0.0465	-0.112	0.0635	-
0.1954	0.06	-0.0862	-0.0251	-0.1291	-0.0318	-0.1732	-0.0387	-0.1475	0.0245
-0.0862	-0.193	-0.0862	-0.193	-0.1098	-0.1798	-0.3065	-0.3157	-0.366	-
0.0371	-0.2372	-0.0017	-0.1445	-0.0806	-0.1591	-0.1611	-0.1266	-0.0677	-
0.2277	-0.1083								
	-0.0637	-0.169	-0.0721	-0.0949	-0.9511	0.073	-0.0931	0.09	-
0.1749	0.0764	-0.0637	-0.00726	-0.1083	-0.0055	-0.1541	-0.0036	-0.1266	
0.0422	-0.0637	-0.169	-0.0637	-0.169	-0.0865	-0.1553	-0.2765	-0.297	-
0.334	-0.00643	-0.2157	0.0212	-0.1286	-0.0487	-0.1393	-0.1277	-0.1127	-
0.0454	-0.2072	-0.0708							
	-0.0415	-0.145	-0.0513	-0.0704	-0.9337	0.099	-0.0757	0.116	-
0.1553	0.0914	-0.0415	0.011	-0.0872	0.0162	-0.1341	0.0216	-0.1058	0.0608
-0.0415	-0.145	-0.0415	-0.145	-0.0635	-0.1308	-0.2466	-0.2771	-0.302	
0.0228	-0.193	0.0426	-0.1121	-0.0197	-0.1187	-0.0886	-0.0987	-0.0237	-
0.1874	-0.0495								
	-0.02	-0.12	-0.0314	-0.0457	-0.918	0.123	-0.06	0.14	-
0.1346	0.1063	-0.02	0.03	-0.0661	0.0364	-0.1134	0.043	-0.0849	0.0797
-0.02	-0.12	-0.02	-0.12	-0.0411	-0.1056	-0.2168	-0.2538	-0.27	0.05
-0.1723	0.0629	-0.0965	0.0079	-0.0981	-0.0615	-0.0845	-0.003	-0.1677	-
0.0308									
	0.000468	-0.0943	-0.0129	-0.021	-0.9042	0.145	-0.0462	0.162	-
0.115	0.1223	0.000459	0.0497	-0.0453	0.057	-0.0922	0.0645	-0.064	
0.0975	0.000471	-0.0943	0.000459	-0.0944	-0.0197	-0.0801	-0.1873	-	
0.2275	-0.238	0.0746	-0.1549	0.0824	-0.0825	0.0328	-0.0774	-0.0445	-
0.0701	0.0175	-0.1491	-0.012						

	0.0202	-0.0681	0.005	0.0037	-0.891	0.166	-0.033	0.183	-
0.0936	0.1395	0.0202	0.0699	-0.0258	0.0778	-0.0731	0.086	-0.0431	0.1135
0.0202	-0.0682	0.0202	-0.0682	0.0012	-0.0542	-0.1571	-0.1983	-0.205	
0.0971	-0.1394	0.1014	-0.0684	0.0539	-0.0568	-0.0249	-0.0556	0.0383	-
0.1298	0.0086								
	0.0398	-0.0418	0.0231	0.0282	-0.8767	0.186	-0.0187	0.203	-
0.0725	0.1579	0.0397	0.0902	-0.0063	0.0988	-0.0536	0.1077	-0.0223	0.1285
0.0398	-0.0418	0.0397	-0.0419	0.0219	-0.0284	-0.1262	-0.1678	-0.171	0.118
-0.1221	0.12	-0.0542	0.0753	-0.0362	0.0003	-0.0408	0.0595	-0.1083	
0.0312									
	0.0595	-0.0157	0.042	0.0523	-0.85957	0.205	-0.00157	0.222	
-0.0519	0.177	0.0595	0.11	0.0138	0.1196	-0.0332	0.1294	-0.0014	
0.1489	0.0595	-0.0157	0.0595	-0.0158	0.0411	-0.0027	-0.0944	-0.1377	-
0.136	0.139	-0.1027	0.1384	-0.0396	0.0969	-0.0156	0.0292	-0.0258	0.0812
-0.0898	0.0559								
	0.08	0.01	0.06	0.0758	-0.838	0.223	0.02	0.24	-
0.0307	0.1943	0.08	0.13	0.0348	0.1405	-0.0116	0.1512	0.0183	0.1705
0.08	0.01	0.08	0.01	0.0524	0.0227	-0.0617	-0.1081	-0.1	0.16
-0.0809	0.1567	-0.0245	0.1188	0.005	0.057	-0.0105	0.1033	-0.0665	
0.0822									
	0.102	0.0349	0.07	0.0987	-0.8109	0.241	0.0471	0.258	-
0.0084	0.2096	0.102	0.149	0.0571	0.1609	0.011	0.1731	0.0424	0.1901
0.102	0.0349	0.102	0.0351	0.0597	0.0475	-0.0278	-0.0806	-0.0628	0.182
-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								

	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38		
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947		
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164	
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774		
0.1144	0.2703									
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215	
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27	
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344		
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404		
0.2953										
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41		
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413		
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22	
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388		
0.1685	0.3123									
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424		
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575		
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251	
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628		
0.1976	0.3343									
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911	
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333	
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389		
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256		
0.3524										
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317	
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355	
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402		
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253		
0.3725										
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461		
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359		
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35	
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264		
0.2845	0.3877									
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653	
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4	0.38
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442	
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405			
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477		
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906		
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406	
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562		
0.3521	0.4251									
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483		
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178		
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43	
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687		
0.3928	0.4482									
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488		
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452		
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453	
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802		
0.4292	0.4675									

	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.4993
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77

0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92

0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	

0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.55									
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387

1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	0.3765
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807	
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.47	1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34
1.1119									
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441	
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.71									

1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205		
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	0.35
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
									0.3575
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
									1.69
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
									0.3705
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403

1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									

	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388		
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095		
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04	
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401		
1.7406	1.2722									
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048	
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79	
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548		
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385		
1.2809										
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975	
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79	
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564		
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374		
1.2913										
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903	
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78	
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112	
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025		
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41		
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074		
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315										
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414		
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07		
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03	
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123		
1.7379	1.3281									
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968	
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74	
1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642		
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379		
1.3419										
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421		
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973	
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562		
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425		
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644		
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04	
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561		
1.7375	1.3703									
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396	
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69	
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71		
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369		
1.3837										
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436		
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587		
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04	
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887		
1.7349	1.397									
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193	
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66	

1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	

	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03

1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22	
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22	
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	1.22
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									

	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8089	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.20881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549
0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8205	0.848	1.15	0.9	1.16	0.9	1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6176	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408	
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.304601	0.6702	0.8008	1.0419	0.48	
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	

0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369

0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	0.7307	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65

0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548

0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								

	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									

	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068		
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1	
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524		
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815		
0.4313	0.0019									
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767		
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644		
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527	
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701		
0.4411	-0.0102									
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864		
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711		
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531	
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451	
-0.0219										
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974		
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499	
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535		
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461	
-0.0336										
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11		
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862		
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54	
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326		
0.4711	-0.0457									
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-		
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943	
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546	
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126		
0.4814	-0.058									
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								

	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462	
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-
0.1276									
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
-0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
-0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								
	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
-0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
-0.16									
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								

	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445		
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-	
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596	
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634		
0.6393	-0.2258									
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467		
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-	
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594	
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718		
0.6482	-0.2387									
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49		
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-	
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59	
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656	
-0.252										
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515		
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-	
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586	
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952		
0.6624	-0.2654									
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541		
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-	
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581	
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179		
0.6681	-0.2794									
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568		
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-	
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575	
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507		
0.6733	-0.294									
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594		
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171	
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-	
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774	
-0.3087										
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429	-
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36	
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27		
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-	
0.3232										
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645		
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-	
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551	
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587		
0.6807	-0.3364									
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644	
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346	
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303		
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-	
0.3506										
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69		
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-	
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528	
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434		
0.6802	-0.3704									

	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								
	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								

	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								
	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-

1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151	-
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148	-
-1.2164										
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011	-
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12	-
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95		-
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-	-
1.2562										-
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234	-
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352		-
0.0295	-1.2866									-
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274	-
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-	-
0.0152	-1.3104									-
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31	-
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-	-
0.0504	-1.3297									-
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895	-
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815	-
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-	-
1.3459										-
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-	-
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-	-
1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372	-
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-	-
0.1599	-1.36									-
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-	-
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-	-
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398	-
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-	-
0.1987	-1.3725									-
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-	-
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-	-
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42	-
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-	-
0.2339	-1.3837									-
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037	-
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05	-
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-	-
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394	-
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-	-
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-	-
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457	-
-1.14	-0.2412	-1.4857	-0.3176	-1.4603	-0.3779	-1.5481	-0.2243	-1.5076	-	-
0.2892	-1.4035									-
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-	-
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-	-
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472	-

-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-
0.3082	-1.4122								
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485
-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-
0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
-1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-
0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
-1.31	-0.3969	-1.5769	-0.4352	-1.4786	-0.483	-1.5536	-0.3691	-1.5189	-
0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-
1.3927	-0.0252	-1.63	0.144	-1.64	0.0825	-1.6675	-0.3851	-1.8762	-0.528
-1.34	-0.4155	-1.578	-0.4459	-1.4791	-0.4986	-1.5513	-0.3849	-1.5183	-
0.4329	-1.4409								
	0.0918	-1.64	0.1044	-1.5142	-2.121	-1.273	0.136	-1.2	-
0.5036	-1.4641	0.172	-1.12	-0.0959	-1.1146	-0.371	-1.5708	-0.4071	-
1.3932	-0.0327	-1.64	0.132	-1.64	0.071	-1.6647	-0.3924	-1.8526	-0.534
-1.37	-0.432	-1.5771	-0.4681	-1.4791	-0.5129	-1.5476	-0.398	-1.517	-
0.4462	-1.44								
	0.08	-1.64	0.0914	-1.5113	-2.137	-1.263	0.12	-1.19	-
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0.4584	-1.4355								
	0.0682	-1.64	0.0787	-1.5085	-2.152	-1.253	0.105	-1.18	-
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1.3913	-0.0473	-1.64	0.108	-1.64	0.0481	-1.6592	-0.4069	-1.8053	-0.546
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-1.4309									
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0.4818	-1.4262								
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0.5789	-1.0435								
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0.7117
-0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
-0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134
-0.5433 -0.5068];

Prilozi

Prilog – P19 Kod razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 8 – Ovaj primjer je urađen sa Furijerovom funkcijom 3 reda i Gausovom funkcijom 3 reda – Gausov model od 3 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wm karakteristiku)

Prilog za poglavlje 9.3 Analiza uticaja specifične brzine (nq) na rezultate dobijene proračunom prelaznih procesa na pumpnoj instalaciji (vrijednosti za Wh i Wm karakteristike dobijene modelskim ispitivanjima i iz Univerzalne jednačine iz Varijante 8 – Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Gausovom funkcijom 3 reda – Gausov model od 3 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wm karakteristiku, koriste se u razvijenom numeričkom modelu u programu Matlab za proračun prelaznih procesa).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 8 – Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Gausovom funkcijom 3 reda – Gausov model od 3 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wm karakteristiku) u programu Matlab:

```
Start.m
%% Program namijenjen za pokretanje više nq-ova za analizu trazijenta
clear
close all
clc
nqt = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
```

```

bojaiz =
{'.:r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':.c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k', '--r', '--b', '--g', '--y', '--
m', '--c', '--k', '-.r', '-.b', '-.g', '-.y', '-.m', '-.c', '-.k'};

%% Podaci dobijeni iz modela
run data_model.m

%% Odabir udara
varijanta = listdlg('ListString', ...
    {'1. Wh [f3-g5] <-> Wm [f2-g5]', '2. Wh [f3-g3] <-> Wm [f2-
g4]', '3. Wh [f3-g4] <-> Wm [f2-p7]', '4. Wh [f3-p8] <-> Wm [f2-p8]', '5. Wh
[f4-p9] <-> Wm [f2-p9]', '6. Wh [f5-p9] <-> Wm [f2-g3]', '7. Wh [f4-p8] <-> Wm
[f2-p6]'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi varijante za udar');

jnk = size(data);
Theta = 0:1:360;
ThetaD = deg2rad(Theta);
dataWh = data(:,1:2:jnk(2));
dataWm = data(:,2:2:jnk(2));

%% Pokretanje analize za sve modele
vs = 1:length(nqt);

%% Pokretanje analize za sve modele
for c = vs
    nq = nqt(c);
    fhc = char(bojaiz(c));
    fhf = char(bojafun(c));
    tableiso = ['Uporedni rezultati za nq=', num2str(nq), '.xlsx'];
    leg{c*2-1} = ['model nq=', num2str(nq)]; % legenda za podatke modela
    leg{c*2} = ['funkc. za nq=', num2str(nq)]; % legenda za podatke dobijene
jdnacinom
    run Clprogram.m % pokretanje koda za analizu trazijenta
end

%% Ispis legende na dijagrame
figure(1) % Dijagram za Wh
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(2) % Dijagram za Wm
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
leg([5 6 7 8]) = [];
figure(3) % Dijagram Time-Alpha
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(4) % Dijagram Time-V
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(5) % Dijagram Time-Head (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(6) % Dijagram Time-Head (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(7) % Dijagram Time-Head (spoj cijevi sa strane cijevi 1)

```

```

legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(8) % Dijagram Time-Head (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(9) % Dijagram Time-Discharge (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(10) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(11) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(12) % Dijagram Time-Discharge (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')

```

Clprogram.m

```
%% Trazijenti uzrokovani prestankom rada pumpi
```

```

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj doseg na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åe se izraÅunati prijelazni uslovi

```

```

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

```

```
%% Podaci
```

```

FB = dataWm(:,c);
FH = dataWh(:,c);

```

```
% Podaci za cijevi
```

```

% u sistemu su dvije cijevi ali zbog boljeg raÅuna podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

```

```
DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)
```

```
%% Ispis podataka
```

```

if c ~= 3 && c ~= 4
    disp(' ')

```

```

disp('=====')
disp([' Wh i Wm od modela za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅunati uslov prolaznog stanja = ',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅnih taÅaka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Diagram za Wh
figure(1)
plot(Theta,FH,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wh'), title('Dijagram za Wh')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100, 100, 1000, 900])
% Diagram za Wm
figure(2)
plot(Theta,FB,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wm'), title('Dijagram za Wm')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100, 100, 1000, 900])

if c ~= 3 && c ~= 4
disp(' ')
Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f      %.1f      %.2f      %.1f      %.3f \n',Table1')

disp('*****')

```

```

%% PRORAČUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % Površina poprečnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I) = L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach faktor
end
trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMP
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARAB(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARAB(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I = 1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1) - (J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);

```

```

T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljenje tabele za ispis -----
--
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
--
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
            Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
            vel = size(Excel);
            Excel = Excel(2:vel(1),:);
            p = size(Excel);
            ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
            TABLEe = array2table(ExcelNew,...

'VariableNames',{'Vrijeme','Alpha','V','Disch_1_1','Disch_N1_1','Pad_1_1','Pa
d_N1_1','Disch_1_2','Disch_N1_2','Pad_1_2','Pad_N1_2'});
            disp(' ')
            disp('
-----')
            disp('
| Cijev No.2 | Cijev No.1 |')

```

```

disp(TABLEe)

disp('*****')

disp('*****')

disp('Cijev No max. Pritisak min. Pritisak')
fprintf(' %.0f %.2fm %.2fm \n',Table2')
break
end

%% PUMP AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMP.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

```

```

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
    end
    if T > TLAST
        break
    end
    end
    end
    ddd = size(Excel);
    for ks = 1:length(L)
        if ks < 10
            tableiso = ['model nq=', num2str(nq), ' cijev 1 presjek
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
            xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
        elseif ks >= 10
            tableiso = ['model nq=', num2str(nq), ' cijev 2 presjek
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
            xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
        end
    end
    end

    % Dijagram Time-Alpha
    figure(3)

    plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),2), fhc, 'Mar
kerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:len
gth(Excel(:,1)),1))), grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
        title('Dijagram Vrijeme-Alfa')
        xlim([0 TLAST])
        set(gca, 'xTick', 0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-V
    figure(4)

    plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),3), fhc, 'Mar
kerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:len
gth(Excel(:,1)),1))), grid on, hold on

```



```

    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
title('Dijagram Vrijeje-V')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (connection pump and pipe Nu.1)
    figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
    figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
    figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (end of pipe Nu.2)
    figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

```

```

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of model (during the transient process)
figure(4*(c-1)+13)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);

```

```

for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 700])

% Diagram for Discharge of model (during the transient process)
figure(4*(c-1)+14)
s1 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s1.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 700])
end
run C1programV2.m

```

C1programV2.m

```

%% Trazijenti uzrokovani prestankom rada pumpi

clear A A1 A2 A3 A4 ALPHA ALPHAe ALSPQ ALPV AN AN1 AR AUNADJ BETA C5 C6 CA CF
CN CP D DALPHA DENOM DT DTH DV
clear ER Excel ExcelNew F F1 F1AL F1V F2 F2AL F2V FB FH G H HMAX HMINHO HP HR
HRES I IP1 IPRINT IspisPodatakaTabela
clear J JJ JM1 JP1 K KK L M MB N N1 NN NN1 NO NP NP1 NPC NPP NR NRLP od p Q
QO QP QR T Table1 Table2 TABLEe TH TH1
clear TLAST TR V VE vel VESQ WR2 Z

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åt se izraÅunati prijelazni uslovi

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe

```

```

QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci dobijeni od Fourierove jednacine i polinoma

FH = jedWh(nq,ThetaD,varijanta);
FB = jedWm(nq,ThetaD,varijanta);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÅ?una podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od Fourierove jednacine za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅ?unati uslov prolaznog stanja =
',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅ?nih taÅ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

```

```

% Dijagram za Wh
figure(1)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

%Digram za Wm
figure(2)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÄUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % Površina popreÄnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach Darcy-
Weisbach faktor trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMPV2
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);

```

```

    TH = rad2deg(TH); % *57.2985
end
Z = jedWh(nq,deg2rad(TH),varijanta);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = jedWm(nq,deg2rad(TH),varijanta);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljenje tabele za ispis -----
        --
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
        --
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
            end
        end
    end
end

```



```

    if NP ~= 1
        for I = 1:NP1
            N1 = fix(N(I));
            NN = fix(N(1))+1;
            IP1 = I+1;
            CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
            CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
            HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
            HP(IP1,1) = HP(I,NN);
            QP(I,NN) = CP-CA(I)*HP(I,NN);
            QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
        end
    end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
for I = 1:NP
    NN = N(I)+1;
    for J = 1:NN
        Q(I,J) = QP(I,J);
        H(I,J) = HP(I,J);
    end
    if H(I,1) > HMAX(I)
        HMAX(I) = H(I,1);
    end
    if H(I,1) < HMIN(I)
        HMIN(I) = H(I,1);
    end
end
end
if K == IPRINT
    break
end
end
if T > TLAST
    break
end
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 1 presjek
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 2 presjek
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end

```



```

        end
    end

    % Dijagram Time-Alpha
    figure(3)

    plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),2),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
    title('Dijagram Vrijeme-Alfa')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-V
    figure(4)

    plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),3),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
    title('Dijagram Vrijeme-V')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (connection pump and pipe Nu.1)
    figure(5)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
    figure(6)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
    figure(7)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')

```

```

xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhf),
grid on, hold on

```

```

xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of function (during the transient process)
figure(4*(c-1)+15)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s2 = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za funkciju n_q=', num2str(nq), ' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s2.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])

% Diagram for Discharge of function (during the transient process)
figure(4*(c-1)+16)
s3 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za funkciju n_q=', num2str(nq), ' (tokom procesa
trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s3.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])
end

```

jedWh.m

```

function FH = jedWh(nq,ThetaD,varijanta)

%% obrada koeficijenata
% ff - jednacina furiera
if varijanta == 1
    ff = 3;

```

```

Koeff = [0.715731479330851 29.904965832957600 1.160146567645740
0.521115135250857 24.984627647082200 2.924225219363250 0.669699222908911
48.171790875051100 16.877203146165100 1.093124325893790
16.530859288034800 1.124728037889720 0.000000000000000
123.069952639871000 5.297192353276950
-0.961523123293475 20.821344093580800 6.602453878194210
64.257648057580600 33.955125342916500 9.386353220569020 -
64.928459861354100 33.949656843977400 9.303213895257580 -0.553408365350271
43.537626921051000 2.662769940796440 -0.832693428738023
52.435524425571700 11.860111687227100
1.752508344167960 19.813538033814300 1.338739746534640
423.391777872348000 29.423080141571000 0.233823124130313
14.034992024690400 192.667467724811000 84.128246511778100 -
2.249991305664610 52.979879468544200 2.414940141168370 -0.139425746706312
35.411065094104200 4.635405982702990
-0.228259772514762 17.940643343430100 3.150874761319510
1.622551266692810 19.737858950059500 0.948089552133070
1543.400636295410000 39.201326063337000 9.564845520862440 -
1495.340285273880000 39.202390860318100 9.536202355573940 -
48.504466641276900 39.166154370154600 10.532068185319700
52.774979545222600 19.948207260269500 0.382110550217316
0.263177598029735 36.944649226057900 1.154196394902190 -
0.441810896482947 20.178226600166000 1.910754413463700 -
49.076267398946200 50.575884925920200 12.341447824439800 49.056404431938300
50.553491696140300 12.272979751954900
-0.181804234398022 19.327153282371900 4.958850828789490
0.000000000000000 26.029637164455600 0.002684600837807 -
0.191627659558586 33.994394599288800 8.496759972665970 -0.239544485919972
52.539088076212200 3.537489182415010 -0.007662269518264
41.686968452601200 0.721756412942864
0.171794030111370 54.965027620881700 4.393250547557860
0.122789542611869 42.736325018115600 5.331583584358960 0.125185937307061
21.167598454897700 3.168706724130010 11.350749739153300
27.800622272514600 0.367470386336513 0.084923558027068
35.178568691978200 2.660337169981850
0.683974778070928 28.479136553910500 10.684175903899800
1.059245427535040 51.273284066137800 20.043005489689600 1.540300759195000
16.534305521866800 0.955404836859471 0.081554743811410
39.737742947716300 2.241646592944000 0.413184604032852
21.483285325409600 4.496030498742180];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);

```

```

elseif varijanta == 2

```

```

    ff = 3;
    Koeff = [0.547307872624346 29.8839532563986 0.793246192203723
2.309685047217230 332.7703121851250 239.007138115351 0.102040658730334
43.9750016600212 1.73890423394828
-0.640843699205076 20.9637652502637 0.804458763664244
0.178200238232620 21.3675216323105 10.513306899753500 -
10.439195981271300 1627.61262058135 958.911327386202
1.696914405871140 19.9667095602136 1.078693182634310
2563039855.449910 29.4645537432429 0.139184491455413 1.055669091064470
174.558135048266 134.204326548231

```

```

-0.340698312375039 25.8630362606411 12.577242648008500 -
89.040274353193300 47.1888824574428 7.037219629716410 88.861378955054300
47.1851558391851 7.0037284373794
10.5212705783009 19.7443505022493 0.555280900913813
0.207955165908923 36.9386083983734 0.865490915538270 -
0.102485396609892 97.7537061085187 109.176933764359
-0.181478865700741 19.3076730512134 4.891681598994380 -
0.190652562739006 34.0378712221283 8.685029036984850 -0.489680873225789
52.7736206038725 2.493916983317
15253182234484.2 84.3913147403198 4.992659747586930
0.114843207641356 42.5555276529245 10.898582871234300 0.119438110316359
21.1098882550937 3.364929063690
0.957616501610985 25.1725505727929 23.954052282718500
0.840879738870500 57.5954963477624 19.356757711087200 0.429351737084564
16.5531614483509 0.912340659718];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);

elseif varijanta == 3
ff = 3;
Koeff = [0.541944061628251 29.9112840097684 0.609750024000405
367254.1154988030 1015.46632507675000 268.780244089738000 -
3.248115803823190 47.7527080555991 7.827871488938230 3.067613744326430
47.2745171219860 6.891644922616810
3558.27595727144 39.7803874584052 0.563866270550681 -
0.655122677605182 20.95809611855700 0.861535581007935 0.252438714671051
21.9706860056295 9.098398307081290 -219.142591015502000
5061.2938487694700 2096.985480589480000
1.753257619552930 19.7830735192274 1.646973739848750
0.355840125132201 27.87904920014190 4.399464526021200 0.394297739432654
42.6492408057384 6.113929831752710 57896858542275.2 824.9561617359720
135.150482547991000
0.618074311043399 20.9226089916430 0.746923433999019 -
0.458971083290531 22.67025888312530 9.181967353715210 -0.345830048302581
38.8447829814503 5.582997567637060 -0.346484063699974 54.5007057843973
12.019061272874800
17.203169456107400 19.9690362476728 0.396904337894192
0.215222047721478 36.91309306257100 0.867897634939713
10.307109676216700 68.7429160784018 24.928074260382400 -
11.451540447036400 71.7431334141354 26.729143588279700
-0.470905359789293 19.4695226030676 1.502145727627460 -
10772207070505.6 -8.57928427228217 4.288602187187170 -0.179943541469161
33.3340542180074 10.491749904664400 -0.436896743949830 52.7842153808616
2.562788678310650
1.861727066250480 82.6985044398997 17.083425428977600
0.118891597708152 40.96725307422590 6.788150256519830 0.125236941932015
21.1702636510723 3.150101855672350 70.626163963485500 27.7996969197635
0.311483670611709
0.947005281756741 24.7563868076686 24.717484926063400
0.859059033541582 59.50554823472470 21.118815767490900 0.373618340978890
16.5470804169307 0.943324093728692 0.138683979457977 39.7531160229800
1.300939985544000];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);

```

```

elseif varijanta == 4
    ff = 3;
    Koeff = [-0.000000000719419155449666    0.0000002001394994474110    -
0.000023764960141    0.001569835734795    -0.0629469913535133    1.5648923022590600
-23.49247414158300    194.2309419847820    -675.488282721413
    -0.000000001523016309455770    0.0000004174874484811200    -
0.000048925444901    0.003197857344233    -0.1273605203951220    3.1614422875066100
-47.71855216007930    400.1219953806810    -1426.944971356050
    0.000000001522718068577850    -0.0000004154618973418480
0.000048438943916    -0.003147986716868    0.1245587951729840    -
3.0683940191356800    45.89313605637810    -380.5847947191610    1339.261581398480
    0.000000001110692155909410    -0.0000003026294716142210
0.000035209457530    -0.002281832835106    0.0899894602976154    -
2.2091496314307000    32.93945956558710    -272.5966545465320    958.297581351687
    0.000000000192612735161932    -0.0000000554425448082238
0.000006805925116    -0.000464329017993    0.0192103854214338    -
0.4923109589792610    7.61341706522743    -64.8226372153901    232.338425397081
    -0.000000000208891289028475    0.0000000582810601414563    -
0.000006936942087    0.000459275162479    -0.0184691388695222    0.4612827535088290
-6.98004516655937    58.4680159026686    -207.691669186717
    0.000000000138464448665096    -0.0000000386868107512570
0.000004628910294    -0.000309251125959    0.0125921729738134    -
0.3192838510771930    4.91194626223695    -41.8338962620285    150.852627955751
    -0.000000000136873279061494    0.0000000374362153743245    -
0.000004373515728    0.000284635370486    -0.0112700102873447    0.2775625886048120
-4.14612160321041    34.3004656268043    -119.239865644071];
elseif varijanta == 5
    ff = 4;
    Koeff = [0.0000000001483124577611510    -0.000000045665937634766600
0.0000061357877970046800    -0.0004718019124193200    0.022858794966160900    -
0.72290265217385900    14.904405618379200    -192.929777701929
1420.95321736821    -4531.661823027010
    0.000000000149746639175877    -0.000000005590353141930380
0.0000008865274868445490    -0.0000787571629071348    0.004331881715268490    -
0.15325392842910800    3.491252098236360    -49.42289555231910
394.7563686236520    -1356.839102956130
    -0.0000000001561615533164640    0.000000048994403816912600    -
0.0000067063266430236000    0.0005251084191534630    -0.025891781569837900
0.83274221924664700    -17.448846331869500    229.409121150463    -1715.40142142772
5554.050146978870
    -0.0000000001098353663449900    0.000000034356138354869400    -
0.0000046876609075013900    0.0003658027867456140    -0.017971975524956000
0.57583846875931900    -12.018955721533900    157.410871214888    -1172.76778277565
3784.379042484440
    0.000000000429066366325918    -0.000000013387389445635400
0.0000018202543097994200    -0.0001414450183278470    0.006917574426346170    -
0.22068409136372600    4.590359053360550    -60.0139643577423
447.3984941818910    -1448.690295678320
    0.000000000210850648552858    -0.000000006507143318240710
0.0000008770652486108870    -0.0000677216662989428    0.003298958943502670    -
0.10506395814251700    2.185881397049690    -28.6264928632753
213.9661655604780    -694.969331998672
    -0.000000000329196048129478    0.000000010260353632250700    -
0.0000013949316249789700    0.0001084823448101510    -0.005313764954737800

```

```

0.16986189813235100 -3.540469620672820 46.35938029125110 -
345.7782831314710 1118.675045669680
-0.000000000000440744767636384 0.000000000223304346718617 -
0.0000000409439272033431 0.0000039087285884900 -0.000221844837318895
0.00790572650884895 -0.178925823761283 2.50042322174394 -19.6975324318129
66.9223375772029
0.0000000000458451701841957 -0.000000014416839451208000
0.0000019773158226702200 -0.0001550616904532190 0.007652651619037800 -
0.24616732022711200 5.154659912457500 -67.67115282446900
504.9029624675620 -1630.22245311844
0.0000000000101532875002068 -0.000000003220251903217280
0.0000004458615800541910 -0.0000353162944111337 0.001760537106148740 -
0.05716707191022150 1.206609576121150 -15.93021615975910
119.1678726400810 -383.488164180874];

```

```

elseif varijanta == 6

```

```

    ff = 5;

```

```

    Koef = [0.00000000000222752081735310 0.000000000000746043787443621
-0.0000000996979953557631 0.0000159910305085119 -0.00121789304382982
0.0541251324010482 -1.479805955797970 24.54960898214220 -
226.5789008824530 890.0673521014990
-0.00000000009853455894028930 0.000000029878451956899500000
-0.0000039529040602605100 0.0002993908888804500 -0.01430271029464040
0.4468440858784710 -9.127515208869680 117.51306604849600 -
864.9233259684540 2770.6755281101000
0.00000000006537081513489800 -
0.000000020305871676726200000 0.0000027635851293094100 -
0.0002163535500722580 0.01074058682124290 -0.3507198849776120
7.532893564066130 -102.57471636511800 802.5496341138720 -
2741.9375456265100
0.00000000001517519230302730 -
0.000000004960321329257650000 0.0000007154612462950320 -
0.0000597592595735836 0.00318296067274276 -0.1119422123509300
2.593431424771730 -38.04673273729810 319.4800663849460 -
1164.8959434468200
0.00000000024101930392032400 -
0.000000075238124405045100000 0.0000102508513132967000 -
0.0007994551828851060 0.03930161429305600 -1.2620431310661400
26.452038063744100 -348.69706904620800 2621.3372269439900 -
8555.6667189565200
0.00000000007788660088205660 -
0.000000024469978478046000000 0.0000033590198876066700 -
0.0002642302707014880 0.01311594213135450 -0.4256881437796030
9.025483550010260 -120.42925435045800 916.7327929538220 -
3029.9959514784600
-0.00000000003942001698406580 0.000000012217715847756700000
-0.0000016524894036455000 0.0001279340042024160 -0.00624384792629115
0.1990913323318370 -4.144782214762320 54.28923693214120 -
405.6852302594130 1316.8944618435100
0.00000000002457664382015730 -
0.000000008065392363847570000 0.0000011563609185520000 -
0.0000949274326042762 0.00490942641771828 -0.1656095133279460
3.637771032702450 -50.09613392005990 391.9116353377320 -
1325.5420757321700

```

```

0.00000000000949183684374935 -
0.000000002789641097342930000 0.0000003522864135437280 -
0.0000249166136057757 0.00107645967120288 -0.0289579453589674
0.469648850383232 -4.10250314680034 13.0347850621519 21.7580121829851
-0.00000000001809371173010940 0.000000005464185550308950000
-0.0000007221076652398840 0.0000548527943207524 -0.00264173379308249
0.0837145630047144 -1.746333116178210 23.12148877661600 -
176.1485818612130 587.3167315808940
-0.00000000000016802677567676 0.000000000560037280421419000
-0.0000001480108904131520 0.0000172709274948416 -0.00113336595664109
0.0454661343704326 -1.138536354368660 17.34989300307600 -
146.9199722947070 528.7883109465540
-0.00000000003508718158417060 0.000000010821734507197800000
-0.0000014561447524457000 0.0001121394252697340 -0.00544471830155742
0.1727836184680380 -3.582741239557160 46.79409137265480 -
349.1752107088000 1134.2056385207600];

```

```

elseif varijanta == 7
ff = 4;

```

```

Koeff = [-0.0000000007491715910670530 0.0000002091199311599920 -
0.00002490561744261790 0.001649271355949260 -0.06625528487281190
1.649038275173740 -24.76603550373240 204.7071071755390 -
711.4458471321500
-0.0000000010552420263987900 0.0000002881296126501090 -
0.00003363538470894380 0.002190419745732360 -0.08695421372091220
2.152897424241530 -32.44390700103780 271.9556476709870 -
971.1233567020060
0.0000000017005212852224300 -0.0000004660035178201750
0.00005456116608651340 -0.003559792726267500 0.14134330099473000 -
3.491969172977950 52.34569984559540 -434.7882844670870 1531.6580309777400
0.0000000010922471894073500 -0.0000002985640906956940
0.00003484597422847180 -0.002264894468442660 0.08954685687252240 -
2.202463228792380 32.87429142040740 -272.0556032536690 955.2517556144620
-0.0000000003930166973677600 0.0000001056755859092100 -
0.00001215839446054350 0.000781681754508763 -0.03071670486874540
0.755595348162435 -11.36437220232550 95.5397852324739 -
343.5058680103350
-0.000000001214833445735680 0.0000000344915483728896 -
0.00000418797866792135 0.000283674943609533 -0.01171069210109040
0.301412052180571 -4.71924013416871 41.0566979362727 -
151.8625503481100
0.0000000002905762450021240 -0.0000000794415646938760
0.00000928872584457214 -0.000606074541814293 0.02411168834328690 -
0.598292940602111 9.03356140457960 -75.8188885722162 270.7354853335900
0.0000000000898237887908671 -0.0000000233314630185466
0.00000258067289746543 -0.000158815832950063 0.00595434699964155 -
0.139534434253989 2.00068577224751 -16.0831758472293 55.5696823478691
-0.0000000005325251158750800 0.0000001453112760685980 -
0.00001692065356855950 0.001096531963795250 -0.04318969609679080
1.057265931630640 -15.68971110071670 128.9466149671200 -
449.3476014531690
-0.000000001453056302934750 0.0000000401292250758960 -
0.00000472232655328813 0.000308559341052150 -0.01221380495566130
0.299163515371805 -4.41793426917184 35.9051675777457 -
121.9609013937540];

```



```

end

if varijanta <= 3
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end

w = GASS(Koeff(end,:),nq);
elseif varijanta > 3
    a0 = polyval(Koeff(1,:),nq);
    a1 = polyval(Koeff(2,:),nq);
    b1 = polyval(Koeff(3,:),nq);
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq);
        b2 = polyval(Koeff(5,:),nq);
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq);
            b3 = polyval(Koeff(7,:),nq);
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq);
                b4 = polyval(Koeff(9,:),nq);
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq);
                    b5 = polyval(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq);
                        b6 = polyval(Koeff(13,:),nq);
                    end
                end
            end
        end
    end
end

```

```

    if ff >= 7
        a7 = polyval(Koeff(14,:),nq);
        b7 = polyval(Koeff(15,:),nq);
        if ff == 8
            a8 = polyval(Koeff(16,:),nq);
            b8 = polyval(Koeff(17,:),nq);
        end
    end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wh
if ff == 1
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);
elseif ff == 6
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
elseif ff == 7
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
end
end
end

```

jedWm.m

```
function FB = jedWm(nq,ThetaD,varijanta)
    %% obrada koeficijenata
    % ff - jednacina furiera
    ff = 2;
    if varijanta == 1

        Koeff = [0.2550536698126430 25.6186085901353 0.963267711627744
0.337927288514508 29.637663415084500 0.981293292472372 28966.07550917390
65.2509909609433 2.950351977592590 0.185993555581020 47.9268600950130
10.89020139569180 -2.407235575701770 54.4146992436426 2.260359124540420
-16620771727066.700 -4276.11273885084 805.599265318033 -
1109258261.09874 33.423922310980700 0.516355342831691 -
1.4553184642107200 29.6434273874913 0.628339785251443 1.315730559665290
68.9333960383609 25.364244941314900 7.696586293536820 0.579956382013546
55.0333295151463 324.12069894061200 29.5305502765131 0.289320739965899
0.851923564873571 72.185467156661800 24.553017487914800
0.2390879654207820 42.9992939636545 1.374890393223450 50.9868054813579
36.6261473513520 0.300523766914872 752.53901374966 -1196.893315916210
458.209590154823 0.7969616045235030 30.5481737462861 0.323116981487847
0.216205675422239 37.812036149190800 2.998374370756010
0.8786364970989780 26.5875750425643 0.285662853532393 0.269509239517786
49.8968970919004 8.755147692392940 0.241373123080481 17.1299699732532
8.327848676217870 15609923231.145100 33.4088970423167 0.493221992181572
0.339811595529765 17.156363734307600 9.158788121298710
0.2970961874516290 39.1121374566248 3.812809161841930 0.180831886464536
27.4815736160715 3.148470805194080 0.296441327664035 48.7546142263852
6.731023198418530 0.0919924360474903 28.1156484740068 6.426286057995100
0.292910452594169 9.913508345404570 14.563949274160200
0.0709808075667553 42.4620025926456 8.149659108637010 0.938585093478700
59.5435118000423 85.9380912870727 0.258296343141102 34.5462796697432
0.881787048543951];
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2); % gauss 5

    elseif varijanta == 2

        Koeff = [0.2565340720957820 25.6190131658440 0.96484041817702
0.337554045255185 29.64017983253620 0.993738454543427 6780.105336248370
62.82816172127180 2.08283834103938 0.1616247773253950 45.5723867370634
9.277040323333352 -0.3100589044418280 25.4140487351679 1.16073952528412 -
0.586466836958781 31.24387084830800 4.686691909238580 -0.689118271729782
15.29679545017730 7.02390267918711 -0.8437096316550170 49.5825278216519
19.33923546847640 0.5840877456326120 30.3360080363224 5.36367655198547
108489741386884.00 949.80157258851400 157.090639472185000 0.464910905673951
```

```

42.33396678859710    8.81291764030294    0.6778739307366020    16.5739817924808
8.85392533399651
    0.4789170184810000    30.4766951062495    0.41602004860087
0.210129349908645    37.92996540846660    2.963816417541680    0.234552442063483
16.72048667075920    11.78352371078880    0.2705319174861940    49.9406202391671
8.62217289280991
    0.1814128688279530    40.0671301335334    7.67279200097386
0.363099490980210    7.49261833332073    30.091218205065800    0.068035782523532
51.70049384794580    4.24714421064911    0.1451378767477920    50.2963385279459
4.53382541975554
    0.0938567377090819    28.2172498839754    8.47530755567248
13990856363678.50    -2854.41429239682000    520.586129016091000
0.595661587390582    64.00343615978220    34.61157020854780
0.0658942084280693    42.9262124546354    7.64207254916681];
    GAUSS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2); % gauss 4

```

```
elseif varijanta == 3
```

```

    Koeff = [0.000000001588890538391660 -0.0000003723117619424390
0.0000361422316558991 -0.001879364783403500 0.05641884501931590 -
0.9769263981065590 9.047712009035270 -34.666264303019000
-0.000000005684378149240630 0.0000013892024063298300 -
0.0001412588614686960 0.007725561947790710 -0.24470767032302400
4.4760105970231800 -43.672315511169600 174.519303665407000
0.000000005171184954836380 -0.0000012584894288055900
0.0001275738899707780 -0.006966559417897400 0.22080363358228700 -
4.0525365367820300 39.807951121075600 -160.624767567671000
-0.000000000617386024430864 0.0000001288300696868020 -
0.0000108068313108032 0.000465041564602690 -0.01081710278781060
0.1300433475802940 -0.671498532271456 0.864664277333494
-0.000000001150232150863960 0.0000002724498733260970 -
0.0000268503891151348 0.001424304326770460 -0.04385349511440470
0.7833281383274020 -7.526171798354300 30.394030483031300
0.00000000237800574036084 -0.0000000526584190793892
0.0000047464956991714 -0.000223461047310198 0.00584470233506904 -
0.0827567012675461 0.556205464096055 -0.190662750191647];

```

```
elseif varijanta == 4
```

```

    Koeff = [-0.0000000006840884836399160 0.00000002033163725719810 -
0.000002567631155366350 0.000179570915438446 -0.007590747230637750
0.1982381601756740 -3.119852248198430 27.05342651952840 -99.0588045403801
-0.00000000040377961670024300 0.00000010494369507546700 -
0.000011568554439610600 0.000705321374079300 -0.025985571487810600
0.5923733518557350 -8.172496124873870 62.60546400655040 -
205.5542663092460
0.00000000050022893093365100 -0.00000013188219890021500
0.000014794437926265900 -0.000921225773664998 0.034797025323916800 -
0.8162277754127460 11.617271283441200 -91.85600077612810 310.2355426650230
0.00000000024881599502151600 -0.00000006878832130251460
0.000008113624322572120 -0.000532484238887428 0.021238426010244700 -
0.5266409305167510 7.924272316416050 -66.16170746138060 235.0725826112420

```

```
-0.00000000010541975058365400 0.00000002773281049058800 -  
0.000003110592356459330 0.000194176808864644 -0.007377079229240390  
0.1746936254601530 -2.518974327501390 20.22108573021130 -68.8364885751104  
-0.00000000000612377653155314 0.00000000191560096445476 -  
0.000000249177520075123 0.000017585846582828 -0.000734728677582416  
0.0185399868579404 -0.274585672858887 2.16802870900847 -  
5.9549101557933];
```

```
elseif varijanta == 5
```

```
Koeff = [0.000000000011680825665761900 -0.0000000036059735381334700  
0.00000048710546843449600 -0.000037764389345331000  
0.001849995311944690000 -0.059307127211933400 1.24220734128243000 -  
16.364129806873900 122.84280925203100 -399.932227420309  
-0.000000000008286958410112770 0.0000000021059446353916400 -  
0.00000022620886526139200 0.000013401775540240400 -0.000479760733857257000  
0.010704599425104200 -0.14827028363717600 1.223652782979380 -  
5.35228604771694 7.90029710565952  
-0.000000000043548432865377100 0.0000000136889711318116000 -  
0.00000187210754186201000 0.000146014927381898000 -0.007148898950970430000  
0.227605938501780000 -4.70835176538847000 60.994562633398300 -  
448.97780213128700 1431.95128707579  
-0.000000000019500134886293700 0.0000000061544763133041900 -  
0.00000084802712938707700 0.000066871588176315400 -0.003321114253612500000  
0.107574479152904000 -2.26945778527578000 30.034455812136700 -  
226.07385214071800 737.354912413844  
0.0000000000012792679350824100 -0.0000000039797118643547200  
0.00000053893707999339800 -0.000041657597046220100  
0.002023602595716880000 -0.064016146126722200 1.31803429062862000 -  
17.023924653370700 125.12829808155000 -398.348916411191  
-0.000000000000116173506560012 0.0000000000290596348520913 -  
0.00000000272677229678402 0.000000100877427722979 0.000000972375484845918 -  
0.000220375207931837 0.00815702558494035 -0.142862607203483  
1.21534019161962 -2.96252574948479];
```

```
elseif varijanta == 6
```

```
Koeff = [0.2396989599392460 25.6152513832965 0.921235726763537  
0.356686480636697 29.6181439335044 0.863734999340850 0.177838213610671  
54.50312851955850 19.06095070390450  
-161604085071244.00 -1348.64837068958 237.118925186141000 -  
0.431556584079404 31.5813678777715 4.979020168320690 -0.732700395540283  
51.37050333406420 15.82124676270580  
397.8922912225740 61.7661994698937 2.035702378740950  
0.0000000000000000 124.4074888973250 7.597395711925160  
26.516151737300700 1115.66434507875000 572.44162899584500  
1067684.0290807000 30.3755017996734 0.134329574271467 -  
29282515.95866490 29.8365501392376 0.243334753472403 0.202057948914174  
23.56465837532410 83.95311922599840  
-4.1467342213550000 27.4518852445997 14.438662577382400  
4.390855444171340 27.3740653678572 15.381516045760300 0.267119335754774  
52.08208840300900 2.63767879223153  
0.0757698656680684 26.2601890811220 6.898666253721750  
0.971459766358391 45.8125229368510 54.950393330768900 0.419411152377490  
6.00706284706127 13.56218462897350];
```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2); % gauss3

elseif varijanta == 7

    Koeff = [0.00000001667646610748540 -0.000003612804128723200
0.000315826181509237 -0.01420006601425680 0.344661600855802 -
4.25705497946271 20.86120312692360
-0.00000000243290800565087 0.000000967837775954358 -
0.000127902625673005 0.00793691727028947 -0.252072151343157
3.92651204989357 -24.13448331084370
0.00000000750720462958153 -0.000001812394333393670
0.000177883963489826 -0.00903186574287275 0.248688633617358 -
3.49359119179948 20.09429218921680
-0.00000002231684060267700 0.000004640553453036450 -
0.000387931116614583 0.01662287981585140 -0.383478472141252
4.49825797298139 -20.71132320249870
-0.00000000914709978171369 0.000001929139249688860 -
0.000164841787528002 0.00726905862181974 -0.173397935542602
2.10543615712011 -9.80350153749406
0.00000000555932574850391 -0.000001203423506701000
0.000105081202115758 -0.00472444461105914 0.115038160743676 -
1.43504638795362 8.11983020733536];

```

end

```

if varijanta <= 2 || varijanta == 6
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end

```

```

        end
    end
end
w = GASS(Koeff(end,:),nq);
else
a0 = polyval(Koeff(1,:),nq);
a1 = polyval(Koeff(2,:),nq);
b1 = polyval(Koeff(3,:),nq);
if ff >= 2
    a2 = polyval(Koeff(4,:),nq);
    b2 = polyval(Koeff(5,:),nq);
    if ff >= 3
        a3 = polyval(Koeff(6,:),nq);
        b3 = polyval(Koeff(7,:),nq);
        if ff >= 4
            a4 = polyval(Koeff(8,:),nq);
            b4 = polyval(Koeff(9,:),nq);
            if ff >= 5
                a5 = polyval(Koeff(10,:),nq);
                b5 = polyval(Koeff(11,:),nq);
                if ff >= 6
                    a6 = polyval(Koeff(12,:),nq);
                    b6 = polyval(Koeff(13,:),nq);
                    if ff >= 7
                        a7 = polyval(Koeff(14,:),nq);
                        b7 = polyval(Koeff(15,:),nq);
                        if ff == 8
                            a8 = polyval(Koeff(16,:),nq);
                            b8 = polyval(Koeff(17,:),nq);
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wm
if ff == 1
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +

```

```

a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);
elseif ff == 6
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
elseif ff == 7
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
end

end
end

```

PARAB.m

```

%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

    nq2 = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95
35.89 37.4 38 41.6 43.83 50 56];
    nqC = find(nq2 == nq);
    data_im = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42
-0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
    -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
    -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
    -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
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```


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 0.0822
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 0.102 0.0349 0.102 0.0351 0.0597 0.0475 -0.0278 -0.0806 -0.0628 0.182

-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	
0.075	0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	
0.2408	0.168	0.107	0.169	0.107	0.0775	0.145	0.073	0.143	
0.0471	0.249	0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	
0.1868	0.0108	0.1665							
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	
0.215	0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	
0.3814	0.27	0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191
0.344	0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	
0.1404	0.2953								
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	
0.2911	0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	
0.4118	0.333	0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285

0.389	0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	
0.2256	0.3524								
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	
0.317	0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	
0.4226	0.355	0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318
0.402	0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	
0.3653	0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444
0.4	0.38	0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43
0.3652	0.442	0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5
0.4993	0.5	0.5	0.5	0.5	0.5				
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								

	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	
0.7066	0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	
0.5686	0.77	0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74
0.57	0.7249	0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	
0.7374	0.6415								
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	
0.7829	0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	
0.6064	0.881	0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795
0.58	0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	
0.8184	0.6917								

	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	
0.8538	0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299
0.942	0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	
0.871	0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	
0.6296	0.955	0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88
0.573	0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	
0.9201	0.7368								
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	
0.9923	0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	

0.5485	1.15	1.17	1.19	0.502	0.95	0.647	1	0.594	1.02
0.543	0.9925	0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	
1.0508	0.7691								
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	
1.0109	0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	
0.5382	1.2	1.2	1.21	0.504	0.964	0.626	1.02	0.591	0.534
1.0043	0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	
0.7717									
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
0.6226	1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32
1.3	1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342
0.483									
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	
1.1321	0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	
0.4584	1.36	1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11
0.488	1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	
1.1592	0.7732								
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	
1.1382	0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	
0.4468	1.36	1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12
0.48	1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	
1.1403	0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355
1.36	1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13

0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	
1.1497	0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378
1.55	1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.36
1.1231	0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	
0.6545									
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	
1.1509	0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712
1.36	1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	
1.1532	0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608
1.37	1.6	1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172	1.1296	0.3765
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	
1.1559	0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548
1.38	1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36
1.139	0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	
0.6614									

	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566	
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39	
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348	
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804		
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573	
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4	1.65
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128	
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702			
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248		
1.1579	0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	
1.41	1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	
1.1262	0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827		
0.7266										
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236		
1.1584	0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	
1.43	1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	
1.1224	0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058		
0.7534										
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226		
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664	1.44
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188	
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807		
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217		
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698	
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34	
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535		
0.8102										
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21		
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739	1.47
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119	
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441		
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206		
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779	
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34	
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135		
0.8811										
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204		
1.1599	0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	
1.5	1.71	1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	
1.1059	0.3076	1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548		
0.9205										
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205		
1.16	0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834		
0.3852	1.51	1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	
0.343	1.1048	0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042		
1.5851	0.962									
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207		
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832		
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13	
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113		
1.6192	1									
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21		
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182		
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13	0.35

1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	
1.1378	0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	
0.4086	1.62	1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12
1.1046	0.3575	1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	0.38
1.2002									
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	
1.1307	0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118
1.69	1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.64
0.3642	1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253	
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	
1.1231	0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151
1.65	1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391
0.3705	1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472	1.1006
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	
1.115	0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184
1.66	1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397
1.0979	0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	
1.2651									
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	
1.0985	0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	
0.4254	1.69	1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11
0.41	1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	
1.8592	1.2904								
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								

	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	
1.075	0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	
0.4385	1.72	1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09
0.438	1.0719	0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	
1.8449	1.2968								
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	
1.0604	0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498
1.74	1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46
1.0598	0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	
1.2929									
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									

	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	
0.9975	0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	
0.5221	1.79	1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04
0.564	1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	
1.7374	1.2913								
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	
0.9903	0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324
1.78	1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581
1.0112	0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	
1.3025									
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	
0.968	0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	
0.5705	1.74	1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03
0.642	1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	
1.7379	1.3419								
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	
0.9396	0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618
1.69	1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	
0.9193	0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	
0.6477	1.66	1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05
0.752	0.9842	0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	
1.7315	1.4101								
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792

1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	
0.8915	0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	
0.7115	1.58	1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06
0.828	0.9676	0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	
1.7116	1.4585								
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	
0.8851	0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728
1.55	1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846
0.9629	0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	
1.4696									
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	
0.877	0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	
0.7445	1.52	1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06
0.863	0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	
1.6976	1.4801								
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	
0.847	0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	
0.7938	1.43	1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06
0.92	0.9425	0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	
1.6708	1.5054								
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	
0.8327	0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	
0.8443	1.34	1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05
0.981	0.9268	0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636
1.5246									
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	
0.8287	0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	
0.8616	1.31	1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05

1	0.9218	0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221
1.5268									
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	
0.8049	0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467
1.14	1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08
0.9008	0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	
1.5154									
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	
0.7922	0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	
0.9809	1.08	1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04
1.1	0.8937	0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754
1.5003									
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03

1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	
0.7558	1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442
0.939	1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	
0.736	1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	
1.0912	0.801	1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03
1.21	0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	
1.2689	1.4245								
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	
0.7317	1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976
0.78	0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	
0.7243	1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033
0.74	0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									

	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	1.22
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	
0.6719	1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	
1.0904	0.549	0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913
1.21	0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135
1.382									
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	
0.656	0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	
1.0727	0.514	0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888
1.19	0.7408	1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	
1.1152	1.3697								
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	
0.6385	0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	
1.0506	0.491	0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868
1.17	0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	
1.0851	1.3164								

	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	
0.6102	0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	
1.0298	0.459	0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84
1.13	0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	
1.0311	1.2234								
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	
0.6	0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228
0.447	0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12
0.6762	0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	
1.1977									
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	
0.5885	0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	
1.0115	0.434	0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821
1.1	0.6669	0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894
1.1722									
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	
0.5433	0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946
0.374	0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	

0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	
0.531	0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	
0.9257	0.369	0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741
0.981	0.6178	0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	
0.8157	0.9903								
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	
0.5253	0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	
0.9159	0.37	0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733
0.961	0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	
0.7954	0.9668								
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	
0.513	0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	
0.8968	0.376	0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717
0.921	0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	
0.7537	0.9185								
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	
0.4714	0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809
0.38	0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8
0.5492									
0.7307	0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66

0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858		
0.6099	0.7441									
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202		
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229		
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65	
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628		
0.5935	0.7206									
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198		
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145		
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639	
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394		
0.5778	0.6973									
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195		
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058		
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629	
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154		
0.5624	0.6745									
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19		
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117	
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7	0.4968
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522		
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184		
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897		
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612	
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647		
0.5331	0.6296									
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176		
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827		
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604	
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379		
0.5205	0.606									
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168		
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756		
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597	
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71		
0.5091	0.5818									
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159		
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684		
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589	
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812		
0.4977	0.5568									
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15		
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609		
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58	
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523		
0.4856	0.5304									
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142		
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585	
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568	
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732		
0.5026										
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133		
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471		
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559	

0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.405	0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335
0.2	0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	
0.39	0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	
0.3396	0.353	0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496

0.298	0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	
0.3304	0.206								
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	
0.4661	0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	
0.1609	0.379	-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508
0.141	0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	
0.3924	0.0552								
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114

0.4958 0.1225 0.4676 0.1054 0.4563 0.0763 0.5013 0.1097 0.412
0.0278
0.552 -0.04 0.474 0.0542 -0.505 0.0999 0.77 -0.06
0.4932 0.0932 0.686 0.28 0.537 0.151 0.4636 0.0332 0.5508
0.1152 0.387 -0.2 0.673 0.15 0.515 0.109 0.481 0.0792 0.52
0.1 0.5047 0.1111 0.477 0.0975 0.4633 0.0449 0.5068 0.0943 0.4217
0.0145
0.557 -0.0636 0.484 0.042 -0.544 0.0788 0.787 -0.068
0.5014 0.078 0.69 0.26 0.541 0.135 0.4746 0.022 0.5576 0.1
0.389 -0.22 0.677 0.125 0.523 0.0924 0.49 0.0651 0.524
0.0855 0.5134 0.0989 0.4863 0.0886 0.4706 0.0185 0.5133 0.0815
0.4313 0.0019
0.562 -0.0878 0.494 0.0317 -0.579 0.0592 0.803 -0.0767
0.5094 0.0618 0.695 0.24 0.547 0.12 0.4857 0.0113 0.5644
0.0841 0.392 -0.24 0.682 0.101 0.531 0.0723 0.499 0.0515 0.527
0.0707 0.5217 0.0869 0.4957 0.0776 0.4782 0.0016 0.5207 0.0701
0.4411 -0.0102
0.568 -0.112 0.504 0.0229 -0.612 0.0413 0.819 -0.0864
0.5169 0.0463 0.699 0.22 0.553 0.106 0.497 0.0014 0.5711
0.0667 0.394 -0.26 0.687 0.0778 0.539 0.0505 0.508 0.0384 0.531
0.0562 0.5295 0.0753 0.505 0.0626 0.4863 -0.0078 0.5286 0.0589 0.451
-0.0219
0.574 -0.136 0.514 0.0151 -0.642 0.0251 0.835 -0.0974
0.5239 0.0322 0.704 0.2 0.558 0.0938 0.5084 -0.0073 0.5784 0.0499
0.396 -0.28 0.691 0.0542 0.547 0.0301 0.517 0.0256 0.535
0.0424 0.5371 0.0644 0.5141 0.0386 0.4948 -0.0144 0.5368 0.0468 0.461
-0.0336
0.579 -0.16 0.525 0.00764 -0.67 0.0103 0.85 -0.11
0.5306 0.0184 0.708 0.18 0.564 0.082 0.5199 -0.0152 0.5862
0.0388 0.399 -0.3 0.696 0.03 0.555 0.0141 0.526 0.0132 0.54
0.03 0.5446 0.0544 0.5232 0.0087 0.5036 -0.0209 0.5449 0.0326
0.4711 -0.0457
0.585 -0.183 0.537 -9.26E-05 -0.695 -0.00323 0.864 -
0.124 0.5372 0.0048 0.713 0.16 0.569 0.0704 0.5314 -0.0224 0.5943
0.0285 0.4 -0.32 0.7 0.00505 0.563 0.00484 0.534 0.0011 0.546
0.0193 0.5527 0.0448 0.5323 -0.0229 0.5126 -0.0299 0.5531 0.0126
0.4814 -0.058
0.591 -0.205 0.548 -0.00858 -0.72 -0.0158 0.877 -0.14
0.5436 -0.0085 0.717 0.139 0.575 0.0589 0.5431 -0.0294 0.6024 0.013
0.402 -0.34 0.705 -0.0206 0.572 0.000822 0.543 -0.0107 0.552
0.00964 0.5612 0.0356 0.5413 -0.0519 0.522 -0.0483 0.5614 -0.0051
0.4917 -0.0703
0.597 -0.227 0.56 -0.0177 -0.743 -0.0276 0.889 -0.157
0.5498 -0.0215 0.721 0.119 0.582 0.0479 0.5549 -0.0364 0.6104 -
0.0062 0.404 -0.36 0.709 -0.0468 0.581 -5.50E-07 0.551 -0.0222
0.558 0.000399 0.5705 0.0264 0.5504 -0.0741 0.5313 -0.0738 0.5694 -
0.0172 0.502 -0.0824
0.602 -0.248 0.572 -0.0273 -0.765 -0.039 0.9 -0.174
0.5558 -0.0342 0.725 0.0992 0.589 0.0379 0.5669 -0.0439 0.6184 -
0.0278 0.405 -0.38 0.713 -0.0733 0.59 0.000268 0.559 -0.0334
0.564 -0.00923 0.5807 0.0172 0.5594 -0.0903 0.5391 -0.0852 0.5774 -
0.0276 0.5123 -0.0942
0.608 -0.27 0.583 -0.037 -0.787 -0.0501 0.91 -0.19
0.5617 -0.0465 0.729 0.08 0.595 0.0283 0.5789 -0.0521 0.6265 -
0.0501 0.406 -0.4 0.717 -0.1 0.6 -0.000458 0.568 -0.0444 0.57

-0.02 0.59 0.0088 0.5683 -0.104 0.5465 -0.0942 0.5853 -0.0365
 0.5226 -0.1057
 0.613 -0.292 0.594 -0.0466 -0.808 -0.0611 0.918 -0.205
 0.5674 -0.0583 0.732 0.0616 0.602 0.019 0.5911 -0.0613 0.6345 -
 0.0718 0.407 -0.42 0.721 -0.127 0.611 -0.00338 0.576 -0.0552
 0.575 -0.0324 0.5985 0.0009 0.5768 -0.1155 0.5534 -0.1014 0.5931 -
 0.0445 0.5328 -0.1168
 0.618 -0.314 0.604 -0.0559 -0.829 -0.0724 0.926 -0.22
 0.573 -0.0698 0.735 0.0438 0.608 0.00985 0.6037 -0.0713 0.6425 -
 0.0915 0.407 -0.44 0.724 -0.153 0.621 -0.00826 0.584 -0.066
 0.579 -0.0462 0.6068 -0.0065 0.5853 -0.1269 0.5598 -0.1074 0.6009 -
 0.052 0.543 -0.1276
 0.623 -0.336 0.614 -0.0646 -0.85 -0.0842 0.932 -0.236
 0.5784 -0.0808 0.738 0.0262 0.616 0.00106 0.6166 -0.0819 0.6505 -
 0.1077 0.408 -0.46 0.727 -0.179 0.631 -0.0147 0.592 -0.0767 0.583
 -0.0608 0.6146 -0.0135 0.5939 -0.1406 0.5656 -0.1128 0.6085 -0.0596
 0.5528 -0.1378
 0.627 -0.358 0.623 -0.0726 -0.871 -0.0967 0.936 -0.252
 0.5837 -0.0913 0.741 0.00834 0.624 -0.00717 0.6295 -0.0935 0.6586 -
 0.1189 0.408 -0.48 0.73 -0.205 0.642 -0.0224 0.6 -0.0875 0.587 -
 0.0756 0.6236 -0.0208 0.6025 -0.1542 0.571 -0.118 0.6161 -0.0675 0.5613
 -0.1451
 0.631 -0.38 0.631 -0.0796 -0.892 -0.11 0.94 -0.27
 0.5888 -0.1013 0.743 -0.01 0.634 -0.0151 0.6425 -0.1062 0.6667 -
 0.1255 0.408 -0.5 0.732 -0.23 0.652 -0.0311 0.608 -0.0984 0.59
 -0.09 0.6363 -0.0289 0.6108 -0.1674 0.5762 -0.1228 0.6236 -0.0764
 0.5686 -0.1503
 0.635 -0.402 0.639 -0.0859 -0.913 -0.125 0.943 -0.29
 0.594 -0.1108 0.744 -0.0291 0.643 -0.0231 0.6552 -0.1202 0.6753 -
 0.1343 0.407 -0.52 0.734 -0.254 0.661 -0.041 0.616 -0.109 0.593
 -0.104 0.6503 -0.038 0.6187 -0.1795 0.5811 -0.1267 0.631 -0.0865
 0.5757 -0.1555
 0.637 -0.424 0.646 -0.0918 -0.935 -0.141 0.944 -0.312
 0.5994 -0.1198 0.745 -0.0489 0.652 -0.0313 0.6676 -0.1358 0.6844 -
 0.145 0.406 -0.54 0.735 -0.278 0.671 -0.0522 0.625 -0.121 0.596
 -0.116 0.6628 -0.0494 0.6259 -0.1897 0.5854 -0.1306 0.6384 -0.0976
 0.5839 -0.1624
 0.64 -0.446 0.653 -0.0976 -0.958 -0.158 0.944 -0.334
 0.6048 -0.1285 0.745 -0.0691 0.66 -0.0399 0.6806 -0.1573 0.6942 -
 0.1565 0.405 -0.56 0.735 -0.301 0.681 -0.0647 0.633 -0.132 0.598
 -0.128 0.6743 -0.0624 0.6325 -0.1994 0.589 -0.1348 0.6458 -0.1092
 0.5929 -0.171
 0.641 -0.468 0.659 -0.104 -0.982 -0.178 0.943 -0.357
 0.6101 -0.1369 0.745 -0.0896 0.669 -0.0485 0.6934 -0.1823 0.7047 -
 0.1707 0.404 -0.58 0.735 -0.325 0.692 -0.0784 0.642 -0.144 0.599
 -0.14 0.6837 -0.0758 0.639 -0.2098 0.5915 -0.1401 0.6531 -0.121
 0.6023 -0.1807
 0.642 -0.49 0.665 -0.11 -1.01 -0.199 0.94 -0.38
 0.6153 -0.145 0.744 -0.11 0.677 -0.0577 0.7043 -0.2049 0.7153 -
 0.1868 0.402 -0.6 0.735 -0.35 0.701 -0.0917 0.651 -0.157 0.6 -
 0.15 0.6919 -0.0896 0.6457 -0.2219 0.5939 -0.1468 0.6601 -0.1328 0.6116
 -0.191
 0.642 -0.512 0.671 -0.117 -1.04 -0.221 0.936 -0.402
 0.6202 -0.1529 0.743 -0.13 0.685 -0.0679 0.7121 -0.2209 0.726 -
 0.2033 0.4 -0.62 0.733 -0.376 0.71 -0.103 0.66 -0.17 0.6 -0.16

0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656
-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179	
0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507	
0.6733	-0.294								
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	
0.6429	-0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-
0.3297	0.36	-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56
-0.27	0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	
0.6797	-0.3232								
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645	
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587	
0.6807	-0.3364								
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	
0.644	-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-
0.352	0.346	-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54

-0.303 0.7756 -0.2324 0.6684 -0.3469 0.4711 -0.3634 0.7285 -0.3987
 0.6813 -0.3506
 0.566 -0.776 0.714 -0.249 -1.38 -0.522 0.808 -0.69
 0.6437 -0.2546 0.655 -0.371 0.754 -0.221 0.7476 -0.3261 0.8101 -
 0.3598 0.338 -0.86 0.645 -0.678 0.798 -0.261 0.712 -0.327 0.528
 -0.321 0.7794 -0.2579 0.6636 -0.3793 0.4407 -0.5359 0.724 -0.4434
 0.6802 -0.3704
 0.553 -0.798 0.715 -0.257 -1.4 -0.542 0.789 -0.711
 0.6425 -0.2925 0.643 -0.391 0.753 -0.24 0.7475 -0.3306 0.8099 -
 0.3642 0.329 -0.88 0.632 -0.704 0.8 -0.283 0.712 -0.344 0.515 -
 0.34 0.7813 -0.2778 0.6584 -0.3979 0.4158 -0.5722 0.7186 -0.4758 0.6763
 -0.3958
 0.54 -0.82 0.714 -0.272 -1.42 -0.56 0.77 -0.73
 0.6405 -0.3401 0.63 -0.41 0.75 -0.261 0.7475 -0.3354 0.8092 -
 0.3728 0.32 -0.9 0.62 -0.73 0.8 -0.306 0.708 -0.363 0.5 -0.36
 0.7812 -0.2978 0.6527 -0.4118 0.394 -0.6061 0.7109 -0.4977 0.6713 -
 0.4209
 0.527 -0.842 0.714 -0.297 -1.44 -0.578 0.752 -0.748
 0.6381 -0.3877 0.618 -0.428 0.744 -0.283 0.7474 -0.3408 0.8065 -
 0.4036 0.31 -0.92 0.608 -0.754 0.797 -0.33 0.701 -0.385 0.484
 -0.382 0.7782 -0.3179 0.6468 -0.4229 0.3741 -0.6402 0.7024 -0.517
 0.6645 -0.4443
 0.515 -0.864 0.711 -0.336 -1.46 -0.595 0.735 -0.765
 0.6354 -0.4259 0.606 -0.446 0.736 -0.307 0.7474 -0.3472 0.8026 -
 0.4192 0.3 -0.94 0.596 -0.778 0.792 -0.356 0.691 -0.408 0.467 -
 0.405 0.774 -0.3381 0.6403 -0.4314 0.3555 -0.6746 0.6928 -0.5354 0.6556
 -0.4682
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 0.5472 -1.1884 -0.5949 -1.3614 -0.6236 -1.3286 -0.499 -1.4044 -0.5702 -
 1.3637
 -0.0503 -1.45 -0.0526 -1.3096 -2.3154 -1.032 -0.0584 -0.959 -
 0.6132 -1.0986 0.0281 -0.98 -0.2402 -0.9992 -0.5157 -1.3368 -0.5318 -
 1.2773 -0.138 -1.45 -0.0137 -1.45 -0.0681 -1.4573 -0.4816 -1.513 -0.608
 -1.53 -0.5539 -1.1481 -0.5966 -1.3375 -0.6253 -1.3039 -0.5018 -1.3865 -
 0.5774 -1.3499
 -0.0602 -1.43 -0.0648 -1.2936 -2.3334 -1.026 -0.0764 -0.953 -
 0.6153 -1.0779 0.0162 -0.959 -0.2481 -0.9788 -0.5195 -1.2846 -0.5355 -
 1.2158 -0.146 -1.43 -0.0278 -1.43 -0.0816 -1.4364 -0.4909 -1.4851 -0.616

-1.5 -0.5597 -1.1209 -0.5969 -1.3124 -0.6256 -1.2889 -0.5042 -1.369 -
 0.5839 -1.334
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 0.6151 -1.0572 0.00429 -0.939 -0.2557 -0.9586 -0.5228 -1.2388 -0.5387 -
 1.1794 -0.154 -1.4 -0.0422 -1.4 -0.0955 -1.4064 -0.5003 -1.4551 -0.624
 -1.47 -0.5648 -1.1008 -0.5963 -1.2856 -0.6249 -1.275 -0.5059 -1.352 -
 0.5897 -1.3159
 -0.0796 -1.38 -0.0889 -1.2573 -2.369 -1.024 -0.112 -0.951 -
 0.6133 -1.0365 -0.00777 -0.919 -0.2632 -0.9385 -0.5255 -1.203 -0.5416 -
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 0.6124 -1.0158 -0.02 -0.9 -0.2705 -0.919 -0.5277 -1.1771 -0.5443 -
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 1.0635 -0.19 -1.3 -0.095 -1.3 -0.1461 -1.3037 -0.5343 -1.3315 -0.653
 -1.34 -0.5798 -1.0511 -0.592 -1.1758 -0.618 -1.2069 -0.5071 -1.2898 -
 0.6056 -1.2262
 -0.125 -1.28 -0.1419 -1.1811 -2.441 -1.007 -0.184 -0.934 -
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 1.0271 -0.2 -1.28 -0.107 -1.28 -0.1575 -1.2827 -0.5416 -1.3036 -0.659
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 -0.138 -1.25 -0.1563 -1.1576 -2.459 -1 -0.202 -0.927 -
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 0.9958 -0.21 -1.25 -0.118 -1.25 -0.1681 -1.2527 -0.5487 -1.2736 -0.665
 -1.28 -0.5846 -1.0325 -0.5896 -1.1376 -0.6153 -1.165 -0.5074 -1.2616 -
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 -0.15 -1.23 -0.17 -1.1414 -2.477 -0.993 -0.22 -0.92 -
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 -0.162 -1.21 -0.1834 -1.1254 -2.494 -0.987 -0.237 -0.914 -
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 0.9258 -0.236 -1.18 -0.154 -1.18 -0.2022 -1.1809 -0.5681 -1.1879 -0.68
 -1.19 -0.5889 -1.0059 -0.5839 -1.0773 -0.6117 -1.1029 -0.5073 -1.2192 -
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0.6188 -0.8319 -0.12 -0.739 -0.3198 -0.7565 -0.525 -0.9368 -0.5497 -
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0.5794 -1.002
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0.9803
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0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
-0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
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-0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
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 0.8643
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 -0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
 0.5825 -0.8403
 -0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
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 0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
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 -0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
 0.5794 -0.7783
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 0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
 -0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
 0.5765 -0.7458
 -0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
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 -0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
 -0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
 0.7117
 -0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
 0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
 0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
 -0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
 0.5683 -0.6754
 -0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
 0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
 0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
 -0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
 0.5636 -0.6363
 -0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
 0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
 0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
 -0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
 0.5572 -0.5948
 -0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
 0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
 0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
 -0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
 0.5503 -0.5514
 -0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
 0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
 0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96


```
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134 -  
0.5433 -0.5068];
```

```
FH = data_im(:,(nqC-1)*2+1);  
FB = data_im(:,(nqC-1)*2+2);
```

```
DX = 1;  
I = fix(X/DX);  
R = (X-I*DX)/DX;  
if I == 0  
    R = R-1;  
end  
I = I+1;  
if I < 2  
    I = 2;  
end  
if J == 1  
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1)+R*(FH(I+1)+FH(I-1)-2*FH(I)));  
elseif J == 2  
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1)+R*(FB(I+1)+FB(I-1)-2*FB(I)));  
end  
end
```

PUMP.m

```
%% SUBROUTINE PUMP  
KK = 0;  
JJ = 0;  
  
%% COMPUTATION OF PUMP DISCHARGE  
VE = V+DV;  
ALPHAE = ALPHA + DALPHA;  
while 1 == 1  
    JJ = JJ+1;  
    if VE == 0 && ALPHAE == 0  
        TH = 0;  
        TH1 = 0;  
    else  
        TH = atan2(ALPHAE,VE);  
        TH1 = TH;  
        TH = rad2deg(TH);  
        if TH < 0  
            TH = TH+360;  
        end  
        if TH1 < 0  
            TH1 = TH1+2*pi;  
        end  
    end  
    M = fix(TH/DTH)+1;  
    if M == NPC  
        M = NPC-1;  
    end  
    A1 = FH(M)*M-FH(M+1)*(M-1);  
    A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));  
    A3 = FB(M)*M-FB(M+1)*(M-1);
```

```

A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = PARAB(TH,2,nq);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

PUMPV2.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHA == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA,VE);
        TH1 = TH;
    end
end

```

```

    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    if TH1 < 0
        TH1 = TH1+2*pi;
    end
end
M = fix(TH/DTH)+1;
if M == NPC
    M = NPC-1;
end
A1 = FH(M)*M-FH(M+1)*(M-1);
A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
A3 = FB(M)*M-FB(M+1)*(M-1);
A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = jedWm(nq,deg2rad(TH),varijanta);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

data-model.m

```

data = [-0.44  -0.61  -0.42  -0.5557 -1.228  -0.437  -0.37  -0.42  -
0.5459 -0.3554 -0.44  -0.34  -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44  -0.61  -0.44  -0.61  -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58  -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
      -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54  -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
      -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
      -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
      -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27  -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544
      -0.34  -0.49  -0.3343 -0.4271 -1.178  -0.287  -0.32  -0.27  -
0.4355 -0.2861 -0.34  -0.25  -0.3662 -0.2943 -0.3932 -0.3398 -0.398  -
0.2873 -0.34  -0.49  -0.34  -0.49  -0.3771 -0.4824 -0.6864 -0.5609 -0.78
-0.4  -0.4751 -0.3178 -0.345  -0.4004 -0.3643 -0.4126 -0.3103 -0.364  -
0.4672 -0.4355
      -0.318  -0.464  -0.3146 -0.3997 -1.164  -0.256  -0.306  -0.239  -
0.413  -0.2699 -0.318  -0.23  -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
0.2614 -0.318  -0.464  -0.318  -0.464  -0.354  -0.456  -0.6534 -0.5388 -0.744
-0.369  -0.457  -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
0.4484 -0.4136
      -0.295  -0.438  -0.2936 -0.3722 -1.148  -0.225  -0.29  -0.208  -
0.3933 -0.2511 -0.295  -0.21  -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
0.2355 -0.295  -0.438  -0.295  -0.438  -0.3298 -0.4296 -0.6194 -0.5167 -0.707
-0.338  -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
0.4309 -0.3886
      -0.273  -0.411  -0.2733 -0.3444 -1.132  -0.195  -0.274  -0.178  -
0.3733 -0.2299 -0.273  -0.189  -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
0.2103 -0.273  -0.411  -0.273  -0.411  -0.3066 -0.4024 -0.5864 -0.4913 -0.671
-0.309  -0.4229 -0.257  -0.2916 -0.34  -0.3103 -0.3654 -0.2546 -0.3091 -
0.4151 -0.3608
      -0.251  -0.385  -0.2527 -0.3172 -1.115  -0.165  -0.257  -0.148  -
0.3544 -0.2064 -0.251  -0.169  -0.288  -0.207  -0.3259 -0.246  -0.3145 -
0.1826 -0.251  -0.385  -0.251  -0.385  -0.2834 -0.3761 -0.5533 -0.4685 -0.635
-0.279  -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
0.3941 -0.3351
      -0.23  -0.36  -0.2329 -0.2914 -1.098  -0.137  -0.24  -0.12  -
0.3346 -0.1724 -0.23  -0.15  -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
0.1548 -0.23  -0.36  -0.23  -0.36  -0.2612 -0.3507 -0.5213 -0.4466 -0.6
-0.25  -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
0.3738 -0.3187

```

	-0.21	-0.335	-0.2137	-0.2658	-1.081	-0.11	-0.223	-0.093	-
0.315	-0.1331	-0.21	-0.131	-0.2478	-0.1672	-0.2867	-0.2044	-0.2728	-
0.1324	-0.21	-0.335	-0.21	-0.335	-0.24	-0.3254	-0.4895	-0.4248	-0.565
-0.221	-0.3635	-0.1753	-0.2381	-0.2791	-0.2538	-0.3121	-0.208	-0.2289	-
0.3532	-0.3008								
	-0.19	-0.311	-0.1943	-0.2412	-1.063	-0.0839	-0.205	-0.0669	-
0.2953	-0.0887	-0.19	-0.113	-0.228	-0.1468	-0.2671	-0.1816	-0.2519	-
0.1122	-0.19	-0.311	-0.19	-0.311	-0.2187	-0.3009	-0.4577	-0.4055	-0.53
-0.191	-0.342	-0.1465	-0.2203	-0.2552	-0.238	-0.2922	-0.1946	-0.205	-
0.3299	-0.2808								
	-0.17	-0.287	-0.1749	-0.2168	-1.045	-0.0584	-0.187	-0.0414	-
0.2755	-0.048	-0.17	-0.095	-0.2082	-0.126	-0.2475	-0.1578	-0.231	-0.091
-0.17	-0.287	-0.17	-0.287	-0.1975	-0.2764	-0.4267	-0.3862	-0.496	-
0.161	-0.3187	-0.1177	-0.2025	-0.2291	-0.2222	-0.2707	-0.1812	-0.1791	-
0.3077	-0.2581								
	-0.151	-0.263	-0.1561	-0.1923	-1.027	-0.0329	-0.169	-0.0159	-
0.255	-0.018	-0.151	-0.0774	-0.1891	-0.1043	-0.2283	-0.1319	-0.2102	-
0.0581	-0.151	-0.263	-0.151	-0.263	-0.1773	-0.2519	-0.3966	-0.3669	-0.463
-0.131	-0.2993	-0.0872	-0.188	-0.2014	-0.2064	-0.2472	-0.1676	-0.1473	-
0.2873	-0.2314								
	-0.13	-0.24	-0.1357	-0.1685	-1.008	-0.007	-0.15	0.01	-
0.2346	0.009	-0.13	-0.06	-0.1693	-0.0814	-0.2096	-0.1034	-0.1893	-
0.0279	-0.13	-0.24	-0.13	-0.24	-0.1553	-0.2282	-0.3662	-0.3502	-0.43
-0.1	-0.2786	-0.0555	-0.1743	-0.1617	-0.1907	-0.2211	-0.154	-0.1178	-
0.2698	-0.1989								
	-0.108	-0.217	-0.1146	-0.1445	-0.989	0.0196	-0.131	0.0366	-
0.2135	0.0391	-0.108	-0.0426	-0.1492	-0.0572	-0.1915	-0.0722	-0.1684	0.0005
-0.108	-0.217	-0.108	-0.217	-0.1325	-0.2045	-0.3363	-0.3338	-0.398	-
0.0686	-0.2582	-0.0269	-0.1598	-0.1182	-0.1749	-0.1924	-0.1404	-0.0915	-
0.2496	-0.1582								
	-0.0862	-0.193	-0.0936	-0.1197	-0.97	0.0465	-0.112	0.0635	-
0.1954	0.06	-0.0862	-0.0251	-0.1291	-0.0318	-0.1732	-0.0387	-0.1475	0.0245
-0.0862	-0.193	-0.0862	-0.193	-0.1098	-0.1798	-0.3065	-0.3157	-0.366	-
0.0371	-0.2372	-0.0017	-0.1445	-0.0806	-0.1591	-0.1611	-0.1266	-0.0677	-
0.2277	-0.1083								
	-0.0637	-0.169	-0.0721	-0.0949	-0.9511	0.073	-0.0931	0.09	-
0.1749	0.0764	-0.0637	-0.00726	-0.1083	-0.0055	-0.1541	-0.0036	-0.1266	
0.0422	-0.0637	-0.169	-0.0637	-0.169	-0.0865	-0.1553	-0.2765	-0.297	-
0.334	-0.00643	-0.2157	0.0212	-0.1286	-0.0487	-0.1393	-0.1277	-0.1127	-
0.0454	-0.2072	-0.0708							
	-0.0415	-0.145	-0.0513	-0.0704	-0.9337	0.099	-0.0757	0.116	-
0.1553	0.0914	-0.0415	0.011	-0.0872	0.0162	-0.1341	0.0216	-0.1058	0.0608
-0.0415	-0.145	-0.0415	-0.145	-0.0635	-0.1308	-0.2466	-0.2771	-0.302	
0.0228	-0.193	0.0426	-0.1121	-0.0197	-0.1187	-0.0886	-0.0987	-0.0237	-
0.1874	-0.0495								
	-0.02	-0.12	-0.0314	-0.0457	-0.918	0.123	-0.06	0.14	-
0.1346	0.1063	-0.02	0.03	-0.0661	0.0364	-0.1134	0.043	-0.0849	0.0797
-0.02	-0.12	-0.02	-0.12	-0.0411	-0.1056	-0.2168	-0.2538	-0.27	0.05
-0.1723	0.0629	-0.0965	0.0079	-0.0981	-0.0615	-0.0845	-0.003	-0.1677	-
0.0308									
	0.000468	-0.0943	-0.0129	-0.021	-0.9042	0.145	-0.0462	0.162	-
0.115	0.1223	0.000459	0.0497	-0.0453	0.057	-0.0922	0.0645	-0.064	
0.0975	0.000471	-0.0943	0.000459	-0.0944	-0.0197	-0.0801	-0.1873	-	
0.2275	-0.238	0.0746	-0.1549	0.0824	-0.0825	0.0328	-0.0774	-0.0445	-
0.0701	0.0175	-0.1491	-0.012						

	0.0202	-0.0681	0.005	0.0037	-0.891	0.166	-0.033	0.183	-
0.0936	0.1395	0.0202	0.0699	-0.0258	0.0778	-0.0731	0.086	-0.0431	0.1135
0.0202	-0.0682	0.0202	-0.0682	0.0012	-0.0542	-0.1571	-0.1983	-0.205	
0.0971	-0.1394	0.1014	-0.0684	0.0539	-0.0568	-0.0249	-0.0556	0.0383	-
0.1298	0.0086								
	0.0398	-0.0418	0.0231	0.0282	-0.8767	0.186	-0.0187	0.203	-
0.0725	0.1579	0.0397	0.0902	-0.0063	0.0988	-0.0536	0.1077	-0.0223	0.1285
0.0398	-0.0418	0.0397	-0.0419	0.0219	-0.0284	-0.1262	-0.1678	-0.171	0.118
-0.1221	0.12	-0.0542	0.0753	-0.0362	0.0003	-0.0408	0.0595	-0.1083	
0.0312									
	0.0595	-0.0157	0.042	0.0523	-0.85957	0.205	-0.00157	0.222	
-0.0519	0.177	0.0595	0.11	0.0138	0.1196	-0.0332	0.1294	-0.0014	
0.1489	0.0595	-0.0157	0.0595	-0.0158	0.0411	-0.0027	-0.0944	-0.1377	-
0.136	0.139	-0.1027	0.1384	-0.0396	0.0969	-0.0156	0.0292	-0.0258	0.0812
-0.0898	0.0559								
	0.08	0.01	0.06	0.0758	-0.838	0.223	0.02	0.24	-
0.0307	0.1943	0.08	0.13	0.0348	0.1405	-0.0116	0.1512	0.0183	0.1705
0.08	0.01	0.08	0.01	0.0524	0.0227	-0.0617	-0.1081	-0.1	0.16
-0.0809	0.1567	-0.0245	0.1188	0.005	0.057	-0.0105	0.1033	-0.0665	
0.0822									
	0.102	0.0349	0.07	0.0987	-0.8109	0.241	0.0471	0.258	-
0.0084	0.2096	0.102	0.149	0.0571	0.1609	0.011	0.1731	0.0424	0.1901
0.102	0.0349	0.102	0.0351	0.0597	0.0475	-0.0278	-0.0806	-0.0628	0.182
-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								

	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38		
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947		
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164	
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774		
0.1144	0.2703									
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215	
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27	
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344		
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404		
0.2953										
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41		
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413		
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22	
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388		
0.1685	0.3123									
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424		
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575		
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251	
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628		
0.1976	0.3343									
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911	
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333	
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389		
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256		
0.3524										
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317	
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355	
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402		
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253		
0.3725										
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461		
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359		
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35	
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264		
0.2845	0.3877									
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653	
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4	0.38
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442	
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405			
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477		
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906		
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406	
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562		
0.3521	0.4251									
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483		
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178		
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43	
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687		
0.3928	0.4482									
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488		
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452		
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453	
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802		
0.4292	0.4675									

	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5					0.4993
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77

0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92

0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	

0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.55									
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387

1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	0.3765
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807	
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441	
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
									1.71

1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205		
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	0.35
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
									0.3575
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
									1.69
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
									0.3705
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403

1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									

	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388		
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095		
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04	
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401		
1.7406	1.2722									
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048	
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79	
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548		
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385		
1.2809										
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975	
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79	
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564		
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374		
1.2913										
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903	
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78	
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112	
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025		
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41		
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074		
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315										
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414		
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07		
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03	
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123		
1.7379	1.3281									
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968	
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74	
1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642		
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379		
1.3419										
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421		
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973	
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562		
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425		
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644		
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04	
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561		
1.7375	1.3703									
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396	
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69	
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71		
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369		
1.3837										
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436		
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587		
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04	
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887		
1.7349	1.397									
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193	
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66	

1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	

	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03

1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22	
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22	
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	1.22
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									

	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8089	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.20881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549
0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8205	0.848	1.15	0.9	1.16	0.9	1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6176	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408	
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.304601	0.6702	0.8008	1.0419	0.48	
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	

0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369

0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	0.7307	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65

0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548

0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								

	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									

	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068		
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1	
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524		
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815		
0.4313	0.0019									
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767		
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644		
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527	
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701		
0.4411	-0.0102									
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864		
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711		
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531	
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451	
-0.0219										
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974		
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499	
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535		
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461	
-0.0336										
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11		
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862		
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54	
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326		
0.4711	-0.0457									
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-		
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943	
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546	
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126		
0.4814	-0.058									
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								

	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462	
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-
0.1276									
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
-0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
-0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								
	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
-0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
-0.16									
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								

	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445		
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-	
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596	
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634		
0.6393	-0.2258									
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467		
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-	
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594	
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718		
0.6482	-0.2387									
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49		
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-	
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59	
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656	
-0.252										
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515		
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-	
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586	
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952		
0.6624	-0.2654									
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541		
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-	
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581	
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179		
0.6681	-0.2794									
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568		
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-	
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575	
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507		
0.6733	-0.294									
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594		
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171	
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-	
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774	
-0.3087										
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429	-
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36	
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27		
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-	
0.3232										
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645		
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-	
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551	
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587		
0.6807	-0.3364									
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644	
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346	
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303		
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-	
0.3506										
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69		
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-	
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528	
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434		
0.6802	-0.3704									

	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								
	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								

	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								
	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-

1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151	-
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148	-
-1.2164										
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011	-
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12	-
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95		-
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-	-
1.2562										
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234	-
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352		-
0.0295	-1.2866									-
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274	-
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-	-
0.0152	-1.3104									-
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31	-
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-	-
0.0504	-1.3297									-
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895	-
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815	-
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-	-
1.3459										-
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-	-
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-	-
1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372	-
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-	-
0.1599	-1.36									-
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-	-
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-	-
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398	-
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-	-
0.1987	-1.3725									-
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-	-
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	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-
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0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
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 -0.27 -0.98 -0.2957 -0.9228 -2.617 -0.853 -0.36 -0.78 -
 0.6088 -0.7113 -0.19 -0.62 -0.3472 -0.6394 -0.5087 -0.8502 -0.5367 -0.766
 -0.31 -0.98 -0.25 -0.98 -0.2958 -0.9827 -0.6437 -1.0036 -0.75 -0.95
 -0.5874 -0.8895 -0.5516 -0.8225 -0.573 -0.9105 -0.5012 -1.0582 -0.5801 -
 0.9803
 -0.28 -0.955 -0.3049 -0.8992 -2.624 -0.833 -0.367 -0.76 -
 0.6081 -0.6913 -0.202 -0.601 -0.3524 -0.6199 -0.5068 -0.838 -0.5373 -
 0.7454 -0.319 -0.955 -0.264 -0.955 -0.3094 -0.9583 -0.6545 -0.9833 -0.76
 -0.919 -0.5862 -0.8623 -0.5472 -0.7902 -0.5699 -0.879 -0.4996 -1.0312 -
 0.581 -0.958
 -0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
 0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
 0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
 -0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
 0.5818 -0.9351
 -0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
 0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
 0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
 -0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
 0.5825 -0.9119
 -0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
 0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
 0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79
 -0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
 0.583 -0.8882
 -0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
 0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
 -0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
 -0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
 0.8643
 -0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
 0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
 0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811

-0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
0.5825 -0.8403
-0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822
-0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
0.5814 -0.81
-0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
-0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
0.5794 -0.7783
-0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
-0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
-0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
-0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134
-0.5433 -0.5068];

Prilozi

Prilog – P20 Kod razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 9 – Ovaj primjere je urađen sa Furijerovom funkcijom 3 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 7 reda za Wm karakteristiku)

Prilog za poglavlje 9.4 Analiza uticaja specifične brzine (nq) na rezultate dobijene proračunom prelaznih procesa na pumpnoj instalaciji (vrijednosti za Wh i Wm karakteristike dobijene modelskim ispitivanjima i iz Univerzalne jednačine iz Varijante 9 – Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 7 reda za Wm karakteristiku, koriste se u razvijenom numeričkom modelu u programu Matlab za proračun prelaznih procesa).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 9 – Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Gausovom funkcijom 4 reda – Gausov model od 4 pika za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 7 reda za Wm karakteristiku) u programu Matlab:

```
Start.m
%% Program namijenjen za pokretanje viÅ¡e nq-ova za analizu trazijenta
clear
close all
clc
nqt = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
bojaiz =
{' :r', ':ob', ':+g', ':*y', ':xm', ':dc', ':^k', ':vr', ':>b', ':<g', ':py', ':hm', ':.c',
':ok', ':*r', ':*b', ':*g', ':*y', ':*m', ':*c', ':*k'};
bojafun = {'-r', '-b', '-g', '-y', '-m', '-c', '-k', '--r', '--b', '--g', '--y', '--m',
'--c', '--k', '-.r', '-.b', '-.g', '-.y', '-.m', '-.c', '-.k'};
```

```

%% Podaci dobijeni iz modela
run data_model.m

%% Odabir udara
varijanta = listdlg('ListString', ...
    {'1. Wh [f3-g5] <-> Wm [f2-g5]', '2. Wh [f3-g3] <-> Wm [f2-
g4]', '3. Wh [f3-g4] <-> Wm [f2-p7]', '4. Wh [f3-p8] <-> Wm [f2-p8]', '5. Wh
[f4-p9] <-> Wm [f2-p9]', '6. Wh [f5-p9] <-> Wm [f2-g3]', '7. Wh [f4-p8] <-> Wm
[f2-p6]'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi varijante za udar');

jk = size(data);
Theta = 0:1:360;
ThetaD = deg2rad(Theta);
dataWh = data(:,1:2:jk(2));
dataWm = data(:,2:2:jk(2));

%% Pokretanje analize za sve modele
vs = 1:length(nqt);

%% Pokretanje analize za sve modele
for c = vs
    nq = nqt(c);
    fhc = char(bojaiz(c));
    fhf = char(bojafun(c));
    tableiso = ['Uporedni rezultati za nq=', num2str(nq), '.xlsx'];
    leg{c*2-1} = ['model nq=', num2str(nq)]; % legenda za podatke modela
    leg{c*2} = ['funkc. za nq=', num2str(nq)]; % legenda za podatke dobijene
jedinacinom
    run Clprogram.m % pokretanje koda za analizu trazijenta
end

%% Ispis legende na dijagrame
figure(1) % Dijagram za Wh
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(2) % Dijagram za Wm
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
leg([5 6 7 8]) = [];
figure(3) % Dijagram Time-Alpha
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(4) % Dijagram Time-V
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(5) % Dijagram Time-Head (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(6) % Dijagram Time-Head (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(7) % Dijagram Time-Head (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(8) % Dijagram Time-Head (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(9) % Dijagram Time-Discharge (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(10) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 2)

```

```

legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(11) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(12) % Dijagram Time-Discharge (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')

Clprogram.m
%% Trazijenti uzrokovani prestankom rada pumpi

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åt se izraÅunati prijelazni uslovi

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci
FB = dataWm(:,c);
FH = dataWh(:,c);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÅuna podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od modela za nq=', num2str(nq)])

```

```

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅ?unati uslov prolaznog stanja = ',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅ?nih taÅ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Diagram za Wh
figure(1)
plot(Theta,FH,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wh'), title('Dijagram za Wh')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100,100,1000,900])
% Diagram za Wm
figure(2)
plot(Theta,FB,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wm'), title('Dijagram za Wm')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100,100,1000,900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅ?ina      PreÅ?nik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÅ?EUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % PovrÅ?ina popreÅ?nog presjeka cijevi (m2)
    AUNADJ = A(I);
end

```

```

AN = L(I)/(DT*A(I));
N(I) = AN;
AN1 = N(I);
if (AN-AN1) >= 0.5
    N(I) = N(I)+1;
end
A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
CA(I) = G*AR(I)/A(I);
CF(I) = F(I)*DT/(2*D(I)*AR(I));
F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach faktor
trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMP
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARAB(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARAB(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel

```



```

Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljjenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljjenje tabele za ispis -----
        --
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
        --
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
            Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
            vel = size(Excel);
            Excel = Excel(2:vel(1),:);
            p = size(Excel);
            ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
            TABLEe = array2table(ExcelNew,...

'VariableNames',{'Vrijeme','Alpha','V','Disch_1_1','Disch_N1_1','Pad_1_1','Pa
d_N1_1','Disch_1_2','Disch_N1_2','Pad_1_2','Pad_N1_2'});
            disp(' ')
            disp('
-----')
            disp('
| Cijev No.2 | Cijev No.1
|')
            disp(TABLEe)

disp('*****
*****')

```

```

disp('*****
*****')
    disp('Cijev No    max. Pritisak    min. Pritisak')
    fprintf('    %.0f        %.2fm        %.2fm \n',Table2')
    break
end

%% PUMP AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMP.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP

```

```

    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['model nq=', num2str(nq), ' cijev 1 presjek',
        num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['model nq=', num2str(nq), ' cijev 2 presjek',
        num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end
end

% Dijagram Time-Alpha
figure(3)

plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),2), fhc, 'MarkerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
    title('Dijagram Vrijeme-Alfa')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-V
figure(4)

plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),3), fhc, 'MarkerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
    title('Dijagram Vrijeme-V')
    xlim([0 TLAST])

```

```

set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (connection pump and pipe Nu.1)
figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

```

```

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fbc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fbc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fbc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fbc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of model (during the transient process)
figure(4*(c-1)+13)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];

```

```

        Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
    end
    s = surf(vrijeme,duzina,Hnew);
    grid on, hold on
    colormap('turbo')
    colorbar
    title(['Pad za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
    xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
    xlim([0 TLAST]), ylim([0 sum(L)])
    s.EdgeColor = 'none';
    set(gcf, 'Position', [100, 100, 800, 700])

    % Diagram for Discharge of model (during the transient process)
    figure(4*(c-1)+14)
    s1 = surf(vrijeme,duzina,Qnew);
    grid on, hold on
    colormap('turbo')
    colorbar
    title(['Protok za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
    xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
    xlim([0 TLAST]), ylim([0 sum(L)])
    s1.EdgeColor = 'none';
    set(gcf, 'Position', [100, 100, 800, 700])
end
run C1programV2.m

```

C1programV2.m

```

%% Trazijenti uzrokovani prestankom rada pumpi

clear A A1 A2 A3 A4 ALPHA ALPHAe ALSPQ ALPV AN AN1 AR AUNADJ BETA C5 C6 CA CF
CN CP D DALPHA DENOM DT DTH DV
clear ER Excel ExcelNew F F1 F1AL F1V F2 F2AL F2V FB FH G H HMAX HMINHO HP HR
HRES I IP1 IPRINT IspisPodatakaTabela
clear J JJ JM1 JP1 K KK L M MB N N1 NN NN1 NO NP NP1 NPC NPP NR NRLP od p Q
QO QP QR T Table1 Table2 TABLEe TH TH1
clear TLAST TR V VE vel VESQ WR2 Z

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Å#e se izraÅ#unati prijelazni uslovi

NPC = 361; % Broj karakteristiÅ#nih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)

```

```

NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci dobijeni od Fouriereve jednacine i polinoma

FH = jedWh(nq,ThetaD,varijanta);
FB = jedWm(nq,ThetaD,varijanta);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÄ?una podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od Fourierove jednacine za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÄ?unati uslov prolaznog stanja =
',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÄ?nih taÄ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÄ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Dijagram za Wh
figure(1)

```

```

plot(Theta,FH,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

%Digram za Wm
figure(2)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÄUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % PovrÅina popreÅnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach Darcy-
Weisbach faktor trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMPV2
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end

```



```

Z = jedWh(nq,deg2rad(TH),varijanta);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = jedWm(nq,deg2rad(TH),varijanta);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljenje tabele za ispis -----
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
        end
    end
end

```

```

Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
vel = size(Excel);
Excel = Excel(2:vel(1),:);
p = size(Excel);
ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
TABLEe = array2table(ExcelNew,...

'VariableNames',{ 'Vrijeme', 'Alpha', 'V', 'Disch_1_1', 'Disch_N1_1', 'Pad_1_1', 'Pa
d_N1_1', 'Disch_1_2', 'Disch_N1_2', 'Pad_1_2', 'Pad_N1_2'});
disp(' ')
disp('

')
disp('
| Cijev No.2 | Cijev No.1
|')
disp(TABLEe)

disp('*****
*****')

disp('*****
*****')
disp('Cijev No max. Pritisak min. Pritisak')
fprintf(' %.0f %.2fm %.2fm \n',Table2')
break
end

%% PUMPV2 AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMPV2.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
NN = N(I);
for J = 2:NN
JP1 = J+1;
JM1 = J-1;
CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
QP(I,J) = 0.5*(CP+CN);
HP(I,J) = (CP-QP(I,J))/CA(I);
end
end

%% SERIES JUNCTION
if NP ~= 1
for I = 1:NP1

```

```

        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);

        end
    end

    %% RESERVOIR AT DOWNSTREAM END
    NN = N(NP)+1;
    NN1 = N(NP);
    HP(NP,NN) = HRES;
    CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
    QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

    %% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 1 presjek',
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 2 presjek',
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end
end

```

```

% Dijagram Time-Alpha
figure(3)

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),2),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
title('Dijagram Vrijeme-Alfa')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-V
figure(4)

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),3),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
title('Dijagram Vrijeme-V')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (connection pump and pipe Nu.1)
figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)

```

```

set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])

```

```

set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of function (during the transient process)
figure(4*(c-1)+15)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s2 = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za funkciju n_q=', num2str(nq), ' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s2.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])

% Diagram for Discharge of function (during the transient process)
figure(4*(c-1)+16)
s3 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za funkciju n_q=', num2str(nq), ' (tokom procesa
trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s3.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])
end

```

jedWh.m

```

function FH = jedWh(nq,ThetaD,varijanta)

%% obrada koeficijenata
% ff - jednacina furiera
if varijanta == 1
    ff = 3;
    Koef = [0.715731479330851 29.904965832957600 1.160146567645740
0.521115135250857 24.984627647082200 2.924225219363250 0.669699222908911
48.171790875051100 16.877203146165100 1.093124325893790

```

```

16.530859288034800  1.124728037889720  0.000000000000000
123.069952639871000  5.297192353276950
      -0.961523123293475  20.821344093580800  6.602453878194210
64.257648057580600  33.955125342916500  9.386353220569020  -
64.928459861354100  33.949656843977400  9.303213895257580  -0.553408365350271
43.537626921051000  2.662769940796440  -0.832693428738023
52.435524425571700  11.860111687227100
      1.752508344167960  19.813538033814300  1.338739746534640
423.391777872348000  29.423080141571000  0.233823124130313
14.034992024690400  192.667467724811000  84.128246511778100  -
2.249991305664610  52.979879468544200  2.414940141168370  -0.139425746706312
35.411065094104200  4.635405982702990
      -0.228259772514762  17.940643343430100  3.150874761319510
1.622551266692810  19.737858950059500  0.948089552133070
1543.400636295410000  39.201326063337000  9.564845520862440  -
1495.340285273880000  39.202390860318100  9.536202355573940  -
48.504466641276900  39.166154370154600  10.532068185319700
      52.774979545222600  19.948207260269500  0.382110550217316
0.263177598029735  36.944649226057900  1.154196394902190  -
0.441810896482947  20.178226600166000  1.910754413463700  -
49.076267398946200  50.575884925920200  12.341447824439800  49.056404431938300
50.553491696140300  12.272979751954900
      -0.181804234398022  19.327153282371900  4.958850828789490
0.000000000000000  26.029637164455600  0.002684600837807  -
0.191627659558586  33.994394599288800  8.496759972665970  -0.239544485919972
52.539088076212200  3.537489182415010  -0.007662269518264
41.686968452601200  0.721756412942864
      0.171794030111370  54.965027620881700  4.393250547557860
0.122789542611869  42.736325018115600  5.331583584358960  0.125185937307061
21.167598454897700  3.168706724130010  11.350749739153300
27.800622272514600  0.367470386336513  0.084923558027068
35.178568691978200  2.660337169981850
      0.683974778070928  28.479136553910500  10.684175903899800
1.059245427535040  51.273284066137800  20.043005489689600  1.540300759195000
16.534305521866800  0.955404836859471  0.081554743811410
39.737742947716300  2.241646592944000  0.413184604032852
21.483285325409600  4.496030498742180];
      GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);

      elseif varijanta == 2
          ff = 3;
          Koeff = [0.547307872624346  29.8839532563986  0.793246192203723
2.309685047217230  332.7703121851250  239.007138115351  0.102040658730334
43.9750016600212  1.73890423394828
      -0.640843699205076  20.9637652502637  0.804458763664244
0.178200238232620  21.3675216323105  10.513306899753500  -
10.439195981271300  1627.61262058135  958.911327386202
      1.696914405871140  19.9667095602136  1.078693182634310
2563039855.449910  29.4645537432429  0.139184491455413  1.055669091064470
174.558135048266  134.204326548231
      -0.340698312375039  25.8630362606411  12.577242648008500  -
89.040274353193300  47.1888824574428  7.037219629716410  88.861378955054300
47.1851558391851  7.0037284373794

```

```

10.5212705783009 19.7443505022493 0.555280900913813
0.207955165908923 36.9386083983734 0.865490915538270 -
0.102485396609892 97.7537061085187 109.176933764359
-0.181478865700741 19.3076730512134 4.891681598994380 -
0.190652562739006 34.0378712221283 8.685029036984850 -0.489680873225789
52.7736206038725 2.493916983317
15253182234484.2 84.3913147403198 4.992659747586930
0.114843207641356 42.5555276529245 10.898582871234300 0.119438110316359
21.1098882550937 3.364929063690
0.957616501610985 25.1725505727929 23.954052282718500
0.840879738870500 57.5954963477624 19.356757711087200 0.429351737084564
16.5531614483509 0.912340659718];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);

```

```

elseif varijanta == 3

```

```

ff = 3;
Koeff = [0.541944061628251 29.9112840097684 0.609750024000405
367254.1154988030 1015.46632507675000 268.780244089738000 -
3.248115803823190 47.7527080555991 7.827871488938230 3.067613744326430
47.2745171219860 6.8916449222616810
3558.27595727144 39.7803874584052 0.563866270550681 -
0.655122677605182 20.95809611855700 0.861535581007935 0.252438714671051
21.9706860056295 9.098398307081290 -219.142591015502000
5061.2938487694700 2096.985480589480000
1.753257619552930 19.7830735192274 1.646973739848750
0.355840125132201 27.87904920014190 4.399464526021200 0.394297739432654
42.6492408057384 6.113929831752710 57896858542275.2 824.9561617359720
135.150482547991000
0.618074311043399 20.9226089916430 0.746923433999019 -
0.458971083290531 22.67025888312530 9.181967353715210 -0.345830048302581
38.8447829814503 5.582997567637060 -0.346484063699974 54.5007057843973
12.019061272874800
17.203169456107400 19.9690362476728 0.396904337894192
0.215222047721478 36.91309306257100 0.867897634939713
10.307109676216700 68.7429160784018 24.928074260382400 -
11.451540447036400 71.7431334141354 26.729143588279700
-0.470905359789293 19.4695226030676 1.502145727627460 -
10772207070505.6 -8.57928427228217 4.288602187187170 -0.179943541469161
33.3340542180074 10.491749904664400 -0.436896743949830 52.7842153808616
2.562788678310650
1.861727066250480 82.6985044398997 17.083425428977600
0.118891597708152 40.96725307422590 6.788150256519830 0.125236941932015
21.1702636510723 3.150101855672350 70.626163963485500 27.7996969197635
0.311483670611709
0.947005281756741 24.7563868076686 24.717484926063400
0.859059033541582 59.50554823472470 21.118815767490900 0.373618340978890
16.5470804169307 0.943324093728692 0.138683979457977 39.7531160229800
1.300939985544000];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);

```

```

elseif varijanta == 4

```

```

ff = 3;

```



```

    Koeff = [-0.000000000719419155449666      0.0000002001394994474110      -
0.000023764960141  0.001569835734795  -0.0629469913535133  1.5648923022590600
-23.49247414158300  194.2309419847820  -675.488282721413
      -0.000000001523016309455770  0.0000004174874484811200      -
0.000048925444901  0.003197857344233  -0.1273605203951220  3.1614422875066100
-47.71855216007930  400.1219953806810  -1426.944971356050
      0.000000001522718068577850  -0.0000004154618973418480
0.000048438943916  -0.003147986716868  0.1245587951729840  -
3.0683940191356800  45.89313605637810  -380.5847947191610  1339.261581398480
      0.000000001110692155909410  -0.0000003026294716142210
0.000035209457530  -0.002281832835106  0.0899894602976154  -
2.2091496314307000  32.93945956558710  -272.5966545465320  958.297581351687
      0.000000000192612735161932  -0.0000000554425448082238
0.000006805925116  -0.000464329017993  0.0192103854214338  -
0.4923109589792610  7.61341706522743  -64.8226372153901  232.338425397081
      -0.000000000208891289028475  0.0000000582810601414563  -
0.000006936942087  0.000459275162479  -0.0184691388695222  0.4612827535088290
-6.98004516655937  58.4680159026686  -207.691669186717
      0.000000000138464448665096  -0.0000000386868107512570
0.000004628910294  -0.000309251125959  0.0125921729738134  -
0.3192838510771930  4.91194626223695  -41.8338962620285  150.852627955751
      -0.000000000136873279061494  0.0000000374362153743245  -
0.000004373515728  0.000284635370486  -0.0112700102873447  0.2775625886048120
-4.14612160321041  34.3004656268043  -119.239865644071];
elseif varijanta == 5
    ff = 4;
    Koeff = [0.0000000001483124577611510  -0.000000045665937634766600
0.0000061357877970046800  -0.0004718019124193200  0.022858794966160900  -
0.72290265217385900  14.904405618379200  -192.929777701929
1420.95321736821  -4531.661823027010
      0.000000000149746639175877  -0.000000005590353141930380
0.0000008865274868445490  -0.0000787571629071348  0.004331881715268490  -
0.15325392842910800  3.491252098236360  -49.42289555231910
394.7563686236520  -1356.839102956130
      -0.0000000001561615533164640  0.000000048994403816912600  -
0.0000067063266430236000  0.0005251084191534630  -0.025891781569837900
0.83274221924664700  -17.448846331869500  229.409121150463  -1715.40142142772
5554.050146978870
      -0.0000000001098353663449900  0.000000034356138354869400  -
0.0000046876609075013900  0.0003658027867456140  -0.017971975524956000
0.57583846875931900  -12.018955721533900  157.410871214888  -1172.76778277565
3784.379042484440
      0.000000000429066366325918  -0.000000013387389445635400
0.0000018202543097994200  -0.0001414450183278470  0.006917574426346170  -
0.22068409136372600  4.590359053360550  -60.0139643577423
447.3984941818910  -1448.690295678320
      0.000000000210850648552858  -0.000000006507143318240710
0.0000008770652486108870  -0.0000677216662989428  0.003298958943502670  -
0.10506395814251700  2.185881397049690  -28.6264928632753
213.9661655604780  -694.969331998672
      -0.000000000329196048129478  0.000000010260353632250700  -
0.0000013949316249789700  0.0001084823448101510  -0.005313764954737800
0.16986189813235100  -3.540469620672820  46.35938029125110  -
345.7782831314710  1118.675045669680

```

```

-0.0000000000000440744767636384 0.000000000223304346718617 -
0.0000000409439272033431 0.0000039087285884900 -0.000221844837318895
0.00790572650884895 -0.178925823761283 2.50042322174394 -19.6975324318129
66.9223375772029
0.0000000000458451701841957 -0.000000014416839451208000
0.0000019773158226702200 -0.0001550616904532190 0.007652651619037800 -
0.24616732022711200 5.154659912457500 -67.67115282446900
504.9029624675620 -1630.22245311844
0.0000000000101532875002068 -0.000000003220251903217280
0.0000004458615800541910 -0.0000353162944111337 0.001760537106148740 -
0.05716707191022150 1.206609576121150 -15.93021615975910
119.1678726400810 -383.488164180874];

```

```
elseif varijanta == 6
```

```

ff = 5;
Koeff = [0.00000000000222752081735310 0.000000000000746043787443621
-0.0000000996979953557631 0.0000159910305085119 -0.00121789304382982
0.0541251324010482 -1.479805955797970 24.54960898214220 -
226.5789008824530 890.0673521014990
-0.00000000009853455894028930 0.000000029878451956899500000
-0.0000039529040602605100 0.0002993908888804500 -0.01430271029464040
0.4468440858784710 -9.127515208869680 117.51306604849600 -
864.9233259684540 2770.6755281101000
0.00000000006537081513489800 -
0.000000020305871676726200000 0.0000027635851293094100 -
0.0002163535500722580 0.01074058682124290 -0.3507198849776120
7.532893564066130 -102.57471636511800 802.5496341138720 -
2741.9375456265100
0.00000000001517519230302730 -
0.000000004960321329257650000 0.0000007154612462950320 -
0.0000597592595735836 0.00318296067274276 -0.1119422123509300
2.593431424771730 -38.04673273729810 319.4800663849460 -
1164.8959434468200
0.00000000024101930392032400 -
0.000000075238124405045100000 0.0000102508513132967000 -
0.0007994551828851060 0.03930161429305600 -1.2620431310661400
26.452038063744100 -348.69706904620800 2621.3372269439900 -
8555.6667189565200
0.00000000007788660088205660 -
0.000000024469978478046000000 0.0000033590198876066700 -
0.0002642302707014880 0.01311594213135450 -0.4256881437796030
9.025483550010260 -120.42925435045800 916.7327929538220 -
3029.9959514784600
-0.00000000003942001698406580 0.000000012217715847756700000
-0.0000016524894036455000 0.0001279340042024160 -0.00624384792629115
0.1990913323318370 -4.144782214762320 54.28923693214120 -
405.6852302594130 1316.8944618435100
0.00000000002457664382015730 -
0.000000008065392363847570000 0.0000011563609185520000 -
0.0000949274326042762 0.00490942641771828 -0.1656095133279460
3.637771032702450 -50.09613392005990 391.9116353377320 -
1325.5420757321700
0.0000000000949183684374935 -
0.000000002789641097342930000 0.0000003522864135437280 -

```

```
0.0000249166136057757 0.00107645967120288 -0.0289579453589674
0.469648850383232 -4.10250314680034 13.0347850621519 21.7580121829851
-0.00000000001809371173010940 0.000000005464185550308950000
-0.0000007221076652398840 0.0000548527943207524 -0.00264173379308249
0.0837145630047144 -1.746333116178210 23.12148877661600 -
176.1485818612130 587.3167315808940
-0.00000000000016802677567676 0.00000000560037280421419000
-0.0000001480108904131520 0.0000172709274948416 -0.00113336595664109
0.0454661343704326 -1.138536354368660 17.34989300307600 -
146.9199722947070 528.7883109465540
-0.00000000003508718158417060 0.000000010821734507197800000
-0.0000014561447524457000 0.0001121394252697340 -0.00544471830155742
0.1727836184680380 -3.582741239557160 46.79409137265480 -
349.1752107088000 1134.2056385207600];
```

```
elseif varijanta == 7
```

```
ff = 4;
```

```
Koeff = [-0.0000000007491715910670530 0.0000002091199311599920 -
0.00002490561744261790 0.001649271355949260 -0.06625528487281190
1.649038275173740 -24.76603550373240 204.7071071755390 -
711.4458471321500
-0.0000000010552420263987900 0.0000002881296126501090 -
0.00003363538470894380 0.002190419745732360 -0.08695421372091220
2.152897424241530 -32.44390700103780 271.9556476709870 -
971.1233567020060
0.0000000017005212852224300 -0.0000004660035178201750
0.00005456116608651340 -0.003559792726267500 0.14134330099473000 -
3.491969172977950 52.34569984559540 -434.7882844670870 1531.6580309777400
0.0000000010922471894073500 -0.0000002985640906956940
0.00003484597422847180 -0.002264894468442660 0.08954685687252240 -
2.202463228792380 32.87429142040740 -272.0556032536690 955.2517556144620
-0.0000000003930166973677600 0.0000001056755859092100 -
0.00001215839446054350 0.000781681754508763 -0.03071670486874540
0.755595348162435 -11.36437220232550 95.5397852324739 -
343.5058680103350
-0.0000000001214833445735680 0.0000000344915483728896 -
0.00000418797866792135 0.000283674943609533 -0.01171069210109040
0.301412052180571 -4.71924013416871 41.0566979362727 -
151.8625503481100
0.0000000002905762450021240 -0.0000000794415646938760
0.00000928872584457214 -0.000606074541814293 0.02411168834328690 -
0.598292940602111 9.03356140457960 -75.818885722162 270.7354853335900
0.0000000000898237887908671 -0.0000000233314630185466
0.00000258067289746543 -0.000158815832950063 0.00595434699964155 -
0.139534434253989 2.00068577224751 -16.0831758472293 55.5696823478691
-0.0000000005325251158750800 0.0000001453112760685980 -
0.00001692065356855950 0.001096531963795250 -0.04318969609679080
1.057265931630640 -15.68971110071670 128.9466149671200 -
449.3476014531690
-0.0000000001453056302934750 0.0000000401292250758960 -
0.00000472232655328813 0.000308559341052150 -0.01221380495566130
0.299163515371805 -4.41793426917184 35.9051675777457 -
121.9609013937540];
```

```
end
```

```

if varijanta <= 3
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq);
elseif varijanta > 3
    a0 = polyval(Koeff(1,:),nq);
    a1 = polyval(Koeff(2,:),nq);
    b1 = polyval(Koeff(3,:),nq);
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq);
        b2 = polyval(Koeff(5,:),nq);
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq);
            b3 = polyval(Koeff(7,:),nq);
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq);
                b4 = polyval(Koeff(9,:),nq);
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq);
                    b5 = polyval(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq);
                        b6 = polyval(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = polyval(Koeff(14,:),nq);

```

```

        b7 = polyval(Koeff(15,:),nq);
        if ff == 8
            a8 = polyval(Koeff(16,:),nq);
            b8 = polyval(Koeff(17,:),nq);
        end
    end
end
end
end
end
end
end
end
    w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wh
if ff == 1
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);
elseif ff == 6
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
elseif ff == 7
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    FH = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
end
end
end

```

jedWm.m

```
function FB = jedWm(nq,ThetaD,varijanta)
    %% obrada koeficijenata
    % ff - jednacina furiera
    ff = 2;
    if varijanta == 1

        Koeff = [0.2550536698126430 25.6186085901353 0.963267711627744
0.337927288514508 29.637663415084500 0.981293292472372 28966.07550917390
65.2509909609433 2.950351977592590 0.185993555581020 47.9268600950130
10.89020139569180 -2.407235575701770 54.4146992436426 2.260359124540420
-16620771727066.700 -4276.11273885084 805.599265318033 -
1109258261.09874 33.423922310980700 0.516355342831691 -
1.4553184642107200 29.6434273874913 0.628339785251443 1.315730559665290
68.9333960383609 25.364244941314900 7.696586293536820 0.579956382013546
55.0333295151463
324.12069894061200 29.5305502765131 0.289320739965899
0.851923564873571 72.185467156661800 24.553017487914800
0.2390879654207820 42.9992939636545 1.374890393223450 50.9868054813579
36.6261473513520 0.300523766914872 752.53901374966 -1196.893315916210
458.209590154823
0.7969616045235030 30.5481737462861 0.323116981487847
0.216205675422239 37.812036149190800 2.998374370756010
0.8786364970989780 26.5875750425643 0.285662853532393 0.269509239517786
49.8968970919004 8.755147692392940 0.241373123080481 17.1299699732532
8.327848676217870
15609923231.145100 33.4088970423167 0.493221992181572
0.339811595529765 17.156363734307600 9.158788121298710
0.2970961874516290 39.1121374566248 3.812809161841930 0.180831886464536
27.4815736160715 3.148470805194080 0.296441327664035 48.7546142263852
6.731023198418530
0.0919924360474903 28.1156484740068 6.426286057995100
0.292910452594169 9.913508345404570 14.563949274160200
0.0709808075667553 42.4620025926456 8.149659108637010 0.938585093478700
59.5435118000423 85.9380912870727 0.258296343141102 34.5462796697432
0.881787048543951];

        GASS = @(a,x) a(1)*exp(-((x-a(2))/a(3)).^2)+a(4)*exp(-((x-
a(5))/a(6)).^2)+a(7)*exp(-((x-a(8))/a(9)).^2)+a(10)*exp(-((x-
a(11))/a(12)).^2)+a(13)*exp(-((x-a(14))/a(15)).^2); % gauss 5

    elseif varijanta == 2

        Koeff = [0.2565340720957820 25.6190131658440 0.96484041817702
0.337554045255185 29.64017983253620 0.993738454543427 6780.105336248370
62.82816172127180 2.08283834103938 0.1616247773253950 45.5723867370634
9.27704032333352
-0.3100589044418280 25.4140487351679 1.16073952528412 -
0.586466836958781 31.24387084830800 4.686691909238580 -0.689118271729782
15.29679545017730 7.02390267918711 -0.8437096316550170 49.5825278216519
19.33923546847640
0.5840877456326120 30.3360080363224 5.36367655198547
108489741386884.00 949.80157258851400 157.090639472185000 0.464910905673951
42.33396678859710 8.81291764030294 0.6778739307366020 16.5739817924808
8.85392533399651
```

```

0.4789170184810000 30.4766951062495 0.41602004860087
0.210129349908645 37.92996540846660 2.963816417541680 0.234552442063483
16.72048667075920 11.78352371078880 0.2705319174861940 49.9406202391671
8.62217289280991
0.1814128688279530 40.0671301335334 7.67279200097386
0.363099490980210 7.49261833332073 30.091218205065800 0.068035782523532
51.70049384794580 4.24714421064911 0.1451378767477920 50.2963385279459
4.53382541975554
0.0938567377090819 28.2172498839754 8.47530755567248
13990856363678.50 -2854.41429239682000 520.586129016091000
0.595661587390582 64.00343615978220 34.61157020854780
0.0658942084280693 42.9262124546354 7.64207254916681];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2); % gauss 4

```

```

elseif varijanta == 3

```

```

Koeff = [0.000000001588890538391660 -0.0000003723117619424390
0.0000361422316558991 -0.001879364783403500 0.05641884501931590 -
0.9769263981065590 9.047712009035270 -34.666264303019000
-0.000000005684378149240630 0.0000013892024063298300 -
0.0001412588614686960 0.007725561947790710 -0.24470767032302400
4.4760105970231800 -43.672315511169600 174.519303665407000
0.000000005171184954836380 -0.0000012584894288055900
0.0001275738899707780 -0.006966559417897400 0.22080363358228700 -
4.0525365367820300 39.807951121075600 -160.624767567671000
-0.000000000617386024430864 0.0000001288300696868020 -
0.0000108068313108032 0.000465041564602690 -0.01081710278781060
0.1300433475802940 -0.671498532271456 0.864664277333494
-0.000000001150232150863960 0.0000002724498733260970 -
0.0000268503891151348 0.001424304326770460 -0.04385349511440470
0.7833281383274020 -7.526171798354300 30.394030483031300
0.000000000237800574036084 -0.0000000526584190793892
0.0000047464956991714 -0.000223461047310198 0.00584470233506904 -
0.0827567012675461 0.556205464096055 -0.190662750191647];

```

```

elseif varijanta == 4

```

```

Koeff = [-0.0000000006840884836399160 0.00000002033163725719810 -
0.000002567631155366350 0.000179570915438446 -0.007590747230637750
0.1982381601756740 -3.119852248198430 27.05342651952840 -99.0588045403801
-0.00000000040377961670024300 0.00000010494369507546700 -
0.000011568554439610600 0.000705321374079300 -0.025985571487810600
0.5923733518557350 -8.172496124873870 62.60546400655040 -
205.5542663092460
0.00000000050022893093365100 -0.00000013188219890021500
0.000014794437926265900 -0.000921225773664998 0.034797025323916800 -
0.8162277754127460 11.617271283441200 -91.85600077612810 310.2355426650230
0.00000000024881599502151600 -0.00000006878832130251460
0.000008113624322572120 -0.000532484238887428 0.021238426010244700 -
0.5266409305167510 7.924272316416050 -66.16170746138060 235.0725826112420
-0.00000000010541975058365400 0.00000002773281049058800 -
0.000003110592356459330 0.000194176808864644 -0.007377079229240390
0.1746936254601530 -2.518974327501390 20.22108573021130 -68.8364885751104

```

```

-0.000000000000612377653155314 0.00000000191560096445476 -
0.000000249177520075123 0.000017585846582828 -0.000734728677582416
0.0185399868579404 -0.274585672858887 2.16802870900847 -
5.9549101557933];

```

```
elseif varijanta == 5
```

```

Koeff = [0.000000000011680825665761900 -0.0000000036059735381334700
0.00000048710546843449600 -0.000037764389345331000
0.001849995311944690000 -0.059307127211933400 1.24220734128243000 -
16.364129806873900 122.84280925203100 -399.932227420309
-0.000000000008286958410112770 0.0000000021059446353916400 -
0.00000022620886526139200 0.000013401775540240400 -0.000479760733857257000
0.010704599425104200 -0.14827028363717600 1.223652782979380 -
5.35228604771694 7.90029710565952
-0.000000000043548432865377100 0.0000000136889711318116000 -
0.00000187210754186201000 0.000146014927381898000 -0.007148898950970430000
0.227605938501780000 -4.70835176538847000 60.994562633398300 -
448.97780213128700 1431.95128707579
-0.000000000019500134886293700 0.0000000061544763133041900 -
0.00000084802712938707700 0.000066871588176315400 -0.003321114253612500000
0.107574479152904000 -2.26945778527578000 30.034455812136700 -
226.07385214071800 737.354912413844
0.000000000012792679350824100 -0.0000000039797118643547200
0.00000053893707999339800 -0.000041657597046220100
0.002023602595716880000 -0.064016146126722200 1.31803429062862000 -
17.023924653370700 125.12829808155000 -398.348916411191
-0.000000000000116173506560012 0.0000000000290596348520913 -
0.00000000272677229678402 0.000000100877427722979 0.000000972375484845918 -
0.000220375207931837 0.00815702558494035 -0.142862607203483
1.21534019161962 -2.96252574948479];

```

```
elseif varijanta == 6
```

```

Koeff = [0.2396989599392460 25.6152513832965 0.921235726763537
0.356686480636697 29.6181439335044 0.863734999340850 0.177838213610671
54.50312851955850 19.06095070390450
-161604085071244.00 -1348.64837068958 237.118925186141000 -
0.431556584079404 31.5813678777715 4.979020168320690 -0.732700395540283
51.37050333406420 15.82124676270580
397.8922912225740 61.7661994698937 2.035702378740950
0.000000000000000 124.4074888973250 7.597395711925160
26.516151737300700 1115.66434507875000 572.44162899584500
1067684.0290807000 30.3755017996734 0.134329574271467 -
29282515.95866490 29.8365501392376 0.243334753472403 0.202057948914174
23.56465837532410 83.95311922599840
-4.1467342213550000 27.4518852445997 14.438662577382400
4.390855444171340 27.3740653678572 15.381516045760300 0.267119335754774
52.08208840300900 2.63767879223153
0.0757698656680684 26.2601890811220 6.898666253721750
0.971459766358391 45.8125229368510 54.950393330768900 0.419411152377490
6.00706284706127 13.56218462897350];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2); % gauss3

```



```

elseif varijanta == 7

    Koeff = [0.00000001667646610748540 -0.000003612804128723200
0.000315826181509237 -0.01420006601425680 0.344661600855802 -
4.25705497946271 20.86120312692360
-0.00000000243290800565087 0.000000967837775954358 -
0.000127902625673005 0.00793691727028947 -0.252072151343157
3.92651204989357 -24.13448331084370
0.00000000750720462958153 -0.000001812394333393670
0.000177883963489826 -0.00903186574287275 0.248688633617358 -
3.49359119179948 20.09429218921680
-0.00000002231684060267700 0.000004640553453036450 -
0.000387931116614583 0.01662287981585140 -0.383478472141252
4.49825797298139 -20.71132320249870
-0.00000000914709978171369 0.000001929139249688860 -
0.000164841787528002 0.00726905862181974 -0.173397935542602
2.10543615712011 -9.80350153749406
0.0000000055932574850391 -0.000001203423506701000
0.000105081202115758 -0.00472444461105914 0.115038160743676 -
1.43504638795362 8.11983020733536];

end

if varijanta <= 2 || varijanta == 6
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end

```

```

end
w = GASS(Koeff(end,:),nq);
else
a0 = polyval(Koeff(1,:),nq);
a1 = polyval(Koeff(2,:),nq);
b1 = polyval(Koeff(3,:),nq);
if ff >= 2
a2 = polyval(Koeff(4,:),nq);
b2 = polyval(Koeff(5,:),nq);
if ff >= 3
a3 = polyval(Koeff(6,:),nq);
b3 = polyval(Koeff(7,:),nq);
if ff >= 4
a4 = polyval(Koeff(8,:),nq);
b4 = polyval(Koeff(9,:),nq);
if ff >= 5
a5 = polyval(Koeff(10,:),nq);
b5 = polyval(Koeff(11,:),nq);
if ff >= 6
a6 = polyval(Koeff(12,:),nq);
b6 = polyval(Koeff(13,:),nq);
if ff >= 7
a7 = polyval(Koeff(14,:),nq);
b7 = polyval(Koeff(15,:),nq);
if ff == 8
a8 = polyval(Koeff(16,:),nq);
b8 = polyval(Koeff(17,:),nq);
end
end
end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wm
if ff == 1
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);

```

```

elseif ff == 6
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
elseif ff == 7
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
end

end

```

PARAB.m

```

%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

```

```

    nq2 = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95
35.89 37.4 38 41.6 43.83 50 56];
    nqC = find(nq2 == nq);
    data_im = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42
-0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
    -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
    -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
    -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
    -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27   -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544

```

-0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008
 -0.19 -0.311 -0.1943 -0.2412 -1.063 -0.0839 -0.205 -0.0669 -
 0.2953 -0.0887 -0.19 -0.113 -0.228 -0.1468 -0.2671 -0.1816 -0.2519 -
 0.1122 -0.19 -0.311 -0.19 -0.311 -0.2187 -0.3009 -0.4577 -0.4055 -0.53
 -0.191 -0.342 -0.1465 -0.2203 -0.2552 -0.238 -0.2922 -0.1946 -0.205 -
 0.3299 -0.2808
 -0.17 -0.287 -0.1749 -0.2168 -1.045 -0.0584 -0.187 -0.0414 -
 0.2755 -0.048 -0.17 -0.095 -0.2082 -0.126 -0.2475 -0.1578 -0.231 -0.091
 -0.17 -0.287 -0.17 -0.287 -0.1975 -0.2764 -0.4267 -0.3862 -0.496 -
 0.161 -0.3187 -0.1177 -0.2025 -0.2291 -0.2222 -0.2707 -0.1812 -0.1791 -
 0.3077 -0.2581
 -0.151 -0.263 -0.1561 -0.1923 -1.027 -0.0329 -0.169 -0.0159 -
 0.255 -0.018 -0.151 -0.0774 -0.1891 -0.1043 -0.2283 -0.1319 -0.2102 -
 0.0581 -0.151 -0.263 -0.151 -0.263 -0.1773 -0.2519 -0.3966 -0.3669 -0.463
 -0.131 -0.2993 -0.0872 -0.188 -0.2014 -0.2064 -0.2472 -0.1676 -0.1473 -
 0.2873 -0.2314
 -0.13 -0.24 -0.1357 -0.1685 -1.008 -0.007 -0.15 0.01 -
 0.2346 0.009 -0.13 -0.06 -0.1693 -0.0814 -0.2096 -0.1034 -0.1893 -
 0.0279 -0.13 -0.24 -0.13 -0.24 -0.1553 -0.2282 -0.3662 -0.3502 -0.43
 -0.1 -0.2786 -0.0555 -0.1743 -0.1617 -0.1907 -0.2211 -0.154 -0.1178 -
 0.2698 -0.1989

-0.108 -0.217 -0.1146 -0.1445 -0.989 0.0196 -0.131 0.0366 -
 0.2135 0.0391 -0.108 -0.0426 -0.1492 -0.0572 -0.1915 -0.0722 -0.1684 0.0005
 -0.108 -0.217 -0.108 -0.217 -0.1325 -0.2045 -0.3363 -0.3338 -0.398 -
 0.0686 -0.2582 -0.0269 -0.1598 -0.1182 -0.1749 -0.1924 -0.1404 -0.0915 -
 0.2496 -0.1582
 -0.0862 -0.193 -0.0936 -0.1197 -0.97 0.0465 -0.112 0.0635 -
 0.1954 0.06 -0.0862 -0.0251 -0.1291 -0.0318 -0.1732 -0.0387 -0.1475 0.0245
 -0.0862 -0.193 -0.0862 -0.193 -0.1098 -0.1798 -0.3065 -0.3157 -0.366 -
 0.0371 -0.2372 -0.0017 -0.1445 -0.0806 -0.1591 -0.1611 -0.1266 -0.0677 -
 0.2277 -0.1083
 -0.0637 -0.169 -0.0721 -0.0949 -0.9511 0.073 -0.0931 0.09 -
 0.1749 0.0764 -0.0637 -0.00726 -0.1083 -0.0055 -0.1541 -0.0036 -0.1266
 0.0422 -0.0637 -0.169 -0.0637 -0.169 -0.0865 -0.1553 -0.2765 -0.297 -
 0.334 -0.00643 -0.2157 0.0212 -0.1286 -0.0487 -0.1393 -0.1277 -0.1127 -
 0.0454 -0.2072 -0.0708
 -0.0415 -0.145 -0.0513 -0.0704 -0.9337 0.099 -0.0757 0.116 -
 0.1553 0.0914 -0.0415 0.011 -0.0872 0.0162 -0.1341 0.0216 -0.1058 0.0608
 -0.0415 -0.145 -0.0415 -0.145 -0.0635 -0.1308 -0.2466 -0.2771 -0.302
 0.0228 -0.193 0.0426 -0.1121 -0.0197 -0.1187 -0.0886 -0.0987 -0.0237 -
 0.1874 -0.0495
 -0.02 -0.12 -0.0314 -0.0457 -0.918 0.123 -0.06 0.14 -
 0.1346 0.1063 -0.02 0.03 -0.0661 0.0364 -0.1134 0.043 -0.0849 0.0797
 -0.02 -0.12 -0.02 -0.12 -0.0411 -0.1056 -0.2168 -0.2538 -0.27 0.05
 -0.1723 0.0629 -0.0965 0.0079 -0.0981 -0.0615 -0.0845 -0.003 -0.1677 -
 0.0308
 0.000468 -0.0943 -0.0129 -0.021 -0.9042 0.145 -0.0462 0.162
 -0.115 0.1223 0.000459 0.0497 -0.0453 0.057 -0.0922 0.0645 -0.064
 0.0975 0.000471 -0.0943 0.000459 -0.0944 -0.0197 -0.0801 -0.1873 -
 0.2275 -0.238 0.0746 -0.1549 0.0824 -0.0825 0.0328 -0.0774 -0.0445 -
 0.0701 0.0175 -0.1491 -0.012
 0.0202 -0.0681 0.005 0.0037 -0.891 0.166 -0.033 0.183 -
 0.0936 0.1395 0.0202 0.0699 -0.0258 0.0778 -0.0731 0.086 -0.0431 0.1135
 0.0202 -0.0682 0.0202 -0.0682 0.0012 -0.0542 -0.1571 -0.1983 -0.205
 0.0971 -0.1394 0.1014 -0.0684 0.0539 -0.0568 -0.0249 -0.0556 0.0383 -
 0.1298 0.0086
 0.0398 -0.0418 0.0231 0.0282 -0.8767 0.186 -0.0187 0.203 -
 0.0725 0.1579 0.0397 0.0902 -0.0063 0.0988 -0.0536 0.1077 -0.0223 0.1285
 0.0398 -0.0418 0.0397 -0.0419 0.0219 -0.0284 -0.1262 -0.1678 -0.171 0.118
 -0.1221 0.12 -0.0542 0.0753 -0.0362 0.0003 -0.0408 0.0595 -0.1083
 0.0312
 0.0595 -0.0157 0.042 0.0523 -0.85957 0.205 -0.00157
 0.222 -0.0519 0.177 0.0595 0.11 0.0138 0.1196 -0.0332 0.1294 -
 0.0014 0.1489 0.0595 -0.0157 0.0595 -0.0158 0.0411 -0.0027 -0.0944 -
 0.1377 -0.136 0.139 -0.1027 0.1384 -0.0396 0.0969 -0.0156 0.0292 -
 0.0258 0.0812 -0.0898 0.0559
 0.08 0.01 0.06 0.0758 -0.838 0.223 0.02 0.24 -
 0.0307 0.1943 0.08 0.13 0.0348 0.1405 -0.0116 0.1512 0.0183 0.1705
 0.08 0.01 0.08 0.01 0.0524 0.0227 -0.0617 -0.1081 -0.1 0.16
 -0.0809 0.1567 -0.0245 0.1188 0.005 0.057 -0.0105 0.1033 -0.0665
 0.0822
 0.102 0.0349 0.07 0.0987 -0.8109 0.241 0.0471 0.258 -
 0.0084 0.2096 0.102 0.149 0.0571 0.1609 0.011 0.1731 0.0424 0.1901
 0.102 0.0349 0.102 0.0351 0.0597 0.0475 -0.0278 -0.0806 -0.0628 0.182
 -0.0549 0.1751 -0.0091 0.1411 0.0263 0.0831 0.0051 0.1258 -0.0421
 0.1092

	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	
0.075	0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	
0.2408	0.168	0.107	0.169	0.107	0.0775	0.145	0.073	0.143	
0.0471	0.249	0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	
0.1868	0.0108	0.1665							
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	
0.215	0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	
0.3814	0.27	0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191
0.344	0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	
0.1404	0.2953								
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	
0.2911	0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	
0.4118	0.333	0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285
0.389	0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	
0.2256	0.3524								

	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	
0.317	0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	
0.4226	0.355	0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318
0.402	0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	
0.3653	0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444
0.4	0.38	0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43
0.3652	0.442	0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5
0.4993	0.5	0.5	0.5	0.5	0.5				
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533

0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	
0.7066	0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	
0.5686	0.77	0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74
0.57	0.7249	0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	
0.7374	0.6415								
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	
0.7829	0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	
0.6064	0.881	0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795
0.58	0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	
0.8184	0.6917								
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	

0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	
0.8538	0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299
0.942	0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	
0.871	0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	
0.6296	0.955	0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88
0.573	0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	
0.9201	0.7368								
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	
0.9923	0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	
0.5485	1.15	1.17	1.19	0.502	0.95	0.647	1	0.594	1.02
0.543	0.9925	0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	
1.0508	0.7691								

	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	
1.0109	0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	
0.5382	1.2	1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04
1.0043	0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.534
0.7717									
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
0.6226	1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32
1.3	1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		0.483
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	
1.1321	0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	
0.4584	1.36	1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11
0.488	1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	
1.1592	0.7732								
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	
1.1382	0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	
0.4468	1.36	1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12
0.48	1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	
1.1403	0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355
1.36	1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								

	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	
1.1497	0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378
1.55	1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.36
1.1231	0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	
0.6545									
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	
1.1509	0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712
1.36	1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	
1.1532	0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608
1.6	1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296
0.3765									
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	
1.1559	0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548
1.38	1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36
1.139	0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	
0.6614									
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39

1.64 1.45 0.528 1.1 0.43 1.24 0.535 1.14 0.355 1.1348
0.3331 1.341 0.5309 1.5694 0.6853 1.1795 0.5544 1.3419 0.6804
1.29 0.3 1.19 0.403 0.616 0.358 1.4 0.26 1.1573
0.6974 1.62 0.81 1.1 0.332 1.1189 0.4151 1.1724 0.3576 1.4 1.65
1.45 0.53 1.1 0.414 1.24 0.541 1.14 0.35 1.13 0.3128
1.3461 0.5296 1.5932 0.7005 1.1863 0.5631 1.3609 0.702
1.28 0.285 1.18 0.397 0.614 0.36 1.4 0.248
1.1579 0.6984 1.62 0.812 1.1 0.334 1.12 0.4142 1.1729 0.3602
1.41 1.66 1.45 0.532 1.1 0.399 1.25 0.548 1.14 0.346
1.1262 0.3072 1.3509 0.5287 1.6165 0.7179 1.19 0.5691 1.3827
0.7266
1.28 0.274 1.18 0.39 0.613 0.362 1.4 0.236
1.1584 0.6993 1.62 0.814 1.1 0.337 1.121 0.4132 1.1736 0.3633
1.43 1.67 1.45 0.534 1.1 0.386 1.26 0.555 1.14 0.343
1.1224 0.3036 1.3565 0.5282 1.6398 0.7383 1.1927 0.5742 1.4058
0.7534
1.27 0.264 1.17 0.384 0.611 0.366 1.41 0.226
1.1588 0.7 1.61 0.816 1.1 0.338 1.1218 0.4122 1.1746 0.3664 1.44
1.68 1.45 0.536 1.1 0.376 1.27 0.562 1.14 0.341 1.1188
0.3012 1.3635 0.5292 1.6628 0.7594 1.1949 0.5789 1.4289 0.7807
1.26 0.257 1.17 0.378 0.608 0.37 1.41 0.217
1.1592 0.7007 1.61 0.818 1.1 0.34 1.1225 0.4111 1.1766 0.3698
1.46 1.69 1.44 0.538 1.1 0.368 1.27 0.569 1.14 0.34
1.1154 0.3006 1.3719 0.5377 1.6859 0.7796 1.1968 0.5833 1.4535
0.8102
1.26 0.25 1.16 0.372 0.606 0.374 1.41 0.21
1.1595 0.7012 1.6 0.82 1.1 0.343 1.1231 0.41 1.1796 0.3739 1.47
1.7 1.44 0.54 1.1 0.362 1.28 0.576 1.14 0.34 1.1119
0.3018 1.3807 0.5504 1.709 0.7998 1.1985 0.5877 1.482 0.8441
1.26 0.244 1.16 0.366 0.603 0.379 1.41 0.206
1.1598 0.7017 1.59 0.822 1.1 0.346 1.1236 0.4088 1.1815 0.3779
1.48 1.71 1.44 0.542 1.1 0.358 1.28 0.583 1.14 0.34
1.1084 0.3044 1.3888 0.5621 1.7309 0.8198 1.2004 0.5925 1.5135
0.8811
1.26 0.238 1.15 0.361 0.6 0.384 1.41 0.204
1.1599 0.702 1.59 0.824 1.1 0.349 1.124 0.4076 1.1827 0.3816
1.5 1.71 1.43 0.544 1.1 0.358 1.29 0.589 1.14 0.341
1.1059 0.3076 1.3953 0.5716 1.7507 0.8391 1.2026 0.5979 1.548
0.9205
1.26 0.233 1.14 0.356 0.597 0.388 1.41 0.205
1.16 0.7022 1.58 0.827 1.11 0.354 1.1242 0.4064 1.1834
0.3852 1.51 1.72 1.43 0.547 1.1 0.36 1.29 0.595 1.13
0.343 1.1048 0.3113 1.4004 0.5807 1.769 0.8579 1.2056 0.6042
1.5851 0.962
1.26 0.231 1.14 0.352 0.593 0.392 1.42 0.207
1.1601 0.7022 1.57 0.829 1.11 0.359 1.1243 0.4051 1.1832
0.3887 1.53 1.72 1.42 0.552 1.1 0.365 1.29 0.601 1.13
0.346 1.104 0.3162 1.4046 0.5898 1.7869 0.8772 1.209 0.6113
1.6192 1
1.26 0.23 1.13 0.348 0.589 0.396 1.42 0.21
1.1596 0.7022 1.56 0.83 1.11 0.366 1.1241 0.4032 1.182
0.3921 1.54 1.72 1.42 0.56 1.1 0.374 1.3 0.606 1.13 0.35
1.1035 0.3221 1.4081 0.599 1.8049 0.8982 1.2123 0.6187 1.6487
1.0326

	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	
1.1378	0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	
0.4086	1.62	1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12
1.1046	0.3575	1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	0.38
1.2002									
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	
1.1307	0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118
1.69	1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103
0.3642	1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253	
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	
1.1231	0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151
1.65	1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391
0.3705	1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472	1.1006
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	
1.115	0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184
1.66	1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397
1.0979	0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	
1.2651									
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	
1.0985	0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	
0.4254	1.69	1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11
0.41	1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	
1.8592	1.2904								
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	

0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	
1.075	0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	
0.4385	1.72	1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09
0.438	1.0719	0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	
1.8449	1.2968								
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	
1.0604	0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498
1.74	1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46
1.0598	0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	
1.2929									
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	
0.9975	0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	
0.5221	1.79	1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04

0.564	1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684		
1.7374	1.2913									
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406		
0.9903	0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	
1.78	1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	
1.0112	0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375		
1.3025										
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41		
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074		
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315										
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414		
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07		
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03	
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123		
1.7379	1.3281									
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417		
0.968	0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679		
0.5705	1.74	1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	
0.642	1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269		
1.7379	1.3419									
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421		
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973	
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562		
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425		
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644		
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04	
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561		
1.7375	1.3703									
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43		
0.9396	0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	
1.69	1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71	
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369		
1.3837										
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436		
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587		
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04	
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887		
1.7349	1.397									
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442		
0.9193	0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553		
0.6477	1.66	1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	
0.752	0.9842	0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034		
1.7315	1.4101									
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448		
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663	
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772	
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423	
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454		
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792	
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791	
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221		
1.4354										

	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	
0.8915	0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	
0.7115	1.58	1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06
0.828	0.9676	0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	
1.7116	1.4585								
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	
0.8851	0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728
1.55	1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846
0.9629	0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	
1.4696									
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	
0.877	0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	
0.7445	1.52	1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06
0.863	0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	
1.6976	1.4801								
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	
0.847	0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	
0.7938	1.43	1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06
0.92	0.9425	0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	
1.6708	1.5054								
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	
0.8327	0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	
0.8443	1.34	1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05
0.981	0.9268	0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636
1.5246									
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	
0.8287	0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	
0.8616	1.31	1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05
1	0.9218	0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221
1.5268									
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	

0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	
0.8049	0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467
1.14	1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08
0.9008	0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	
1.5154									
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	
0.7922	0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	
0.9809	1.08	1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04
1.1	0.8937	0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754
1.5003									
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	
0.7558	1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442

0.939	1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	
0.736	1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	
1.0912	0.801	1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03
1.21	0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	
1.2689	1.4245								
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	
0.7317	1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976
0.78	0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	
0.7243	1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033
0.74	0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									

	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	
0.6719	1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	
1.0904	0.549	0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913
1.21	0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135
1.382									
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	
0.656	0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	
1.0727	0.514	0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888
1.19	0.7408	1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	
1.1152	1.3697								
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	
0.6385	0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	
1.0506	0.491	0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868
1.17	0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	
1.0851	1.3164								
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									

	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	
0.6102	0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	
1.0298	0.459	0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84
1.13	0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	
1.0311	1.2234								
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	
0.6	0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228
0.447	0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12
0.6762	0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	
1.1977									
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	
0.5885	0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	
1.0115	0.434	0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821
1.1	0.6669	0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894
1.1722									
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	
0.5433	0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946
0.374	0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	
0.531	0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	

0.9257	0.369	0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741
0.981	0.6178	0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	
0.8157	0.9903								
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	
0.5253	0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	
0.9159	0.37	0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733
0.961	0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	
0.7954	0.9668								
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	
0.513	0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	
0.8968	0.376	0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717
0.921	0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	
0.7537	0.9185								
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	
0.4714	0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809
0.38	0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8
0.5492									
0.7307	0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65

0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548

0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.405	0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335
0.2	0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	
0.39	0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	
0.3396	0.353	0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496
0.298	0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	
0.3304	0.206								
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492

0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.26
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	
0.4661	0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	
0.1609	0.379	-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508
0.141	0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	
0.3924	0.0552								
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52

0.1 0.5047 0.1111 0.477 0.0975 0.4633 0.0449 0.5068 0.0943 0.4217
0.0145
0.557 -0.0636 0.484 0.042 -0.544 0.0788 0.787 -0.068
0.5014 0.078 0.69 0.26 0.541 0.135 0.4746 0.022 0.5576 0.1
0.389 -0.22 0.677 0.125 0.523 0.0924 0.49 0.0651 0.524
0.0855 0.5134 0.0989 0.4863 0.0886 0.4706 0.0185 0.5133 0.0815
0.4313 0.0019
0.562 -0.0878 0.494 0.0317 -0.579 0.0592 0.803 -0.0767
0.5094 0.0618 0.695 0.24 0.547 0.12 0.4857 0.0113 0.5644
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-0.0336
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0.0388 0.399 -0.3 0.696 0.03 0.555 0.0141 0.526 0.0132 0.54
0.03 0.5446 0.0544 0.5232 0.0087 0.5036 -0.0209 0.5449 0.0326
0.4711 -0.0457
0.585 -0.183 0.537 -9.26E-05 -0.695 -0.00323 0.864 -
0.124 0.5372 0.0048 0.713 0.16 0.569 0.0704 0.5314 -0.0224 0.5943
0.0285 0.4 -0.32 0.7 0.00505 0.563 0.00484 0.534 0.0011 0.546
0.0193 0.5527 0.0448 0.5323 -0.0229 0.5126 -0.0299 0.5531 0.0126
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0.591 -0.205 0.548 -0.00858 -0.72 -0.0158 0.877 -0.14
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0.0915 0.407 -0.44 0.724 -0.153 0.621 -0.00826 0.584 -0.066
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0.052 0.543 -0.1276
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0.1189 0.408 -0.48 0.73 -0.205 0.642 -0.0224 0.6 -0.0875 0.587 -
0.0756 0.6236 -0.0208 0.6025 -0.1542 0.571 -0.118 0.6161 -0.0675 0.5613
-0.1451
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0.5888 -0.1013 0.743 -0.01 0.634 -0.0151 0.6425 -0.1062 0.6667 -
0.1255 0.408 -0.5 0.732 -0.23 0.652 -0.0311 0.608 -0.0984 0.59
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0.6101 -0.1369 0.745 -0.0896 0.669 -0.0485 0.6934 -0.1823 0.7047 -
0.1707 0.404 -0.58 0.735 -0.325 0.692 -0.0784 0.642 -0.144 0.599
-0.14 0.6837 -0.0758 0.639 -0.2098 0.5915 -0.1401 0.6531 -0.121
0.6023 -0.1807
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0.1868 0.402 -0.6 0.735 -0.35 0.701 -0.0917 0.651 -0.157 0.6 -
0.15 0.6919 -0.0896 0.6457 -0.2219 0.5939 -0.1468 0.6601 -0.1328 0.6116
-0.191
0.642 -0.512 0.671 -0.117 -1.04 -0.221 0.936 -0.402
0.6202 -0.1529 0.743 -0.13 0.685 -0.0679 0.7121 -0.2209 0.726 -
0.2033 0.4 -0.62 0.733 -0.376 0.71 -0.103 0.66 -0.17 0.6 -0.16
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0.2018
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0.6248 -0.1606 0.74 -0.15 0.692 -0.0794 0.7195 -0.2348 0.7362 -
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 0.6289 -0.1683 0.737 -0.17 0.698 -0.0917 0.7266 -0.2474 0.7463 -
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 0.6393 -0.2258
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 0.6325 -0.1759 0.733 -0.19 0.705 -0.104 0.7331 -0.2589 0.7562 -
 0.2488 0.39 -0.68 0.724 -0.455 0.732 -0.129 0.677 -0.21 0.594
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 0.6354 -0.1836 0.729 -0.21 0.712 -0.116 0.7387 -0.2694 0.7656 -
 0.263 0.386 -0.7 0.719 -0.48 0.74 -0.138 0.681 -0.223 0.59
 -0.2 0.725 -0.1395 0.6732 -0.2834 0.5969 -0.1785 0.6881 -0.1818 0.656
 -0.252
 0.63 -0.622 0.694 -0.171 -1.19 -0.355 0.902 -0.515
 0.6376 -0.1913 0.723 -0.23 0.72 -0.127 0.7431 -0.2792 0.7741 -
 0.2769 0.382 -0.72 0.713 -0.504 0.748 -0.148 0.686 -0.235 0.586
 -0.212 0.7305 -0.1492 0.6759 -0.2891 0.5952 -0.183 0.6943 -0.1952
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 0.6391 -0.1986 0.716 -0.25 0.727 -0.137 0.7462 -0.2883 0.782 -
 0.2906 0.377 -0.74 0.707 -0.528 0.757 -0.16 0.691 -0.247 0.581
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0.5503 -0.5514
      -0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134 -
0.5433 -0.5068];

```

```

FH = data_im(:, (nqC-1)*2+1);
FB = data_im(:, (nqC-1)*2+2);

```

```

DX = 1;
I = fix(X/DX);
R = (X-I*DX)/DX;
if I == 0
    R = R-1;
end
I = I+1;
if I < 2
    I = 2;
end
if J == 1
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1)+R*(FH(I+1)+FH(I-1)-2*FH(I)));
elseif J == 2
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1)+R*(FB(I+1)+FB(I-1)-2*FB(I)));
end
end
end

```

PUMP.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHAE = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHAE == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHAE,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0
            TH1 = TH1+2*pi;
        end
    end
    M = fix(TH/DTH)+1;
    if M == NPC
        M = NPC-1;
    end
    A1 = FH(M)*M-FH(M+1)*(M-1);
    A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
    A3 = FB(M)*M-FB(M+1)*(M-1);
    A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
    ALPSQ = ALPHAE*ALPHAE;
    VESQ = VE*VE;
    ALPV = ALPSQ+VESQ;
    F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
end

```

```

F2 = ALPHA-E-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA-E+A2*VE+2*A2*ALPHA-E*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA-E+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA-E+A4*VE+2*A4*ALPHA-E*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-E-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA-E = ALPHA-E + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA-E,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = PARAB(TH,2,nq);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA-E - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA-E;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

PUMPV2.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA-E = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHA-E == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA-E,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0

```

```

        TH1 = TH1+2*pi;
    end
end
M = fix(TH/DTH)+1;
if M == NPC
    M = NPC-1;
end
A1 = FH(M)*M-FH(M+1)*(M-1);
A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
A3 = FB(M)*M-FB(M+1)*(M-1);
A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = jedWm(nq,deg2rad(TH),varijanta);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
        end
end
if JJ > 30
    break
end
end
end

```

data-model.m

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108

```

-0.422 -0.588 -0.4054 -0.532 -1.222 -0.409 -0.364 -0.392 -
 0.5227 -0.344 -0.422 -0.324 -0.4363 -0.3844 -0.451 -0.4464 -0.4815 -
 0.3791 -0.422 -0.588 -0.422 -0.588 -0.4645 -0.5839 -0.818 -0.6258 -0.925
 -0.54 -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
 0.5354 -0.4984
 -0.403 -0.565 -0.3893 -0.507 -1.213 -0.379 -0.355 -0.362 -
 0.4996 -0.3289 -0.403 -0.307 -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
 0.3618 -0.403 -0.565 -0.403 -0.565 -0.444 -0.5597 -0.7856 -0.6146 -0.889
 -0.502 -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
 0.5201 -0.4852
 -0.383 -0.541 -0.3721 -0.4812 -1.203 -0.349 -0.345 -0.332 -
 0.4772 -0.3146 -0.383 -0.289 -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
 0.3391 -0.383 -0.541 -0.383 -0.541 -0.4227 -0.5348 -0.753 -0.5993 -0.853
 -0.467 -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442 -0.3474 -0.3885 -
 0.5025 -0.4708
 -0.362 -0.516 -0.3537 -0.4545 -1.191 -0.318 -0.333 -0.301 -
 0.4558 -0.3006 -0.362 -0.27 -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
 0.3132 -0.362 -0.516 -0.362 -0.516 -0.4003 -0.509 -0.7194 -0.5813 -0.816
 -0.433 -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
 0.4855 -0.4544
 -0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008

	-0.19	-0.311	-0.1943	-0.2412	-1.063	-0.0839	-0.205	-0.0669	-
0.2953	-0.0887	-0.19	-0.113	-0.228	-0.1468	-0.2671	-0.1816	-0.2519	-
0.1122	-0.19	-0.311	-0.19	-0.311	-0.2187	-0.3009	-0.4577	-0.4055	-0.53
-0.191	-0.342	-0.1465	-0.2203	-0.2552	-0.238	-0.2922	-0.1946	-0.205	-
0.3299	-0.2808								
	-0.17	-0.287	-0.1749	-0.2168	-1.045	-0.0584	-0.187	-0.0414	-
0.2755	-0.048	-0.17	-0.095	-0.2082	-0.126	-0.2475	-0.1578	-0.231	-0.091
-0.17	-0.287	-0.17	-0.287	-0.1975	-0.2764	-0.4267	-0.3862	-0.496	-
0.161	-0.3187	-0.1177	-0.2025	-0.2291	-0.2222	-0.2707	-0.1812	-0.1791	-
0.3077	-0.2581								
	-0.151	-0.263	-0.1561	-0.1923	-1.027	-0.0329	-0.169	-0.0159	-
0.255	-0.018	-0.151	-0.0774	-0.1891	-0.1043	-0.2283	-0.1319	-0.2102	-
0.0581	-0.151	-0.263	-0.151	-0.263	-0.1773	-0.2519	-0.3966	-0.3669	-0.463
-0.131	-0.2993	-0.0872	-0.188	-0.2014	-0.2064	-0.2472	-0.1676	-0.1473	-
0.2873	-0.2314								
	-0.13	-0.24	-0.1357	-0.1685	-1.008	-0.007	-0.15	0.01	-
0.2346	0.009	-0.13	-0.06	-0.1693	-0.0814	-0.2096	-0.1034	-0.1893	-
0.0279	-0.13	-0.24	-0.13	-0.24	-0.1553	-0.2282	-0.3662	-0.3502	-0.43
-0.1	-0.2786	-0.0555	-0.1743	-0.1617	-0.1907	-0.2211	-0.154	-0.1178	-
0.2698	-0.1989								
	-0.108	-0.217	-0.1146	-0.1445	-0.989	0.0196	-0.131	0.0366	-
0.2135	0.0391	-0.108	-0.0426	-0.1492	-0.0572	-0.1915	-0.0722	-0.1684	0.0005
-0.108	-0.217	-0.108	-0.217	-0.1325	-0.2045	-0.3363	-0.3338	-0.398	-
0.0686	-0.2582	-0.0269	-0.1598	-0.1182	-0.1749	-0.1924	-0.1404	-0.0915	-
0.2496	-0.1582								
	-0.0862	-0.193	-0.0936	-0.1197	-0.97	0.0465	-0.112	0.0635	-
0.1954	0.06	-0.0862	-0.0251	-0.1291	-0.0318	-0.1732	-0.0387	-0.1475	0.0245
-0.0862	-0.193	-0.0862	-0.193	-0.1098	-0.1798	-0.3065	-0.3157	-0.366	-
0.0371	-0.2372	-0.0017	-0.1445	-0.0806	-0.1591	-0.1611	-0.1266	-0.0677	-
0.2277	-0.1083								
	-0.0637	-0.169	-0.0721	-0.0949	-0.9511	0.073	-0.0931	0.09	-
0.1749	0.0764	-0.0637	-0.00726	-0.1083	-0.0055	-0.1541	-0.0036	-0.1266	
0.0422	-0.0637	-0.169	-0.0637	-0.169	-0.0865	-0.1553	-0.2765	-0.297	-
0.334	-0.00643	-0.2157	0.0212	-0.1286	-0.0487	-0.1393	-0.1277	-0.1127	-
0.0454	-0.2072	-0.0708							
	-0.0415	-0.145	-0.0513	-0.0704	-0.9337	0.099	-0.0757	0.116	-
0.1553	0.0914	-0.0415	0.011	-0.0872	0.0162	-0.1341	0.0216	-0.1058	0.0608
-0.0415	-0.145	-0.0415	-0.145	-0.0635	-0.1308	-0.2466	-0.2771	-0.302	
0.0228	-0.193	0.0426	-0.1121	-0.0197	-0.1187	-0.0886	-0.0987	-0.0237	-
0.1874	-0.0495								
	-0.02	-0.12	-0.0314	-0.0457	-0.918	0.123	-0.06	0.14	-
0.1346	0.1063	-0.02	0.03	-0.0661	0.0364	-0.1134	0.043	-0.0849	0.0797
-0.02	-0.12	-0.02	-0.12	-0.0411	-0.1056	-0.2168	-0.2538	-0.27	0.05
-0.1723	0.0629	-0.0965	0.0079	-0.0981	-0.0615	-0.0845	-0.003	-0.1677	-
0.0308									
	0.000468	-0.0943	-0.0129	-0.021	-0.9042	0.145	-0.0462	0.162	-
0.115	0.1223	0.000459	0.0497	-0.0453	0.057	-0.0922	0.0645	-0.064	
0.0975	0.000471	-0.0943	0.000459	-0.0944	-0.0197	-0.0801	-0.1873	-	
0.2275	-0.238	0.0746	-0.1549	0.0824	-0.0825	0.0328	-0.0774	-0.0445	-
0.0701	0.0175	-0.1491	-0.012						
	0.0202	-0.0681	0.005	0.0037	-0.891	0.166	-0.033	0.183	-
0.0936	0.1395	0.0202	0.0699	-0.0258	0.0778	-0.0731	0.086	-0.0431	0.1135
0.0202	-0.0682	0.0202	-0.0682	0.0012	-0.0542	-0.1571	-0.1983	-0.205	
0.0971	-0.1394	0.1014	-0.0684	0.0539	-0.0568	-0.0249	-0.0556	0.0383	-
0.1298	0.0086								

	0.0398	-0.0418	0.0231	0.0282	-0.8767	0.186	-0.0187	0.203	-
0.0725	0.1579	0.0397	0.0902	-0.0063	0.0988	-0.0536	0.1077	-0.0223	0.1285
0.0398	-0.0418	0.0397	-0.0419	0.0219	-0.0284	-0.1262	-0.1678	-0.171	0.118
-0.1221	0.12	-0.0542	0.0753	-0.0362	0.0003	-0.0408	0.0595	-0.1083	
0.0312									
	0.0595	-0.0157	0.042	0.0523	-0.85957	0.205	-0.00157	0.222	
-0.0519	0.177	0.0595	0.11	0.0138	0.1196	-0.0332	0.1294	-0.0014	
0.1489	0.0595	-0.0157	0.0595	-0.0158	0.0411	-0.0027	-0.0944	-0.1377	-
0.136	0.139	-0.1027	0.1384	-0.0396	0.0969	-0.0156	0.0292	-0.0258	0.0812
-0.0898	0.0559								
	0.08	0.01	0.06	0.0758	-0.838	0.223	0.02	0.24	-
0.0307	0.1943	0.08	0.13	0.0348	0.1405	-0.0116	0.1512	0.0183	0.1705
0.08	0.01	0.08	0.01	0.0524	0.0227	-0.0617	-0.1081	-0.1	0.16
-0.0809	0.1567	-0.0245	0.1188	0.005	0.057	-0.0105	0.1033	-0.0665	
0.0822									
	0.102	0.0349	0.07	0.0987	-0.8109	0.241	0.0471	0.258	-
0.0084	0.2096	0.102	0.149	0.0571	0.1609	0.011	0.1731	0.0424	0.1901
0.102	0.0349	0.102	0.0351	0.0597	0.0475	-0.0278	-0.0806	-0.0628	0.182
-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								

	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405		
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								

	0.5	0.5	0.5	0.5	0.13		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4993
0.5	0.5	0.5	0.5	0.5														
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508										
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272										
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527									
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092										
0.5295	0.515																	
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516										
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543										
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555									
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186										
0.5534	0.5307																	
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525										
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813										
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584									
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289										
0.5781	0.5457																	
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533										
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536									
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533									
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041										
0.5595																		
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608									
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6									
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622									
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733										
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545										
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596										
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664									
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611										
0.6513	0.5872																	
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549										
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834										
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686									
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722										
0.6734	0.6011																	
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552										
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054										
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706									
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695									
0.6148																		
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556										
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263										
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724									
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946										
0.7164	0.6283																	
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066									
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77									
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249									
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415										
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565										
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662										
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755									

0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94

0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36

1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.55									
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.6									

1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	0.3765	
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172			
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308		
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574	
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373	
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857		
0.6252										
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296		
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554	
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367	
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643	
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559	
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38	
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139	
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614		
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566	
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39	
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348	
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804		
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573	
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4	1.65
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128	
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702			
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579	
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41	
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262	
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266		
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584	
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43	
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224	
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534		
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226		
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664	1.44
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188	
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807		
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217		
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698	
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34	
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535		
0.8102										
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21		
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739	1.47
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119	
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441		
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206		
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779	
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34	
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135		
0.8811										
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599	
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5	1.71
1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076	
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205			
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16	
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51	

1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	0.35
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
0.3575									
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.69									
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
0.3705									
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69

1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								

	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048	
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79	
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548		
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385		
1.2809										
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975	
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79	
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564		
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374		
1.2913										
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903	
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78	
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112	
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025		
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41		
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074		
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315										
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414		
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07		
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03	
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123		
1.7379	1.3281									
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968	
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74	
1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642		
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379		
1.3419										
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421		
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973	
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562		
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425		
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644		
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04	
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561		
1.7375	1.3703									
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396	
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69	
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71		
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369		
1.3837										
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436		
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587		
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04	
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887		
1.7349	1.397									
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193	
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66	
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842	
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101		
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448		
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663	

1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	

	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939

1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22	
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22	
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	1.22
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									

	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	1.22
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549
0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	

0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	

0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		0.7307
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639

0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394		
0.5778	0.6973									
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195		
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058		
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629	
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154		
0.5624	0.6745									
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19		
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117	
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7	0.4968
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522		
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184		
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897		
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612	
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647		
0.5331	0.6296									
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176		
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827		
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604	
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379		
0.5205	0.606									
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168		
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756		
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597	
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71		
0.5091	0.5818									
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159		
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684		
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589	
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812		
0.4977	0.5568									
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15		
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609		
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58	
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523		
0.4856	0.5304									
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142		
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585	
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568	
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732		
0.5026										
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133		
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471		
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559	
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982		
0.4601	0.4744									
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126		
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418		
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548	
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743		
0.4458	0.4461									
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118		
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372		
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538	

0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.405
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	0.2
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									

	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								

	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767		
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644		
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527	
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701		
0.4411	-0.0102									
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864		
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711		
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531	
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451	
-0.0219										
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974		
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499	
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535		
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461	
-0.0336										
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11		
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862		
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54	
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326		
0.4711	-0.0457									
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-		
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943	
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546	
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126		
0.4814	-0.058									
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573	
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407	
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462		
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-	
0.1276										

	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								
	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								

	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467		
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-	
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594	
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718		
0.6482	-0.2387									
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49		
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-	
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59	
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656	
-0.252										
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515		
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-	
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586	
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952		
0.6624	-0.2654									
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541		
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-	
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581	
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179		
0.6681	-0.2794									
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568		
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-	
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575	
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507		
0.6733	-0.294									
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594		
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171	
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-	
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774	
-0.3087										
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429	-
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36	
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27		
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-	
0.3232										
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645		
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-	
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551	
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587		
0.6807	-0.3364									
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644	
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346	
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303		
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-	
0.3506										
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69		
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-	
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528	
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434		
0.6802	-0.3704									
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711		
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-	
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515	-
0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763	
-0.3958										

	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								
	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								

	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								
	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12

-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95		
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-	
1.2562										
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-	
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-	
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234	
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352		
0.0295	-1.2866									
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-	
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-	
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274	
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-	
0.0152	-1.3104									
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-	
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-	
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31	
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-	
0.0504	-1.3297									
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895	-
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815	
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-	
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-	
1.3459										
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-	
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-	
1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372	
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-	
0.1599	-1.36									
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-	
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-	
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398	
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-	
0.1987	-1.3725									
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-	
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-	
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42	
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0.2339	-1.3837									
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037	-
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05	
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-	
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394	
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-	
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-	
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457	
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0.2892	-1.4035									
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-	
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-	
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472	
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0.3082	-1.4122									
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-	
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-	
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485	

-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-
0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
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0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
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0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
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	0.0918	-1.64	0.1044	-1.5142	-2.121	-1.273	0.136	-1.2	-
0.5036	-1.4641	0.172	-1.12	-0.0959	-1.1146	-0.371	-1.5708	-0.4071	-
1.3932	-0.0327	-1.64	0.132	-1.64	0.071	-1.6647	-0.3924	-1.8526	-0.534
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0.4462	-1.44								
	0.08	-1.64	0.0914	-1.5113	-2.137	-1.263	0.12	-1.19	-
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	0.0682	-1.64	0.0787	-1.5085	-2.152	-1.253	0.105	-1.18	-
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 -0.15 -1.23 -0.17 -1.1414 -2.477 -0.993 -0.22 -0.92 -
 0.6249 -0.9131 -0.08 -0.81 -0.3027 -0.8271 -0.5315 -1.0364 -0.553 -
 0.9692 -0.22 -1.23 -0.13 -1.23 -0.1794 -1.2318 -0.5552 -1.2457 -0.67
 -1.25 -0.5864 -1.0237 -0.5881 -1.1192 -0.6145 -1.1436 -0.5075 -1.2477 -
 0.6029 -1.1737
 -0.162 -1.21 -0.1834 -1.1254 -2.494 -0.987 -0.237 -0.914 -
 0.6274 -0.8927 -0.0904 -0.793 -0.3076 -0.8098 -0.5307 -1.007 -0.5533 -
 0.9464 -0.228 -1.21 -0.142 -1.21 -0.1908 -1.2109 -0.5616 -1.2179 -0.675
 -1.22 -0.5878 -1.0149 -0.5863 -1.0996 -0.6134 -1.123 -0.5075 -1.2336 -
 0.5984 -1.1559
 -0.174 -1.18 -0.1969 -1.1022 -2.511 -0.981 -0.254 -0.908 -
 0.6264 -0.8724 -0.1 -0.775 -0.3118 -0.7922 -0.5294 -0.9803 -0.5528 -
 0.9258 -0.236 -1.18 -0.154 -1.18 -0.2022 -1.1809 -0.5681 -1.1879 -0.68
 -1.19 -0.5889 -1.0059 -0.5839 -1.0773 -0.6117 -1.1029 -0.5073 -1.2192 -
 0.5931 -1.138
 -0.186 -1.16 -0.21 -1.0859 -2.527 -0.974 -0.27 -0.901 -
 0.6231 -0.8521 -0.11 -0.757 -0.3159 -0.7744 -0.5274 -0.957 -0.5517 -
 0.9064 -0.244 -1.16 -0.166 -1.16 -0.2136 -1.16 -0.5754 -1.16 -0.686
 -1.16 -0.5897 -0.9967 -0.581 -1.0522 -0.609 -1.0794 -0.5071 -1.2042 -
 0.588 -1.1198
 -0.198 -1.13 -0.2229 -1.0619 -2.542 -0.965 -0.285 -0.892 -
 0.6188 -0.8319 -0.12 -0.739 -0.3198 -0.7565 -0.525 -0.9368 -0.5497 -
 0.8875 -0.252 -1.13 -0.178 -1.13 -0.2251 -1.13 -0.5827 -1.13 -0.692
 -1.13 -0.5902 -0.9869 -0.5774 -1.0242 -0.6049 -1.0524 -0.5068 -1.1885 -
 0.5839 -1.1014
 -0.21 -1.11 -0.2357 -1.0442 -2.557 -0.953 -0.3 -0.88 -
 0.6147 -0.8117 -0.13 -0.72 -0.3235 -0.738 -0.5223 -0.9194 -0.547 -
 0.8687 -0.26 -1.11 -0.19 -1.11 -0.2367 -1.1109 -0.5915 -1.1179 -0.7
 -1.1 -0.5903 -0.9762 -0.5732 -0.9953 -0.5999 -1.0267 -0.5063 -1.1715 -
 0.5812 -1.0825
 -0.222 -1.08 -0.2483 -1.0182 -2.571 -0.937 -0.314 -0.864 -
 0.6119 -0.7915 -0.141 -0.7 -0.3277 -0.7187 -0.5194 -0.9037 -0.5441 -
 0.8493 -0.269 -1.08 -0.202 -1.08 -0.2484 -1.0809 -0.6012 -1.0879 -0.709

-1.07 -0.5902 -0.9643 -0.5687 -0.9655 -0.5941 -1.0028 -0.5056 -1.1528 -
 0.5796 -1.0632
 -0.235 -1.06 -0.2616 -0.9982 -2.585 -0.917 -0.328 -0.844 -
 0.6103 -0.7714 -0.153 -0.68 -0.3323 -0.6991 -0.5165 -0.8893 -0.5412 -
 0.8289 -0.28 -1.06 -0.213 -1.06 -0.2592 -1.0618 -0.6106 -1.0757 -0.718
 -1.04 -0.5898 -0.9503 -0.5639 -0.9338 -0.5882 -0.9809 -0.5048 -1.1321 -
 0.5789 -1.0435
 -0.247 -1.03 -0.2736 -0.9708 -2.597 -0.896 -0.34 -0.823 -
 0.6095 -0.7514 -0.165 -0.66 -0.337 -0.6793 -0.5136 -0.8757 -0.5388 -
 0.8075 -0.29 -1.03 -0.225 -1.03 -0.2711 -1.0318 -0.6218 -1.0457 -0.729
 -1.01 -0.5892 -0.9335 -0.5596 -0.8991 -0.5824 -0.96 -0.5038 -1.1093 -
 0.5789 -1.023
 -0.259 -1.01 -0.2853 -0.9502 -2.608 -0.874 -0.351 -0.801 -
 0.6091 -0.7313 -0.178 -0.64 -0.3423 -0.6594 -0.511 -0.8628 -0.5372 -
 0.7868 -0.3 -1.01 -0.237 -1.01 -0.283 -1.0127 -0.6322 -1.0336 -0.739
 -0.98 -0.5884 -0.9134 -0.5557 -0.8604 -0.5773 -0.9379 -0.5026 -1.0845 -
 0.5794 -1.002
 -0.27 -0.98 -0.2957 -0.9228 -2.617 -0.853 -0.36 -0.78 -
 0.6088 -0.7113 -0.19 -0.62 -0.3472 -0.6394 -0.5087 -0.8502 -0.5367 -0.766
 -0.31 -0.98 -0.25 -0.98 -0.2958 -0.9827 -0.6437 -1.0036 -0.75 -0.95
 -0.5874 -0.8895 -0.5516 -0.8225 -0.573 -0.9105 -0.5012 -1.0582 -0.5801 -
 0.9803
 -0.28 -0.955 -0.3049 -0.8992 -2.624 -0.833 -0.367 -0.76 -
 0.6081 -0.6913 -0.202 -0.601 -0.3524 -0.6199 -0.5068 -0.838 -0.5373 -
 0.7454 -0.319 -0.955 -0.264 -0.955 -0.3094 -0.9583 -0.6545 -0.9833 -0.76
 -0.919 -0.5862 -0.8623 -0.5472 -0.7902 -0.5699 -0.879 -0.4996 -1.0312 -
 0.581 -0.958
 -0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
 0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
 0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
 -0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
 0.5818 -0.9351
 -0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
 0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
 0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
 -0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
 0.5825 -0.9119
 -0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
 0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
 0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79
 -0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
 0.583 -0.8882
 -0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
 0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
 -0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
 -0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
 0.8643
 -0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
 0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
 0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811
 -0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
 0.5825 -0.8403
 -0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
 0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
 0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822

-0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
0.5814 -0.81
-0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
-0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
0.5794 -0.7783
-0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
-0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
-0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
-0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134
-0.5433 -0.5068];

Prilozi

Prilog – P21 Kod razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 10 Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 8 reda za Wm karakteristiku)

Prilog za poglavlje 9.5 Analiza uticaja specifične brzine (nq) na rezultate dobijene proračunom prelaznih procesa na pumpnoj instalaciji (vrijednosti za Wh i Wm karakteristike dobijene modelskim ispitivanjima i iz Univerzalne jednačine iz Varijante 10 – Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 8 reda za Wm karakteristiku, koriste se u razvijeno numeričkom modelu u programu Matlab za proračun prelaznih procesa).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 10 – Ovaj primjer je urađen sa – Furijerovom funkcijom 3 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 8 reda za Wm karakteristiku) u programu Matlab:

```
Start.m
%% Program namijenjen za pokretanje više nq-ova za analizu trazijenta
clear
close all
clc
nqt = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
bojaiz =
{'.:r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':.c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-r','-b','-g','-y','-m','-c','-k'};
```

```

%% Podaci dobijeni iz modela
run data_model.m

%% Odabir udara
varijanta = listdlg('ListString', ...
    {'1. Wh [f3-g5] <-> Wm [f2-g5]', '2. Wh [f3-g3] <-> Wm [f2-
g4]', '3. Wh [f3-g4] <-> Wm [f2-p7]', '4. Wh [f3-p8] <-> Wm [f2-p8]', '5. Wh
[f4-p9] <-> Wm [f2-p9]', '6. Wh [f5-p9] <-> Wm [f2-g3]', '7. Wh [f4-p8] <-> Wm
[f2-p6]'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi varijante za udar');

jk = size(data);
Theta = 0:1:360;
ThetaD = deg2rad(Theta);
dataWh = data(:,1:2:jk(2));
dataWm = data(:,2:2:jk(2));

%% Pokretanje analize za sve modele
vs = 1:length(nqt);

%% Pokretanje analize za sve modele
for c = vs
    nq = nqt(c);
    fhc = char(bojaiz(c));
    fhf = char(bojafun(c));
    tableiso = ['Uporedni rezultati za nq=', num2str(nq), '.xlsx'];
    leg{c*2-1} = ['model nq=', num2str(nq)]; % legenda za podatke modela
    leg{c*2} = ['funkc. za nq=', num2str(nq)]; % legenda za podatke dobijene
jednacinom
    run Clprogram.m % pokretanje koda za analizu trazijenta
end

%% Ispis legende na dijagrame
figure(1) % Dijagram za Wh
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(2) % Dijagram za Wm
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
leg([5 6 7 8]) = [];
figure(3) % Dijagram Time-Alpha
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(4) % Dijagram Time-V
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(5) % Dijagram Time-Head (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(6) % Dijagram Time-Head (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(7) % Dijagram Time-Head (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(8) % Dijagram Time-Head (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(9) % Dijagram Time-Discharge (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')

```



```

figure(10) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')
figure(11) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')
figure(12) % Dijagram Time-Discharge (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')

Clprogram.m
%% Trazijenti uzrokovani prestankom rada pumpi

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åt se izraÅunati prijelazni uslovi

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci
FB = dataWm(:,c);
FH = dataWh(:,c);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÅuna podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od modela za nq=',num2str(nq)])

```

```

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅ?unati uslov prolaznog stanja = ',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅ?nih taÅ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Diagram za Wh
figure(1)
plot(Theta,FH,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wh'), title('Dijagram za Wh')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100,100,1000,900])
% Diagram za Wm
figure(2)
plot(Theta,FB,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wm'), title('Dijagram za Wm')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100,100,1000,900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅ?ina      PreÅ?nik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÅ?EUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % PovrÅ?ina popreÅ?nog presjeka cijevi (m2)
    AUNADJ = A(I);
end

```

```

AN = L(I)/(DT*A(I));
N(I) = AN;
AN1 = N(I);
if (AN-AN1) >= 0.5
    N(I) = N(I)+1;
end
A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
CA(I) = G*AR(I)/A(I);
CF(I) = F(I)*DT/(2*D(I)*AR(I));
F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach faktor
trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMP
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARAB(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARAB(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel

```

```

Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljjenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljjenje tabele za ispis -----
        --
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
        --
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
            Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
            vel = size(Excel);
            Excel = Excel(2:vel(1),:);
            p = size(Excel);
            ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
            TABLEe = array2table(ExcelNew,...

'VariableNames',{'Vrijeme','Alpha','V','Disch_1_1','Disch_N1_1','Pad_1_1','Pa
d_N1_1','Disch_1_2','Disch_N1_2','Pad_1_2','Pad_N1_2'});
            disp(' ')
            disp('

-----')
            disp('
| Cijev No.2 | Cijev No.1
|-----|-----')
            disp(TABLEe)

disp('*****
*****')

```

```

disp('*****
*****')
    disp('Cijev No    max. Pritisak    min. Pritisak')
    fprintf('    %.0f        %.2fm        %.2fm \n',Table2')
    break
end

%% PUMP AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMP.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP

```

```

    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['model nq=', num2str(nq), ' cijev 1 presjek',
        num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['model nq=', num2str(nq), ' cijev 2 presjek',
        num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end
end

% Dijagram Time-Alpha
figure(3)

plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),2), fhc, 'MarkerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
    title('Dijagram Vrijeme-Alfa')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-V
figure(4)

plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),3), fhc, 'MarkerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
    title('Dijagram Vrijeme-V')
    xlim([0 TLAST])

```

```

set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (connection pump and pipe Nu.1)
figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

```

```

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
    figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
    figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Discharge (end of pipe Nu.2)
    figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of model (during the transient process)
figure(4*(c-1)+13)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];

```



```

        Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
    end
    s = surf(vrijeme,duzina,Hnew);
    grid on, hold on
    colormap('turbo')
    colorbar
    title(['Pad za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
    xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
    xlim([0 TLAST]), ylim([0 sum(L)])
    s.EdgeColor = 'none';
    set(gcf, 'Position', [100, 100, 800, 700])

    % Diagram for Discharge of model (during the transient process)
    figure(4*(c-1)+14)
    s1 = surf(vrijeme,duzina,Qnew);
    grid on, hold on
    colormap('turbo')
    colorbar
    title(['Protok za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
    xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
    xlim([0 TLAST]), ylim([0 sum(L)])
    s1.EdgeColor = 'none';
    set(gcf, 'Position', [100, 100, 800, 700])
end
run C1programV2.m

```

C1programV2.m

```

%% Trazijenti uzrokovani prestankom rada pumpi

clear A A1 A2 A3 A4 ALPHA ALPHAe ALSPQ ALPV AN AN1 AR AUNADJ BETA C5 C6 CA CF
CN CP D DALPHA DENOM DT DTH DV
clear ER Excel ExcelNew F F1 F1AL F1V F2 F2AL F2V FB FH G H HMAX HMINHO HP HR
HRES I IP1 IPRINT IspisPodatakaTabela
clear J JJ JM1 JP1 K KK L M MB N N1 NN NN1 NO NP NP1 NPC NPP NR NRLP od p Q
QO QP QR T Table1 Table2 TABLEe TH TH1
clear TLAST TR V VE vel VESQ WR2 Z

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Å#e se izraÅ#unati prijelazni uslovi

NPC = 361; % Broj karakteristiÅ#nih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)

```

```

NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci dobijeni od Fourierove jednacine i polinoma

FH = jedWh(nq,ThetaD,varijanta);
FB = jedWm(nq,ThetaD,varijanta);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÄ?una podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od Fourierove jednacine za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÄ?unati uslov prolaznog stanja =
',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÄ?nih taÄ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÄ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Dijagram za Wh
figure(1)

```

```

plot(Theta,FH,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

%Digram za Wm
figure(2)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f      %.1f      %.2f      %.1f      %.3f \n',Table1')

disp('*****')
%% PRORAÄUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % PovrÅina popreÅnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach Darcy-
Weisbach faktor trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMPV2
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end

```

```

Z = jedWh(nq,deg2rad(TH),varijanta);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = jedWm(nq,deg2rad(TH),varijanta);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljenje tabele za ispis -----
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
        end
    end
end

```

```

        Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
    vel = size(Excel);
    Excel = Excel(2:vel(1),:);
    p = size(Excel);
    ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
    TABLEe = array2table(ExcelNew,...

'VariableNames',{ 'Vrijeme', 'Alpha', 'V', 'Disch_1_1', 'Disch_N1_1', 'Pad_1_1', 'Pa
d_N1_1', 'Disch_1_2', 'Disch_N1_2', 'Pad_1_2', 'Pad_N1_2'});
    disp(' ')
    disp('

')
    disp('

|

Cijev No.2

|

Cijev No.1

|

')
    disp(TABLEe)

disp('*****
*****')

disp('*****
*****')
    disp('Cijev No    max. Pritisak    min. Pritisak')
    fprintf('    %.0f    %.2fm    %.2fm \n',Table2')
    break
end

%% PUMPV2 AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMPV2.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1

```

```

        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
for I = 1:NP
    NN = N(I)+1;
    for J = 1:NN
        Q(I,J) = QP(I,J);
        H(I,J) = HP(I,J);
    end
    if H(I,1) > HMAX(I)
        HMAX(I) = H(I,1);
    end
    if H(I,1) < HMIN(I)
        HMIN(I) = H(I,1);
    end
end
if K == IPRINT
    break
end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 1 presjek',
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 2 presjek',
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end
end

```

```

% Dijagram Time-Alpha
figure(3)

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),2),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
title('Dijagram Vrijeme-Alfa')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-V
figure(4)

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),3),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
title('Dijagram Vrijeme-V')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (connection pump and pipe Nu.1)
figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)

```

```

set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])

```



```

set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of function (during the transient process)
figure(4*(c-1)+15)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s2 = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za funkciju n_q=', num2str(nq), ' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s2.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])

% Diagram for Discharge of function (during the transient process)
figure(4*(c-1)+16)
s3 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za funkciju n_q=', num2str(nq), ' (tokom procesa
trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s3.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])
end

```

jedWh.m

```
function FH = jedWh(nq,ThetaD,varijanta)
```

```

%% obrada koeficijenata
% ff - jednacina furiera
if varijanta == 1
    ff = 3;
    Koef = [0.715731479330851 29.904965832957600 1.160146567645740
0.521115135250857 24.984627647082200 2.924225219363250 0.669699222908911
48.171790875051100 16.877203146165100 1.093124325893790

```

```

16.530859288034800  1.124728037889720  0.000000000000000
123.069952639871000  5.297192353276950
      -0.961523123293475  20.821344093580800  6.602453878194210
64.257648057580600  33.955125342916500  9.386353220569020  -
64.928459861354100  33.949656843977400  9.303213895257580  -0.553408365350271
43.537626921051000  2.662769940796440  -0.832693428738023
52.435524425571700  11.860111687227100
      1.752508344167960  19.813538033814300  1.338739746534640
423.391777872348000  29.423080141571000  0.233823124130313
14.034992024690400  192.667467724811000  84.128246511778100  -
2.249991305664610  52.979879468544200  2.414940141168370  -0.139425746706312
35.411065094104200  4.635405982702990
      -0.228259772514762  17.940643343430100  3.150874761319510
1.622551266692810  19.737858950059500  0.948089552133070
1543.400636295410000  39.201326063337000  9.564845520862440  -
1495.340285273880000  39.202390860318100  9.536202355573940  -
48.504466641276900  39.166154370154600  10.532068185319700
      52.774979545222600  19.948207260269500  0.382110550217316
0.263177598029735  36.944649226057900  1.154196394902190  -
0.441810896482947  20.178226600166000  1.910754413463700  -
49.076267398946200  50.575884925920200  12.341447824439800  49.056404431938300
50.553491696140300  12.272979751954900
      -0.181804234398022  19.327153282371900  4.958850828789490
0.000000000000000  26.029637164455600  0.002684600837807  -
0.191627659558586  33.994394599288800  8.496759972665970  -0.239544485919972
52.539088076212200  3.537489182415010  -0.007662269518264
41.686968452601200  0.721756412942864
      0.171794030111370  54.965027620881700  4.393250547557860
0.122789542611869  42.736325018115600  5.331583584358960  0.125185937307061
21.167598454897700  3.168706724130010  11.350749739153300
27.800622272514600  0.367470386336513  0.084923558027068
35.178568691978200  2.660337169981850
      0.683974778070928  28.479136553910500  10.684175903899800
1.059245427535040  51.273284066137800  20.043005489689600  1.540300759195000
16.534305521866800  0.955404836859471  0.081554743811410
39.737742947716300  2.241646592944000  0.413184604032852
21.483285325409600  4.496030498742180];
      GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);

      elseif varijanta == 2
          ff = 3;
          Koeff = [0.547307872624346  29.8839532563986  0.793246192203723
2.309685047217230  332.7703121851250  239.007138115351  0.102040658730334
43.9750016600212  1.73890423394828
      -0.640843699205076  20.9637652502637  0.804458763664244
0.178200238232620  21.3675216323105  10.513306899753500  -
10.439195981271300  1627.61262058135  958.911327386202
      1.696914405871140  19.9667095602136  1.078693182634310
2563039855.449910  29.4645537432429  0.139184491455413  1.055669091064470
174.558135048266  134.204326548231
      -0.340698312375039  25.8630362606411  12.577242648008500  -
89.040274353193300  47.1888824574428  7.037219629716410  88.861378955054300
47.1851558391851  7.0037284373794

```

```

10.5212705783009 19.7443505022493 0.555280900913813
0.207955165908923 36.9386083983734 0.865490915538270 -
0.102485396609892 97.7537061085187 109.176933764359
-0.181478865700741 19.3076730512134 4.891681598994380 -
0.190652562739006 34.0378712221283 8.685029036984850 -0.489680873225789
52.7736206038725 2.493916983317
15253182234484.2 84.3913147403198 4.992659747586930
0.114843207641356 42.5555276529245 10.898582871234300 0.119438110316359
21.1098882550937 3.364929063690
0.957616501610985 25.1725505727929 23.954052282718500
0.840879738870500 57.5954963477624 19.356757711087200 0.429351737084564
16.5531614483509 0.912340659718];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);

```

```

elseif varijanta == 3

```

```

    ff = 3;
    Koeff = [0.541944061628251 29.9112840097684 0.609750024000405
367254.1154988030 1015.46632507675000 268.780244089738000 -
3.248115803823190 47.7527080555991 7.827871488938230 3.067613744326430
47.2745171219860 6.8916449222616810
3558.27595727144 39.7803874584052 0.563866270550681 -
0.655122677605182 20.95809611855700 0.861535581007935 0.252438714671051
21.9706860056295 9.098398307081290 -219.142591015502000
5061.2938487694700 2096.985480589480000
1.753257619552930 19.7830735192274 1.646973739848750
0.355840125132201 27.87904920014190 4.399464526021200 0.394297739432654
42.6492408057384 6.113929831752710 57896858542275.2 824.9561617359720
135.150482547991000
0.618074311043399 20.9226089916430 0.746923433999019 -
0.458971083290531 22.67025888312530 9.181967353715210 -0.345830048302581
38.8447829814503 5.582997567637060 -0.346484063699974 54.5007057843973
12.019061272874800
17.203169456107400 19.9690362476728 0.396904337894192
0.215222047721478 36.91309306257100 0.867897634939713
10.307109676216700 68.7429160784018 24.928074260382400 -
11.451540447036400 71.7431334141354 26.729143588279700
-0.470905359789293 19.4695226030676 1.502145727627460 -
10772207070505.6 -8.57928427228217 4.288602187187170 -0.179943541469161
33.3340542180074 10.491749904664400 -0.436896743949830 52.7842153808616
2.562788678310650
1.861727066250480 82.6985044398997 17.083425428977600
0.118891597708152 40.96725307422590 6.788150256519830 0.125236941932015
21.1702636510723 3.150101855672350 70.626163963485500 27.7996969197635
0.311483670611709
0.947005281756741 24.7563868076686 24.717484926063400
0.859059033541582 59.50554823472470 21.118815767490900 0.373618340978890
16.5470804169307 0.943324093728692 0.138683979457977 39.7531160229800
1.300939985544000];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);

```

```

elseif varijanta == 4

```

```

    ff = 3;

```

```

    Koeff = [-0.000000000719419155449666    0.0000002001394994474110    -
0.000023764960141    0.001569835734795    -0.0629469913535133    1.5648923022590600
-23.49247414158300    194.2309419847820    -675.488282721413
    -0.000000001523016309455770    0.0000004174874484811200    -
0.000048925444901    0.003197857344233    -0.1273605203951220    3.1614422875066100
-47.71855216007930    400.1219953806810    -1426.944971356050
    0.000000001522718068577850    -0.0000004154618973418480
0.000048438943916    -0.003147986716868    0.1245587951729840    -
3.0683940191356800    45.89313605637810    -380.5847947191610    1339.261581398480
    0.000000001110692155909410    -0.0000003026294716142210
0.000035209457530    -0.002281832835106    0.0899894602976154    -
2.2091496314307000    32.93945956558710    -272.5966545465320    958.297581351687
    0.000000000192612735161932    -0.0000000554425448082238
0.000006805925116    -0.000464329017993    0.0192103854214338    -
0.4923109589792610    7.61341706522743    -64.8226372153901    232.338425397081
    -0.000000000208891289028475    0.0000000582810601414563    -
0.000006936942087    0.000459275162479    -0.0184691388695222    0.4612827535088290
-6.98004516655937    58.4680159026686    -207.691669186717
    0.000000000138464448665096    -0.0000000386868107512570
0.000004628910294    -0.000309251125959    0.0125921729738134    -
0.3192838510771930    4.91194626223695    -41.8338962620285    150.852627955751
    -0.000000000136873279061494    0.0000000374362153743245    -
0.000004373515728    0.000284635370486    -0.0112700102873447    0.2775625886048120
-4.14612160321041    34.3004656268043    -119.239865644071];
elseif varijanta == 5
    ff = 4;
    Koeff = [0.0000000001483124577611510    -0.000000045665937634766600
0.0000061357877970046800    -0.0004718019124193200    0.022858794966160900    -
0.72290265217385900    14.904405618379200    -192.929777701929
1420.95321736821    -4531.661823027010
    0.000000000149746639175877    -0.000000005590353141930380
0.0000008865274868445490    -0.0000787571629071348    0.004331881715268490    -
0.15325392842910800    3.491252098236360    -49.42289555231910
394.7563686236520    -1356.839102956130
    -0.0000000001561615533164640    0.000000048994403816912600    -
0.0000067063266430236000    0.0005251084191534630    -0.025891781569837900
0.83274221924664700    -17.448846331869500    229.409121150463    -1715.40142142772
5554.050146978870
    -0.0000000001098353663449900    0.000000034356138354869400    -
0.0000046876609075013900    0.0003658027867456140    -0.017971975524956000
0.57583846875931900    -12.018955721533900    157.410871214888    -1172.76778277565
3784.379042484440
    0.000000000429066366325918    -0.000000013387389445635400
0.0000018202543097994200    -0.0001414450183278470    0.006917574426346170    -
0.22068409136372600    4.590359053360550    -60.0139643577423
447.3984941818910    -1448.690295678320
    0.000000000210850648552858    -0.000000006507143318240710
0.0000008770652486108870    -0.0000677216662989428    0.003298958943502670    -
0.10506395814251700    2.185881397049690    -28.6264928632753
213.9661655604780    -694.969331998672
    -0.000000000329196048129478    0.000000010260353632250700    -
0.0000013949316249789700    0.0001084823448101510    -0.005313764954737800
0.16986189813235100    -3.540469620672820    46.35938029125110    -
345.7782831314710    1118.675045669680

```

```

-0.000000000000440744767636384 0.000000000223304346718617 -
0.0000000409439272033431 0.0000039087285884900 -0.000221844837318895
0.00790572650884895 -0.178925823761283 2.50042322174394 -19.6975324318129
66.9223375772029
0.0000000000458451701841957 -0.000000014416839451208000
0.0000019773158226702200 -0.0001550616904532190 0.007652651619037800 -
0.24616732022711200 5.154659912457500 -67.67115282446900
504.9029624675620 -1630.22245311844
0.0000000000101532875002068 -0.000000003220251903217280
0.0000004458615800541910 -0.0000353162944111337 0.001760537106148740 -
0.05716707191022150 1.206609576121150 -15.93021615975910
119.1678726400810 -383.488164180874];

```

```
elseif varijanta == 6
```

```

ff = 5;
Koeff = [0.00000000000222752081735310 0.000000000000746043787443621
-0.0000000996979953557631 0.0000159910305085119 -0.00121789304382982
0.0541251324010482 -1.479805955797970 24.54960898214220 -
226.5789008824530 890.0673521014990
-0.00000000009853455894028930 0.000000029878451956899500000
-0.0000039529040602605100 0.0002993908888804500 -0.01430271029464040
0.4468440858784710 -9.127515208869680 117.51306604849600 -
864.9233259684540 2770.6755281101000
0.00000000006537081513489800 -
0.000000020305871676726200000 0.0000027635851293094100 -
0.0002163535500722580 0.01074058682124290 -0.3507198849776120
7.532893564066130 -102.57471636511800 802.5496341138720 -
2741.9375456265100
0.00000000001517519230302730 -
0.000000004960321329257650000 0.0000007154612462950320 -
0.0000597592595735836 0.00318296067274276 -0.1119422123509300
2.593431424771730 -38.04673273729810 319.4800663849460 -
1164.8959434468200
0.00000000024101930392032400 -
0.000000075238124405045100000 0.0000102508513132967000 -
0.0007994551828851060 0.03930161429305600 -1.2620431310661400
26.452038063744100 -348.69706904620800 2621.3372269439900 -
8555.6667189565200
0.00000000007788660088205660 -
0.000000024469978478046000000 0.0000033590198876066700 -
0.0002642302707014880 0.01311594213135450 -0.4256881437796030
9.025483550010260 -120.42925435045800 916.7327929538220 -
3029.9959514784600
-0.00000000003942001698406580 0.000000012217715847756700000
-0.0000016524894036455000 0.0001279340042024160 -0.00624384792629115
0.1990913323318370 -4.144782214762320 54.28923693214120 -
405.6852302594130 1316.8944618435100
0.00000000002457664382015730 -
0.000000008065392363847570000 0.0000011563609185520000 -
0.0000949274326042762 0.00490942641771828 -0.1656095133279460
3.637771032702450 -50.09613392005990 391.9116353377320 -
1325.5420757321700
0.0000000000949183684374935 -
0.000000002789641097342930000 0.0000003522864135437280 -

```

```
0.0000249166136057757 0.00107645967120288 -0.0289579453589674
0.469648850383232 -4.10250314680034 13.0347850621519 21.7580121829851
-0.00000000001809371173010940 0.000000005464185550308950000
-0.0000007221076652398840 0.0000548527943207524 -0.00264173379308249
0.0837145630047144 -1.746333116178210 23.12148877661600 -
176.1485818612130 587.3167315808940
-0.00000000000016802677567676 0.00000000560037280421419000
-0.0000001480108904131520 0.0000172709274948416 -0.00113336595664109
0.0454661343704326 -1.138536354368660 17.34989300307600 -
146.9199722947070 528.7883109465540
-0.00000000003508718158417060 0.000000010821734507197800000
-0.0000014561447524457000 0.0001121394252697340 -0.00544471830155742
0.1727836184680380 -3.582741239557160 46.79409137265480 -
349.1752107088000 1134.2056385207600];
```

```
elseif varijanta == 7
```

```
ff = 4;
```

```
Koeff = [-0.0000000007491715910670530 0.0000002091199311599920 -
0.00002490561744261790 0.001649271355949260 -0.06625528487281190
1.649038275173740 -24.76603550373240 204.7071071755390 -
711.4458471321500
-0.0000000010552420263987900 0.0000002881296126501090 -
0.00003363538470894380 0.002190419745732360 -0.08695421372091220
2.152897424241530 -32.44390700103780 271.9556476709870 -
971.1233567020060
0.0000000017005212852224300 -0.0000004660035178201750
0.00005456116608651340 -0.003559792726267500 0.14134330099473000 -
3.491969172977950 52.34569984559540 -434.7882844670870 1531.6580309777400
0.0000000010922471894073500 -0.0000002985640906956940
0.00003484597422847180 -0.002264894468442660 0.08954685687252240 -
2.202463228792380 32.87429142040740 -272.0556032536690 955.2517556144620
-0.0000000003930166973677600 0.0000001056755859092100 -
0.00001215839446054350 0.000781681754508763 -0.03071670486874540
0.755595348162435 -11.36437220232550 95.5397852324739 -
343.5058680103350
-0.0000000001214833445735680 0.0000000344915483728896 -
0.00000418797866792135 0.000283674943609533 -0.01171069210109040
0.301412052180571 -4.71924013416871 41.0566979362727 -
151.8625503481100
0.0000000002905762450021240 -0.0000000794415646938760
0.00000928872584457214 -0.000606074541814293 0.02411168834328690 -
0.598292940602111 9.03356140457960 -75.8188885722162 270.7354853335900
0.0000000000898237887908671 -0.0000000233314630185466
0.00000258067289746543 -0.000158815832950063 0.00595434699964155 -
0.139534434253989 2.00068577224751 -16.0831758472293 55.5696823478691
-0.0000000005325251158750800 0.0000001453112760685980 -
0.00001692065356855950 0.001096531963795250 -0.04318969609679080
1.057265931630640 -15.68971110071670 128.9466149671200 -
449.3476014531690
-0.0000000001453056302934750 0.0000000401292250758960 -
0.00000472232655328813 0.000308559341052150 -0.01221380495566130
0.299163515371805 -4.41793426917184 35.9051675777457 -
121.9609013937540];
```

```
end
```

```

if varijanta <= 3
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq);
elseif varijanta > 3
    a0 = polyval(Koeff(1,:),nq);
    a1 = polyval(Koeff(2,:),nq);
    b1 = polyval(Koeff(3,:),nq);
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq);
        b2 = polyval(Koeff(5,:),nq);
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq);
            b3 = polyval(Koeff(7,:),nq);
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq);
                b4 = polyval(Koeff(9,:),nq);
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq);
                    b5 = polyval(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq);
                        b6 = polyval(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = polyval(Koeff(14,:),nq);

```


jedWm.m

```
function FB = jedWm(nq,ThetaD,varijanta)
    %% obrada koeficijenata
    % ff - jednacina furiera
    ff = 2;
    if varijanta == 1

        Koeff = [0.2550536698126430 25.6186085901353 0.963267711627744
0.337927288514508 29.637663415084500 0.981293292472372 28966.07550917390
65.2509909609433 2.950351977592590 0.185993555581020 47.9268600950130
10.89020139569180 -2.407235575701770 54.4146992436426 2.260359124540420
-16620771727066.700 -4276.11273885084 805.599265318033 -
1109258261.09874 33.423922310980700 0.516355342831691 -
1.4553184642107200 29.6434273874913 0.628339785251443 1.315730559665290
68.9333960383609 25.364244941314900 7.696586293536820 0.579956382013546
55.0333295151463
324.12069894061200 29.5305502765131 0.289320739965899
0.851923564873571 72.185467156661800 24.553017487914800
0.2390879654207820 42.9992939636545 1.374890393223450 50.9868054813579
36.6261473513520 0.300523766914872 752.53901374966 -1196.893315916210
458.209590154823
0.7969616045235030 30.5481737462861 0.323116981487847
0.216205675422239 37.812036149190800 2.998374370756010
0.8786364970989780 26.5875750425643 0.285662853532393 0.269509239517786
49.8968970919004 8.755147692392940 0.241373123080481 17.1299699732532
8.327848676217870
15609923231.145100 33.4088970423167 0.493221992181572
0.339811595529765 17.156363734307600 9.158788121298710
0.2970961874516290 39.1121374566248 3.812809161841930 0.180831886464536
27.4815736160715 3.148470805194080 0.296441327664035 48.7546142263852
6.731023198418530
0.0919924360474903 28.1156484740068 6.426286057995100
0.292910452594169 9.913508345404570 14.563949274160200
0.0709808075667553 42.4620025926456 8.149659108637010 0.938585093478700
59.5435118000423 85.9380912870727 0.258296343141102 34.5462796697432
0.881787048543951];

        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2); % gauss 5

    elseif varijanta == 2

        Koeff = [0.2565340720957820 25.6190131658440 0.96484041817702
0.337554045255185 29.64017983253620 0.993738454543427 6780.105336248370
62.82816172127180 2.08283834103938 0.1616247773253950 45.5723867370634
9.27704032333352
-0.3100589044418280 25.4140487351679 1.16073952528412 -
0.586466836958781 31.24387084830800 4.686691909238580 -0.689118271729782
15.29679545017730 7.02390267918711 -0.8437096316550170 49.5825278216519
19.33923546847640
0.5840877456326120 30.3360080363224 5.36367655198547
108489741386884.00 949.80157258851400 157.090639472185000 0.464910905673951
42.33396678859710 8.81291764030294 0.6778739307366020 16.5739817924808
8.85392533399651
```

```

0.4789170184810000 30.4766951062495 0.41602004860087
0.210129349908645 37.92996540846660 2.963816417541680 0.234552442063483
16.72048667075920 11.78352371078880 0.2705319174861940 49.9406202391671
8.62217289280991
0.1814128688279530 40.0671301335334 7.67279200097386
0.363099490980210 7.49261833332073 30.091218205065800 0.068035782523532
51.70049384794580 4.24714421064911 0.1451378767477920 50.2963385279459
4.53382541975554
0.0938567377090819 28.2172498839754 8.47530755567248
13990856363678.50 -2854.41429239682000 520.586129016091000
0.595661587390582 64.00343615978220 34.61157020854780
0.0658942084280693 42.9262124546354 7.64207254916681];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2); % gauss 4

```

```

elseif varijanta == 3

```

```

Koeff = [0.000000001588890538391660 -0.0000003723117619424390
0.0000361422316558991 -0.001879364783403500 0.05641884501931590 -
0.9769263981065590 9.047712009035270 -34.666264303019000
-0.000000005684378149240630 0.0000013892024063298300 -
0.0001412588614686960 0.007725561947790710 -0.24470767032302400
4.4760105970231800 -43.672315511169600 174.519303665407000
0.000000005171184954836380 -0.0000012584894288055900
0.0001275738899707780 -0.006966559417897400 0.22080363358228700 -
4.0525365367820300 39.807951121075600 -160.624767567671000
-0.000000000617386024430864 0.0000001288300696868020 -
0.0000108068313108032 0.000465041564602690 -0.01081710278781060
0.1300433475802940 -0.671498532271456 0.864664277333494
-0.000000001150232150863960 0.0000002724498733260970 -
0.0000268503891151348 0.001424304326770460 -0.04385349511440470
0.7833281383274020 -7.526171798354300 30.394030483031300
0.000000000237800574036084 -0.0000000526584190793892
0.0000047464956991714 -0.000223461047310198 0.00584470233506904 -
0.0827567012675461 0.556205464096055 -0.190662750191647];

```

```

elseif varijanta == 4

```

```

Koeff = [-0.0000000006840884836399160 0.00000002033163725719810 -
0.000002567631155366350 0.000179570915438446 -0.007590747230637750
0.1982381601756740 -3.119852248198430 27.05342651952840 -99.0588045403801
-0.00000000040377961670024300 0.00000010494369507546700 -
0.000011568554439610600 0.000705321374079300 -0.025985571487810600
0.5923733518557350 -8.172496124873870 62.60546400655040 -
205.5542663092460
0.00000000050022893093365100 -0.00000013188219890021500
0.000014794437926265900 -0.000921225773664998 0.034797025323916800 -
0.8162277754127460 11.617271283441200 -91.85600077612810 310.2355426650230
0.00000000024881599502151600 -0.00000006878832130251460
0.000008113624322572120 -0.000532484238887428 0.021238426010244700 -
0.5266409305167510 7.924272316416050 -66.16170746138060 235.0725826112420
-0.00000000010541975058365400 0.00000002773281049058800 -
0.000003110592356459330 0.000194176808864644 -0.007377079229240390
0.1746936254601530 -2.518974327501390 20.22108573021130 -68.8364885751104

```

```

-0.000000000000612377653155314 0.00000000191560096445476 -
0.000000249177520075123 0.000017585846582828 -0.000734728677582416
0.0185399868579404 -0.274585672858887 2.16802870900847 -
5.9549101557933];

```

```
elseif varijanta == 5
```

```

Koeff = [0.000000000011680825665761900 -0.0000000036059735381334700
0.00000048710546843449600 -0.000037764389345331000
0.001849995311944690000 -0.059307127211933400 1.24220734128243000 -
16.364129806873900 122.84280925203100 -399.932227420309
-0.000000000008286958410112770 0.0000000021059446353916400 -
0.00000022620886526139200 0.000013401775540240400 -0.000479760733857257000
0.010704599425104200 -0.14827028363717600 1.223652782979380 -
5.35228604771694 7.90029710565952
-0.000000000043548432865377100 0.0000000136889711318116000 -
0.00000187210754186201000 0.000146014927381898000 -0.007148898950970430000
0.227605938501780000 -4.70835176538847000 60.994562633398300 -
448.97780213128700 1431.95128707579
-0.000000000019500134886293700 0.0000000061544763133041900 -
0.00000084802712938707700 0.000066871588176315400 -0.003321114253612500000
0.107574479152904000 -2.26945778527578000 30.034455812136700 -
226.07385214071800 737.354912413844
0.000000000012792679350824100 -0.0000000039797118643547200
0.00000053893707999339800 -0.000041657597046220100
0.002023602595716880000 -0.064016146126722200 1.31803429062862000 -
17.023924653370700 125.12829808155000 -398.348916411191
-0.000000000000116173506560012 0.000000000290596348520913 -
0.00000000272677229678402 0.000000100877427722979 0.000000972375484845918 -
0.000220375207931837 0.00815702558494035 -0.142862607203483
1.21534019161962 -2.96252574948479];

```

```
elseif varijanta == 6
```

```

Koeff = [0.2396989599392460 25.6152513832965 0.921235726763537
0.356686480636697 29.6181439335044 0.863734999340850 0.177838213610671
54.50312851955850 19.06095070390450
-161604085071244.00 -1348.64837068958 237.118925186141000 -
0.431556584079404 31.5813678777715 4.979020168320690 -0.732700395540283
51.37050333406420 15.82124676270580
397.8922912225740 61.7661994698937 2.035702378740950
0.0000000000000000 124.4074888973250 7.597395711925160
26.516151737300700 1115.66434507875000 572.44162899584500
1067684.0290807000 30.3755017996734 0.134329574271467 -
29282515.95866490 29.8365501392376 0.243334753472403 0.202057948914174
23.56465837532410 83.95311922599840
-4.1467342213550000 27.4518852445997 14.438662577382400
4.390855444171340 27.3740653678572 15.381516045760300 0.267119335754774
52.08208840300900 2.63767879223153
0.0757698656680684 26.2601890811220 6.898666253721750
0.971459766358391 45.8125229368510 54.950393330768900 0.419411152377490
6.00706284706127 13.56218462897350];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2); % gauss3

```

```

elseif varijanta == 7

    Koeff = [0.00000001667646610748540 -0.000003612804128723200
0.000315826181509237 -0.01420006601425680 0.344661600855802 -
4.25705497946271 20.86120312692360
-0.00000000243290800565087 0.000000967837775954358 -
0.000127902625673005 0.00793691727028947 -0.252072151343157
3.92651204989357 -24.13448331084370
0.00000000750720462958153 -0.000001812394333393670
0.000177883963489826 -0.00903186574287275 0.248688633617358 -
3.49359119179948 20.09429218921680
-0.00000002231684060267700 0.000004640553453036450 -
0.000387931116614583 0.01662287981585140 -0.383478472141252
4.49825797298139 -20.71132320249870
-0.00000000914709978171369 0.000001929139249688860 -
0.000164841787528002 0.00726905862181974 -0.173397935542602
2.10543615712011 -9.80350153749406
0.0000000055932574850391 -0.000001203423506701000
0.000105081202115758 -0.00472444461105914 0.115038160743676 -
1.43504638795362 8.11983020733536];

end

if varijanta <= 2 || varijanta == 6
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end

```

```

end
w = GASS(Koeff(end,:),nq);
else
a0 = polyval(Koeff(1,:),nq);
a1 = polyval(Koeff(2,:),nq);
b1 = polyval(Koeff(3,:),nq);
if ff >= 2
a2 = polyval(Koeff(4,:),nq);
b2 = polyval(Koeff(5,:),nq);
if ff >= 3
a3 = polyval(Koeff(6,:),nq);
b3 = polyval(Koeff(7,:),nq);
if ff >= 4
a4 = polyval(Koeff(8,:),nq);
b4 = polyval(Koeff(9,:),nq);
if ff >= 5
a5 = polyval(Koeff(10,:),nq);
b5 = polyval(Koeff(11,:),nq);
if ff >= 6
a6 = polyval(Koeff(12,:),nq);
b6 = polyval(Koeff(13,:),nq);
if ff >= 7
a7 = polyval(Koeff(14,:),nq);
b7 = polyval(Koeff(15,:),nq);
if ff == 8
a8 = polyval(Koeff(16,:),nq);
b8 = polyval(Koeff(17,:),nq);
end
end
end
end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wm
if ff == 1
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);

```

```

elseif ff == 6
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
elseif ff == 7
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
end

end

```

PARAB.m

```

%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

```

```

    nq2 = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95
35.89 37.4 38 41.6 43.83 50 56];
    nqC = find(nq2 == nq);
    data_im = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42
-0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
    -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
    -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
    -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
    -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27   -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544

```

-0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008
 -0.19 -0.311 -0.1943 -0.2412 -1.063 -0.0839 -0.205 -0.0669 -
 0.2953 -0.0887 -0.19 -0.113 -0.228 -0.1468 -0.2671 -0.1816 -0.2519 -
 0.1122 -0.19 -0.311 -0.19 -0.311 -0.2187 -0.3009 -0.4577 -0.4055 -0.53
 -0.191 -0.342 -0.1465 -0.2203 -0.2552 -0.238 -0.2922 -0.1946 -0.205 -
 0.3299 -0.2808
 -0.17 -0.287 -0.1749 -0.2168 -1.045 -0.0584 -0.187 -0.0414 -
 0.2755 -0.048 -0.17 -0.095 -0.2082 -0.126 -0.2475 -0.1578 -0.231 -0.091
 -0.17 -0.287 -0.17 -0.287 -0.1975 -0.2764 -0.4267 -0.3862 -0.496 -
 0.161 -0.3187 -0.1177 -0.2025 -0.2291 -0.2222 -0.2707 -0.1812 -0.1791 -
 0.3077 -0.2581
 -0.151 -0.263 -0.1561 -0.1923 -1.027 -0.0329 -0.169 -0.0159 -
 0.255 -0.018 -0.151 -0.0774 -0.1891 -0.1043 -0.2283 -0.1319 -0.2102 -
 0.0581 -0.151 -0.263 -0.151 -0.263 -0.1773 -0.2519 -0.3966 -0.3669 -0.463
 -0.131 -0.2993 -0.0872 -0.188 -0.2014 -0.2064 -0.2472 -0.1676 -0.1473 -
 0.2873 -0.2314
 -0.13 -0.24 -0.1357 -0.1685 -1.008 -0.007 -0.15 0.01 -
 0.2346 0.009 -0.13 -0.06 -0.1693 -0.0814 -0.2096 -0.1034 -0.1893 -
 0.0279 -0.13 -0.24 -0.13 -0.24 -0.1553 -0.2282 -0.3662 -0.3502 -0.43
 -0.1 -0.2786 -0.0555 -0.1743 -0.1617 -0.1907 -0.2211 -0.154 -0.1178 -
 0.2698 -0.1989

-0.108 -0.217 -0.1146 -0.1445 -0.989 0.0196 -0.131 0.0366 -
 0.2135 0.0391 -0.108 -0.0426 -0.1492 -0.0572 -0.1915 -0.0722 -0.1684 0.0005
 -0.108 -0.217 -0.108 -0.217 -0.1325 -0.2045 -0.3363 -0.3338 -0.398 -
 0.0686 -0.2582 -0.0269 -0.1598 -0.1182 -0.1749 -0.1924 -0.1404 -0.0915 -
 0.2496 -0.1582
 -0.0862 -0.193 -0.0936 -0.1197 -0.97 0.0465 -0.112 0.0635 -
 0.1954 0.06 -0.0862 -0.0251 -0.1291 -0.0318 -0.1732 -0.0387 -0.1475 0.0245
 -0.0862 -0.193 -0.0862 -0.193 -0.1098 -0.1798 -0.3065 -0.3157 -0.366 -
 0.0371 -0.2372 -0.0017 -0.1445 -0.0806 -0.1591 -0.1611 -0.1266 -0.0677 -
 0.2277 -0.1083
 -0.0637 -0.169 -0.0721 -0.0949 -0.9511 0.073 -0.0931 0.09 -
 0.1749 0.0764 -0.0637 -0.00726 -0.1083 -0.0055 -0.1541 -0.0036 -0.1266
 0.0422 -0.0637 -0.169 -0.0637 -0.169 -0.0865 -0.1553 -0.2765 -0.297 -
 0.334 -0.00643 -0.2157 0.0212 -0.1286 -0.0487 -0.1393 -0.1277 -0.1127 -
 0.0454 -0.2072 -0.0708
 -0.0415 -0.145 -0.0513 -0.0704 -0.9337 0.099 -0.0757 0.116 -
 0.1553 0.0914 -0.0415 0.011 -0.0872 0.0162 -0.1341 0.0216 -0.1058 0.0608
 -0.0415 -0.145 -0.0415 -0.145 -0.0635 -0.1308 -0.2466 -0.2771 -0.302
 0.0228 -0.193 0.0426 -0.1121 -0.0197 -0.1187 -0.0886 -0.0987 -0.0237 -
 0.1874 -0.0495
 -0.02 -0.12 -0.0314 -0.0457 -0.918 0.123 -0.06 0.14 -
 0.1346 0.1063 -0.02 0.03 -0.0661 0.0364 -0.1134 0.043 -0.0849 0.0797
 -0.02 -0.12 -0.02 -0.12 -0.0411 -0.1056 -0.2168 -0.2538 -0.27 0.05
 -0.1723 0.0629 -0.0965 0.0079 -0.0981 -0.0615 -0.0845 -0.003 -0.1677 -
 0.0308
 0.000468 -0.0943 -0.0129 -0.021 -0.9042 0.145 -0.0462 0.162
 -0.115 0.1223 0.000459 0.0497 -0.0453 0.057 -0.0922 0.0645 -0.064
 0.0975 0.000471 -0.0943 0.000459 -0.0944 -0.0197 -0.0801 -0.1873 -
 0.2275 -0.238 0.0746 -0.1549 0.0824 -0.0825 0.0328 -0.0774 -0.0445 -
 0.0701 0.0175 -0.1491 -0.012
 0.0202 -0.0681 0.005 0.0037 -0.891 0.166 -0.033 0.183 -
 0.0936 0.1395 0.0202 0.0699 -0.0258 0.0778 -0.0731 0.086 -0.0431 0.1135
 0.0202 -0.0682 0.0202 -0.0682 0.0012 -0.0542 -0.1571 -0.1983 -0.205
 0.0971 -0.1394 0.1014 -0.0684 0.0539 -0.0568 -0.0249 -0.0556 0.0383 -
 0.1298 0.0086
 0.0398 -0.0418 0.0231 0.0282 -0.8767 0.186 -0.0187 0.203 -
 0.0725 0.1579 0.0397 0.0902 -0.0063 0.0988 -0.0536 0.1077 -0.0223 0.1285
 0.0398 -0.0418 0.0397 -0.0419 0.0219 -0.0284 -0.1262 -0.1678 -0.171 0.118
 -0.1221 0.12 -0.0542 0.0753 -0.0362 0.0003 -0.0408 0.0595 -0.1083
 0.0312
 0.0595 -0.0157 0.042 0.0523 -0.85957 0.205 -0.00157
 0.222 -0.0519 0.177 0.0595 0.11 0.0138 0.1196 -0.0332 0.1294 -
 0.0014 0.1489 0.0595 -0.0157 0.0595 -0.0158 0.0411 -0.0027 -0.0944 -
 0.1377 -0.136 0.139 -0.1027 0.1384 -0.0396 0.0969 -0.0156 0.0292 -
 0.0258 0.0812 -0.0898 0.0559
 0.08 0.01 0.06 0.0758 -0.838 0.223 0.02 0.24 -
 0.0307 0.1943 0.08 0.13 0.0348 0.1405 -0.0116 0.1512 0.0183 0.1705
 0.08 0.01 0.08 0.01 0.0524 0.0227 -0.0617 -0.1081 -0.1 0.16
 -0.0809 0.1567 -0.0245 0.1188 0.005 0.057 -0.0105 0.1033 -0.0665
 0.0822
 0.102 0.0349 0.07 0.0987 -0.8109 0.241 0.0471 0.258 -
 0.0084 0.2096 0.102 0.149 0.0571 0.1609 0.011 0.1731 0.0424 0.1901
 0.102 0.0349 0.102 0.0351 0.0597 0.0475 -0.0278 -0.0806 -0.0628 0.182
 -0.0549 0.1751 -0.0091 0.1411 0.0263 0.0831 0.0051 0.1258 -0.0421
 0.1092

	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	
0.075	0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	
0.2408	0.168	0.107	0.169	0.107	0.0775	0.145	0.073	0.143	
0.0471	0.249	0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	
0.1868	0.0108	0.1665							
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	
0.215	0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	
0.3814	0.27	0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191
0.344	0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	
0.1404	0.2953								
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	
0.2911	0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	
0.4118	0.333	0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285
0.389	0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	
0.2256	0.3524								

	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	
0.317	0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	
0.4226	0.355	0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318
0.402	0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	
0.3653	0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444
0.4	0.38	0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43
0.3652	0.442	0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5
0.4993	0.5	0.5	0.5	0.5	0.5				
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533

0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	
0.7066	0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	
0.5686	0.77	0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74
0.57	0.7249	0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	
0.7374	0.6415								
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	
0.7829	0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	
0.6064	0.881	0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795
0.58	0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	
0.8184	0.6917								
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	

0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	
0.8538	0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299
0.942	0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	
0.871	0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	
0.6296	0.955	0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88
0.573	0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	
0.9201	0.7368								
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	
0.9923	0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	
0.5485	1.15	1.17	1.19	0.502	0.95	0.647	1	0.594	1.02
0.543	0.9925	0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	
1.0508	0.7691								

	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	
1.0109	0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	
0.5382	1.2	1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04
1.0043	0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.534
0.7717									
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
0.6226	1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32
1.3	1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		0.483
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	
1.1321	0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	
0.4584	1.36	1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11
0.488	1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	
1.1592	0.7732								
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	
1.1382	0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	
0.4468	1.36	1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12
0.48	1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	
1.1403	0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355
1.36	1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								

	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	
1.1497	0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378
1.55	1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.36
1.1231	0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	
0.6545									
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	
1.1509	0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712
1.36	1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	
1.1532	0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608
1.6	1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296
0.3765									
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	
1.1559	0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548
1.38	1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36
1.139	0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	
0.6614									
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39

1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4 1.65
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	
1.1579	0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602
1.41	1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346
1.1262	0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	
0.7266		1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236
1.1584	0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633
1.43	1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343
1.1224	0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	
0.7534		1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664 1.44
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807	
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102		1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739 1.47
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441	
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811		1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204
1.1599	0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816
1.5	1.71	1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341
1.1059	0.3076	1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	
0.9205		1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205
1.16	0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	
0.3852	1.51	1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13
0.343	1.1048	0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	
1.5851	0.962								
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13 0.35
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	
1.0326									

	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	
1.1378	0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	
0.4086	1.62	1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12
1.1046	0.3575	1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	0.38
1.2002									
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	
1.1307	0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118
1.69	1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103
0.3642	1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253	
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	
1.1231	0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151
1.65	1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391
0.3705	1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472	1.1006
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	
1.115	0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184
1.66	1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397
1.0979	0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	
1.2651									
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	
1.0985	0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	
0.4254	1.69	1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11
0.41	1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	
1.8592	1.2904								
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	

0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	
1.075	0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	
0.4385	1.72	1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09
0.438	1.0719	0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	
1.8449	1.2968								
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	
1.0604	0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498
1.74	1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46
1.0598	0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	
1.2929									
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	
0.9975	0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	
0.5221	1.79	1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04

0.564	1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684
1.7374	1.2913							
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406
0.9903	0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796
1.78	1.52	1.39	1.01	1	0.62	1.17	0.726	1.03
1.0112	0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375
1.3025								
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974
1.315								
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123
1.7379	1.3281							
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417
0.968	0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679
0.5705	1.74	1.47	1.39	1.11	0.992	0.667	1.16	0.777
0.642	1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269
1.7379	1.3419							
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561
1.7375	1.3703							
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43
0.9396	0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062
1.69	1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369
1.3837								
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887
1.7349	1.397							
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442
0.9193	0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553
0.6477	1.66	1.41	1.43	1.3	0.972	0.765	1.14	0.858
0.752	0.9842	0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034
1.7315	1.4101							
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221
1.4354								

	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	
0.8915	0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	
0.7115	1.58	1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06
0.828	0.9676	0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	
1.7116	1.4585								
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	
0.8851	0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728
1.55	1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846
0.9629	0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	
1.4696									
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	
0.877	0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	
0.7445	1.52	1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06
0.863	0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	
1.6976	1.4801								
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	
0.847	0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	
0.7938	1.43	1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06
0.92	0.9425	0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	
1.6708	1.5054								
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	
0.8327	0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	
0.8443	1.34	1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05
0.981	0.9268	0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636
1.5246									
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	
0.8287	0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	
0.8616	1.31	1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05
1	0.9218	0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221
1.5268									
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	

0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	
0.8049	0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467
1.14	1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08
0.9008	0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	
1.5154									
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	
0.7922	0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	
0.9809	1.08	1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04
1.1	0.8937	0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754
1.5003									
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	
0.7558	1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442

0.939	1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	
0.736	1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	
1.0912	0.801	1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03
1.21	0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	
1.2689	1.4245								
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	
0.7317	1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976
0.78	0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	
0.7243	1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033
0.74	0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									

	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	
0.6719	1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	
1.0904	0.549	0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913
1.21	0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135
1.382									
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	
0.656	0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	
1.0727	0.514	0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888
1.19	0.7408	1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	
1.1152	1.3697								
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	
0.6385	0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	
1.0506	0.491	0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868
1.17	0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	
1.0851	1.3164								
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									

	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	
0.6102	0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	
1.0298	0.459	0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84
1.13	0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	
1.0311	1.2234								
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	
0.6	0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228
0.447	0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12
0.6762	0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	
1.1977									
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	
0.5885	0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	
1.0115	0.434	0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821
1.1	0.6669	0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894
1.1722									
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	
0.5433	0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946
0.374	0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	
0.531	0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	

0.9257	0.369	0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741
0.981	0.6178	0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	
0.8157	0.9903								
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	
0.5253	0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	
0.9159	0.37	0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733
0.961	0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	
0.7954	0.9668								
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	
0.513	0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	
0.8968	0.376	0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717
0.921	0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	
0.7537	0.9185								
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	
0.4714	0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809
0.38	0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8
0.5492									
0.7307	0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65

0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548

0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.405	0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335
0.2	0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	
0.39	0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	
0.3396	0.353	0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496
0.298	0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	
0.3304	0.206								
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492

0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.26
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	
0.4661	0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	
0.1609	0.379	-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508
0.141	0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	
0.3924	0.0552								
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52

0.1 0.5047 0.1111 0.477 0.0975 0.4633 0.0449 0.5068 0.0943 0.4217
0.0145
0.557 -0.0636 0.484 0.042 -0.544 0.0788 0.787 -0.068
0.5014 0.078 0.69 0.26 0.541 0.135 0.4746 0.022 0.5576 0.1
0.389 -0.22 0.677 0.125 0.523 0.0924 0.49 0.0651 0.524
0.0855 0.5134 0.0989 0.4863 0.0886 0.4706 0.0185 0.5133 0.0815
0.4313 0.0019
0.562 -0.0878 0.494 0.0317 -0.579 0.0592 0.803 -0.0767
0.5094 0.0618 0.695 0.24 0.547 0.12 0.4857 0.0113 0.5644
0.0841 0.392 -0.24 0.682 0.101 0.531 0.0723 0.499 0.0515 0.527
0.0707 0.5217 0.0869 0.4957 0.0776 0.4782 0.0016 0.5207 0.0701
0.4411 -0.0102
0.568 -0.112 0.504 0.0229 -0.612 0.0413 0.819 -0.0864
0.5169 0.0463 0.699 0.22 0.553 0.106 0.497 0.0014 0.5711
0.0667 0.394 -0.26 0.687 0.0778 0.539 0.0505 0.508 0.0384 0.531
0.0562 0.5295 0.0753 0.505 0.0626 0.4863 -0.0078 0.5286 0.0589 0.451
-0.0219
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0.5239 0.0322 0.704 0.2 0.558 0.0938 0.5084 -0.0073 0.5784 0.0499
0.396 -0.28 0.691 0.0542 0.547 0.0301 0.517 0.0256 0.535
0.0424 0.5371 0.0644 0.5141 0.0386 0.4948 -0.0144 0.5368 0.0468 0.461
-0.0336
0.579 -0.16 0.525 0.00764 -0.67 0.0103 0.85 -0.11
0.5306 0.0184 0.708 0.18 0.564 0.082 0.5199 -0.0152 0.5862
0.0388 0.399 -0.3 0.696 0.03 0.555 0.0141 0.526 0.0132 0.54
0.03 0.5446 0.0544 0.5232 0.0087 0.5036 -0.0209 0.5449 0.0326
0.4711 -0.0457
0.585 -0.183 0.537 -9.26E-05 -0.695 -0.00323 0.864 -
0.124 0.5372 0.0048 0.713 0.16 0.569 0.0704 0.5314 -0.0224 0.5943
0.0285 0.4 -0.32 0.7 0.00505 0.563 0.00484 0.534 0.0011 0.546
0.0193 0.5527 0.0448 0.5323 -0.0229 0.5126 -0.0299 0.5531 0.0126
0.4814 -0.058
0.591 -0.205 0.548 -0.00858 -0.72 -0.0158 0.877 -0.14
0.5436 -0.0085 0.717 0.139 0.575 0.0589 0.5431 -0.0294 0.6024 0.013
0.402 -0.34 0.705 -0.0206 0.572 0.000822 0.543 -0.0107 0.552
0.00964 0.5612 0.0356 0.5413 -0.0519 0.522 -0.0483 0.5614 -0.0051
0.4917 -0.0703
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0.5498 -0.0215 0.721 0.119 0.582 0.0479 0.5549 -0.0364 0.6104 -
0.0062 0.404 -0.36 0.709 -0.0468 0.581 -5.50E-07 0.551 -0.0222
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0.0172 0.502 -0.0824
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0.5558 -0.0342 0.725 0.0992 0.589 0.0379 0.5669 -0.0439 0.6184 -
0.0278 0.405 -0.38 0.713 -0.0733 0.59 0.000268 0.559 -0.0334
0.564 -0.00923 0.5807 0.0172 0.5594 -0.0903 0.5391 -0.0852 0.5774 -
0.0276 0.5123 -0.0942
0.608 -0.27 0.583 -0.037 -0.787 -0.0501 0.91 -0.19
0.5617 -0.0465 0.729 0.08 0.595 0.0283 0.5789 -0.0521 0.6265 -
0.0501 0.406 -0.4 0.717 -0.1 0.6 -0.000458 0.568 -0.0444 0.57
-0.02 0.59 0.0088 0.5683 -0.104 0.5465 -0.0942 0.5853 -0.0365
0.5226 -0.1057
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0.5674 -0.0583 0.732 0.0616 0.602 0.019 0.5911 -0.0613 0.6345 -
0.0718 0.407 -0.42 0.721 -0.127 0.611 -0.00338 0.576 -0.0552

0.575 -0.0324 0.5985 0.0009 0.5768 -0.1155 0.5534 -0.1014 0.5931 -
0.0445 0.5328 -0.1168
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0.573 -0.0698 0.735 0.0438 0.608 0.00985 0.6037 -0.0713 0.6425 -
0.0915 0.407 -0.44 0.724 -0.153 0.621 -0.00826 0.584 -0.066
0.579 -0.0462 0.6068 -0.0065 0.5853 -0.1269 0.5598 -0.1074 0.6009 -
0.052 0.543 -0.1276
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0.5784 -0.0808 0.738 0.0262 0.616 0.00106 0.6166 -0.0819 0.6505 -
0.1077 0.408 -0.46 0.727 -0.179 0.631 -0.0147 0.592 -0.0767 0.583
-0.0608 0.6146 -0.0135 0.5939 -0.1406 0.5656 -0.1128 0.6085 -0.0596
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0.5837 -0.0913 0.741 0.00834 0.624 -0.00717 0.6295 -0.0935 0.6586 -
0.1189 0.408 -0.48 0.73 -0.205 0.642 -0.0224 0.6 -0.0875 0.587 -
0.0756 0.6236 -0.0208 0.6025 -0.1542 0.571 -0.118 0.6161 -0.0675 0.5613
-0.1451
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0.5888 -0.1013 0.743 -0.01 0.634 -0.0151 0.6425 -0.1062 0.6667 -
0.1255 0.408 -0.5 0.732 -0.23 0.652 -0.0311 0.608 -0.0984 0.59
-0.09 0.6363 -0.0289 0.6108 -0.1674 0.5762 -0.1228 0.6236 -0.0764
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0.594 -0.1108 0.744 -0.0291 0.643 -0.0231 0.6552 -0.1202 0.6753 -
0.1343 0.407 -0.52 0.734 -0.254 0.661 -0.041 0.616 -0.109 0.593
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0.5757 -0.1555
0.637 -0.424 0.646 -0.0918 -0.935 -0.141 0.944 -0.312
0.5994 -0.1198 0.745 -0.0489 0.652 -0.0313 0.6676 -0.1358 0.6844 -
0.145 0.406 -0.54 0.735 -0.278 0.671 -0.0522 0.625 -0.121 0.596
-0.116 0.6628 -0.0494 0.6259 -0.1897 0.5854 -0.1306 0.6384 -0.0976
0.5839 -0.1624
0.64 -0.446 0.653 -0.0976 -0.958 -0.158 0.944 -0.334
0.6048 -0.1285 0.745 -0.0691 0.66 -0.0399 0.6806 -0.1573 0.6942 -
0.1565 0.405 -0.56 0.735 -0.301 0.681 -0.0647 0.633 -0.132 0.598
-0.128 0.6743 -0.0624 0.6325 -0.1994 0.589 -0.1348 0.6458 -0.1092
0.5929 -0.171
0.641 -0.468 0.659 -0.104 -0.982 -0.178 0.943 -0.357
0.6101 -0.1369 0.745 -0.0896 0.669 -0.0485 0.6934 -0.1823 0.7047 -
0.1707 0.404 -0.58 0.735 -0.325 0.692 -0.0784 0.642 -0.144 0.599
-0.14 0.6837 -0.0758 0.639 -0.2098 0.5915 -0.1401 0.6531 -0.121
0.6023 -0.1807
0.642 -0.49 0.665 -0.11 -1.01 -0.199 0.94 -0.38
0.6153 -0.145 0.744 -0.11 0.677 -0.0577 0.7043 -0.2049 0.7153 -
0.1868 0.402 -0.6 0.735 -0.35 0.701 -0.0917 0.651 -0.157 0.6 -
0.15 0.6919 -0.0896 0.6457 -0.2219 0.5939 -0.1468 0.6601 -0.1328 0.6116
-0.191
0.642 -0.512 0.671 -0.117 -1.04 -0.221 0.936 -0.402
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      -0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
      -0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
      -0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
      -0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
      -0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
      -0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
      -0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134 -
0.5433 -0.5068];

```

```

FH = data_im(:, (nqC-1)*2+1);
FB = data_im(:, (nqC-1)*2+2);

```

```

DX = 1;
I = fix(X/DX);
R = (X-I*DX)/DX;
if I == 0
    R = R-1;
end
I = I+1;
if I < 2
    I = 2;
end
if J == 1
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1)+R*(FH(I+1)+FH(I-1)-2*FH(I)));
elseif J == 2
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1)+R*(FB(I+1)+FB(I-1)-2*FB(I)));
end
end
end

```

PUMP.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHAE = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHAE == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHAE,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0
            TH1 = TH1+2*pi;
        end
    end
    M = fix(TH/DTH)+1;
    if M == NPC
        M = NPC-1;
    end
    A1 = FH(M)*M-FH(M+1)*(M-1);
    A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
    A3 = FB(M)*M-FB(M+1)*(M-1);
    A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
    ALPSQ = ALPHAE*ALPHAE;
    VESQ = VE*VE;
    ALPV = ALPSQ+VESQ;
    F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
end

```

```

F2 = ALPHA-E-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+E+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = PARAB(TH,2,nq);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

PUMPV2.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHA == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0

```



```

        TH1 = TH1+2*pi;
    end
end
M = fix(TH/DTH)+1;
if M == NPC
    M = NPC-1;
end
A1 = FH(M)*M-FH(M+1)*(M-1);
A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
A3 = FB(M)*M-FB(M+1)*(M-1);
A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = jedWm(nq,deg2rad(TH),varijanta);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
        end
end
if JJ > 30
    break
end
end
end

```

data-model.m

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108

```

-0.422 -0.588 -0.4054 -0.532 -1.222 -0.409 -0.364 -0.392 -
 0.5227 -0.344 -0.422 -0.324 -0.4363 -0.3844 -0.451 -0.4464 -0.4815 -
 0.3791 -0.422 -0.588 -0.422 -0.588 -0.4645 -0.5839 -0.818 -0.6258 -0.925
 -0.54 -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
 0.5354 -0.4984
 -0.403 -0.565 -0.3893 -0.507 -1.213 -0.379 -0.355 -0.362 -
 0.4996 -0.3289 -0.403 -0.307 -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
 0.3618 -0.403 -0.565 -0.403 -0.565 -0.444 -0.5597 -0.7856 -0.6146 -0.889
 -0.502 -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
 0.5201 -0.4852
 -0.383 -0.541 -0.3721 -0.4812 -1.203 -0.349 -0.345 -0.332 -
 0.4772 -0.3146 -0.383 -0.289 -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
 0.3391 -0.383 -0.541 -0.383 -0.541 -0.4227 -0.5348 -0.753 -0.5993 -0.853
 -0.467 -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442 -0.3474 -0.3885 -
 0.5025 -0.4708
 -0.362 -0.516 -0.3537 -0.4545 -1.191 -0.318 -0.333 -0.301 -
 0.4558 -0.3006 -0.362 -0.27 -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
 0.3132 -0.362 -0.516 -0.362 -0.516 -0.4003 -0.509 -0.7194 -0.5813 -0.816
 -0.433 -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
 0.4855 -0.4544
 -0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008

-0.19 -0.311 -0.1943 -0.2412 -1.063 -0.0839 -0.205 -0.0669 -
 0.2953 -0.0887 -0.19 -0.113 -0.228 -0.1468 -0.2671 -0.1816 -0.2519 -
 0.1122 -0.19 -0.311 -0.19 -0.311 -0.2187 -0.3009 -0.4577 -0.4055 -0.53
 -0.191 -0.342 -0.1465 -0.2203 -0.2552 -0.238 -0.2922 -0.1946 -0.205 -
 0.3299 -0.2808
 -0.17 -0.287 -0.1749 -0.2168 -1.045 -0.0584 -0.187 -0.0414 -
 0.2755 -0.048 -0.17 -0.095 -0.2082 -0.126 -0.2475 -0.1578 -0.231 -0.091
 -0.17 -0.287 -0.17 -0.287 -0.1975 -0.2764 -0.4267 -0.3862 -0.496 -
 0.161 -0.3187 -0.1177 -0.2025 -0.2291 -0.2222 -0.2707 -0.1812 -0.1791 -
 0.3077 -0.2581
 -0.151 -0.263 -0.1561 -0.1923 -1.027 -0.0329 -0.169 -0.0159 -
 0.255 -0.018 -0.151 -0.0774 -0.1891 -0.1043 -0.2283 -0.1319 -0.2102 -
 0.0581 -0.151 -0.263 -0.151 -0.263 -0.1773 -0.2519 -0.3966 -0.3669 -0.463
 -0.131 -0.2993 -0.0872 -0.188 -0.2014 -0.2064 -0.2472 -0.1676 -0.1473 -
 0.2873 -0.2314
 -0.13 -0.24 -0.1357 -0.1685 -1.008 -0.007 -0.15 0.01 -
 0.2346 0.009 -0.13 -0.06 -0.1693 -0.0814 -0.2096 -0.1034 -0.1893 -
 0.0279 -0.13 -0.24 -0.13 -0.24 -0.1553 -0.2282 -0.3662 -0.3502 -0.43
 -0.1 -0.2786 -0.0555 -0.1743 -0.1617 -0.1907 -0.2211 -0.154 -0.1178 -
 0.2698 -0.1989
 -0.108 -0.217 -0.1146 -0.1445 -0.989 0.0196 -0.131 0.0366 -
 0.2135 0.0391 -0.108 -0.0426 -0.1492 -0.0572 -0.1915 -0.0722 -0.1684 0.0005
 -0.108 -0.217 -0.108 -0.217 -0.1325 -0.2045 -0.3363 -0.3338 -0.398 -
 0.0686 -0.2582 -0.0269 -0.1598 -0.1182 -0.1749 -0.1924 -0.1404 -0.0915 -
 0.2496 -0.1582
 -0.0862 -0.193 -0.0936 -0.1197 -0.97 0.0465 -0.112 0.0635 -
 0.1954 0.06 -0.0862 -0.0251 -0.1291 -0.0318 -0.1732 -0.0387 -0.1475 0.0245
 -0.0862 -0.193 -0.0862 -0.193 -0.1098 -0.1798 -0.3065 -0.3157 -0.366 -
 0.0371 -0.2372 -0.0017 -0.1445 -0.0806 -0.1591 -0.1611 -0.1266 -0.0677 -
 0.2277 -0.1083
 -0.0637 -0.169 -0.0721 -0.0949 -0.9511 0.073 -0.0931 0.09 -
 0.1749 0.0764 -0.0637 -0.00726 -0.1083 -0.0055 -0.1541 -0.0036 -0.1266
 0.0422 -0.0637 -0.169 -0.0637 -0.169 -0.0865 -0.1553 -0.2765 -0.297 -
 0.334 -0.00643 -0.2157 0.0212 -0.1286 -0.0487 -0.1393 -0.1277 -0.1127 -
 0.0454 -0.2072 -0.0708
 -0.0415 -0.145 -0.0513 -0.0704 -0.9337 0.099 -0.0757 0.116 -
 0.1553 0.0914 -0.0415 0.011 -0.0872 0.0162 -0.1341 0.0216 -0.1058 0.0608
 -0.0415 -0.145 -0.0415 -0.145 -0.0635 -0.1308 -0.2466 -0.2771 -0.302
 0.0228 -0.193 0.0426 -0.1121 -0.0197 -0.1187 -0.0886 -0.0987 -0.0237 -
 0.1874 -0.0495
 -0.02 -0.12 -0.0314 -0.0457 -0.918 0.123 -0.06 0.14 -
 0.1346 0.1063 -0.02 0.03 -0.0661 0.0364 -0.1134 0.043 -0.0849 0.0797
 -0.02 -0.12 -0.02 -0.12 -0.0411 -0.1056 -0.2168 -0.2538 -0.27 0.05
 -0.1723 0.0629 -0.0965 0.0079 -0.0981 -0.0615 -0.0845 -0.003 -0.1677 -
 0.0308
 0.000468 -0.0943 -0.0129 -0.021 -0.9042 0.145 -0.0462 0.162 -
 0.115 0.1223 0.000459 0.0497 -0.0453 0.057 -0.0922 0.0645 -0.064
 0.0975 0.000471 -0.0943 0.000459 -0.0944 -0.0197 -0.0801 -0.1873 -
 0.2275 -0.238 0.0746 -0.1549 0.0824 -0.0825 0.0328 -0.0774 -0.0445 -
 0.0701 0.0175 -0.1491 -0.012
 0.0202 -0.0681 0.005 0.0037 -0.891 0.166 -0.033 0.183 -
 0.0936 0.1395 0.0202 0.0699 -0.0258 0.0778 -0.0731 0.086 -0.0431 0.1135
 0.0202 -0.0682 0.0202 -0.0682 0.0012 -0.0542 -0.1571 -0.1983 -0.205
 0.0971 -0.1394 0.1014 -0.0684 0.0539 -0.0568 -0.0249 -0.0556 0.0383 -
 0.1298 0.0086

	0.0398	-0.0418	0.0231	0.0282	-0.8767	0.186	-0.0187	0.203	-
0.0725	0.1579	0.0397	0.0902	-0.0063	0.0988	-0.0536	0.1077	-0.0223	0.1285
0.0398	-0.0418	0.0397	-0.0419	0.0219	-0.0284	-0.1262	-0.1678	-0.171	0.118
-0.1221	0.12	-0.0542	0.0753	-0.0362	0.0003	-0.0408	0.0595	-0.1083	
0.0312									
	0.0595	-0.0157	0.042	0.0523	-0.85957	0.205	-0.00157	0.222	
-0.0519	0.177	0.0595	0.11	0.0138	0.1196	-0.0332	0.1294	-0.0014	
0.1489	0.0595	-0.0157	0.0595	-0.0158	0.0411	-0.0027	-0.0944	-0.1377	-
0.136	0.139	-0.1027	0.1384	-0.0396	0.0969	-0.0156	0.0292	-0.0258	0.0812
-0.0898	0.0559								
	0.08	0.01	0.06	0.0758	-0.838	0.223	0.02	0.24	-
0.0307	0.1943	0.08	0.13	0.0348	0.1405	-0.0116	0.1512	0.0183	0.1705
0.08	0.01	0.08	0.01	0.0524	0.0227	-0.0617	-0.1081	-0.1	0.16
-0.0809	0.1567	-0.0245	0.1188	0.005	0.057	-0.0105	0.1033	-0.0665	
0.0822									
	0.102	0.0349	0.07	0.0987	-0.8109	0.241	0.0471	0.258	-
0.0084	0.2096	0.102	0.149	0.0571	0.1609	0.011	0.1731	0.0424	0.1901
0.102	0.0349	0.102	0.0351	0.0597	0.0475	-0.0278	-0.0806	-0.0628	0.182
-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								

	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4
0.4	0.38								0.38
	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442	
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405		
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								

	0.5	0.5	0.5	0.5	0.13		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4993
0.5	0.5	0.5	0.5	0.5														
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508										
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272										
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527									
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092										
0.5295	0.515																	
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516										
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543										
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555									
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186										
0.5534	0.5307																	
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525										
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813										
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584									
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289										
0.5781	0.5457																	
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533										
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536									
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533									
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041										
0.5595																		
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608									
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6									
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622									
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733										
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545										
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596										
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664									
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611										
0.6513	0.5872																	
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549										
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834										
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686									
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722										
0.6734	0.6011																	
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552										
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054										
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706									
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695									
0.6148																		
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556										
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263										
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724									
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946										
0.7164	0.6283																	
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066									
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77									
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249									
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415										
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565										
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662										
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755									

0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94

0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36

1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	1.55
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
									1.6

1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	0.3765
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807	
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441	
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205		
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51

1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	0.35
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
0.3575									
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.69									
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
0.3705									
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69

1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7 1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11	
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4 0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719	
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4 0.772	1.06	0.485	1.24	0.649	1.09	
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4 1.07	0.396	0.475	0.39	1.44	0.33	1.0604	
0.6983	1.39	0.8 1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74	
1.62	1.4 0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598	
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4 0.809	1.05	0.507	1.21	0.647	1.07	
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4 0.83	1.04	0.52	1.2	0.649	1.07	0.483
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6 1.4	0.852	1.04	0.533	1.19	0.652	1.06	0.495
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3 0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914	
1.79	1.58	1.39	0.9 1.02	0.561	1.18	0.668	1.05	0.52	
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								

	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048	
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79	
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548		
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385		
1.2809										
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975	
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79	
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564		
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374		
1.2913										
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903	
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78	
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112	
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025		
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41		
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074		
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315										
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414		
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07		
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03	
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123		
1.7379	1.3281									
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968	
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74	
1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642		
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379		
1.3419										
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421		
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973	
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562		
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425		
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644		
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04	
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561		
1.7375	1.3703									
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396	
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69	
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71		
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369		
1.3837										
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436		
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587		
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04	
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887		
1.7349	1.397									
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193	
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66	
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842	
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101		
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448		
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663	

1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	

	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939

1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22	
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22	
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	1.22
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									

	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581		
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882		
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983	
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668		
1.1733	1.3912									
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57		
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22	
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622		
1.3869										
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556		
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87		
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154		
1.3851										
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539		
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641		
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942	
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469		
1.1475	1.3841									
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52		
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569		
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927	
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395		
1.1416	1.3832									
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719	
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549	
0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21		
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382	
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48		
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398		
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9	1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38	
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656	
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514	
0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408	
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697		
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44		
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194		
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878	
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065		
1.1012	1.3469									
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385	
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491	
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17		
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851		
1.3164										
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629	
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48	
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15		
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677		
1.2827										
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196	
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47	
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14		

0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	

0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		0.7307
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639

0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394		
0.5778	0.6973									
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195		
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058		
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629	
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154		
0.5624	0.6745									
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19		
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117	
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7	0.4968
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522		
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184		
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897		
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612	
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647		
0.5331	0.6296									
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176		
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827		
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604	
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379		
0.5205	0.606									
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168		
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756		
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597	
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71		
0.5091	0.5818									
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159		
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684		
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589	
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812		
0.4977	0.5568									
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15		
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609		
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58	
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523		
0.4856	0.5304									
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142		
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585	
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568	
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732		
0.5026										
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133		
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471		
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559	
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982		
0.4601	0.4744									
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126		
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418		
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548	
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743		
0.4458	0.4461									
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118		
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372		
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538	

0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.405
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	0.2
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									

	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								

	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767		
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644		
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527	
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701		
0.4411	-0.0102									
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864		
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711		
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531	
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451	
-0.0219										
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974		
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499	
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535		
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461	
-0.0336										
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11		
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862		
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54	
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326		
0.4711	-0.0457									
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-		
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943	
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546	
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126		
0.4814	-0.058									
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573	
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407	
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462		
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-	
0.1276										

	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								
	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								

	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467		
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-	
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594	
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718		
0.6482	-0.2387									
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49		
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-	
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59	
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656	
-0.252										
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515		
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-	
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586	
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952		
0.6624	-0.2654									
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541		
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-	
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581	
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179		
0.6681	-0.2794									
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568		
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-	
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575	
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507		
0.6733	-0.294									
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594		
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171	
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-	
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774	
-0.3087										
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429	-
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36	
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27		
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-	
0.3232										
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645		
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-	
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551	
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587		
0.6807	-0.3364									
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644	
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346	
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303		
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-	
0.3506										
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69		
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-	
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528	
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434		
0.6802	-0.3704									
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711		
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-	
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515	-
0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763	
-0.3958										

	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5 -0.36
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467 -
0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								
	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41 -
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								

	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								
	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12

-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95		
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-	
1.2562										
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-	
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-	
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234	
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352		
0.0295	-1.2866									
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-	
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-	
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274	
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-	
0.0152	-1.3104									
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-	
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-	
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31	
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-	
0.0504	-1.3297									
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895	-
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815	
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-	
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-	
1.3459										
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-	
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-	
1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372	
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-	
0.1599	-1.36									
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-	
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-	
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398	
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-	
0.1987	-1.3725									
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-	
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-	
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42	
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-	
0.2339	-1.3837									
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037	-
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05	
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-	
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394	
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-	
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-	
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457	
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0.2892	-1.4035									
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-	
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-	
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472	
-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-	
0.3082	-1.4122									
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-	
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-	
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485	

-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
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0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
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0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
-1.31	-0.3969	-1.5769	-0.4352	-1.4786	-0.483	-1.5536	-0.3691	-1.5189	-
0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-
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	0.0918	-1.64	0.1044	-1.5142	-2.121	-1.273	0.136	-1.2	-
0.5036	-1.4641	0.172	-1.12	-0.0959	-1.1146	-0.371	-1.5708	-0.4071	-
1.3932	-0.0327	-1.64	0.132	-1.64	0.071	-1.6647	-0.3924	-1.8526	-0.534
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0.4462	-1.44								
	0.08	-1.64	0.0914	-1.5113	-2.137	-1.263	0.12	-1.19	-
0.5267	-1.4656	0.16	-1.13	-0.1163	-1.1224	-0.4	-1.5713	-0.4265	-
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	0.0682	-1.64	0.0787	-1.5085	-2.152	-1.253	0.105	-1.18	-
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 0.6151 -0.9746 -0.0449 -0.863 -0.2846 -0.8811 -0.5307 -1.1239 -0.549 -
 1.0635 -0.19 -1.3 -0.095 -1.3 -0.1461 -1.3037 -0.5343 -1.3315 -0.653
 -1.34 -0.5798 -1.0511 -0.592 -1.1758 -0.618 -1.2069 -0.5071 -1.2898 -
 0.6056 -1.2262
 -0.125 -1.28 -0.1419 -1.1811 -2.441 -1.007 -0.184 -0.934 -
 0.6173 -0.9541 -0.0571 -0.845 -0.2911 -0.8628 -0.5315 -1.0961 -0.5508 -
 1.0271 -0.2 -1.28 -0.107 -1.28 -0.1575 -1.2827 -0.5416 -1.3036 -0.659
 -1.31 -0.5824 -1.0416 -0.5909 -1.1561 -0.6164 -1.1864 -0.5073 -1.2756 -
 0.6066 -1.2088
 -0.138 -1.25 -0.1563 -1.1576 -2.459 -1 -0.202 -0.927 -0.6207 -
 0.9336 -0.0689 -0.827 -0.2973 -0.8447 -0.5318 -1.0668 -0.5521 -0.9958 -0.21
 -1.25 -0.118 -1.25 -0.1681 -1.2527 -0.5487 -1.2736 -0.665 -1.28 -
 0.5846 -1.0325 -0.5896 -1.1376 -0.6153 -1.165 -0.5074 -1.2616 -0.6058 -
 1.1913
 -0.15 -1.23 -0.17 -1.1414 -2.477 -0.993 -0.22 -0.92 -
 0.6249 -0.9131 -0.08 -0.81 -0.3027 -0.8271 -0.5315 -1.0364 -0.553 -
 0.9692 -0.22 -1.23 -0.13 -1.23 -0.1794 -1.2318 -0.5552 -1.2457 -0.67
 -1.25 -0.5864 -1.0237 -0.5881 -1.1192 -0.6145 -1.1436 -0.5075 -1.2477 -
 0.6029 -1.1737
 -0.162 -1.21 -0.1834 -1.1254 -2.494 -0.987 -0.237 -0.914 -
 0.6274 -0.8927 -0.0904 -0.793 -0.3076 -0.8098 -0.5307 -1.007 -0.5533 -
 0.9464 -0.228 -1.21 -0.142 -1.21 -0.1908 -1.2109 -0.5616 -1.2179 -0.675
 -1.22 -0.5878 -1.0149 -0.5863 -1.0996 -0.6134 -1.123 -0.5075 -1.2336 -
 0.5984 -1.1559
 -0.174 -1.18 -0.1969 -1.1022 -2.511 -0.981 -0.254 -0.908 -
 0.6264 -0.8724 -0.1 -0.775 -0.3118 -0.7922 -0.5294 -0.9803 -0.5528 -
 0.9258 -0.236 -1.18 -0.154 -1.18 -0.2022 -1.1809 -0.5681 -1.1879 -0.68
 -1.19 -0.5889 -1.0059 -0.5839 -1.0773 -0.6117 -1.1029 -0.5073 -1.2192 -
 0.5931 -1.138
 -0.186 -1.16 -0.21 -1.0859 -2.527 -0.974 -0.27 -0.901 -
 0.6231 -0.8521 -0.11 -0.757 -0.3159 -0.7744 -0.5274 -0.957 -0.5517 -
 0.9064 -0.244 -1.16 -0.166 -1.16 -0.2136 -1.16 -0.5754 -1.16 -0.686
 -1.16 -0.5897 -0.9967 -0.581 -1.0522 -0.609 -1.0794 -0.5071 -1.2042 -
 0.588 -1.1198
 -0.198 -1.13 -0.2229 -1.0619 -2.542 -0.965 -0.285 -0.892 -
 0.6188 -0.8319 -0.12 -0.739 -0.3198 -0.7565 -0.525 -0.9368 -0.5497 -
 0.8875 -0.252 -1.13 -0.178 -1.13 -0.2251 -1.13 -0.5827 -1.13 -0.692
 -1.13 -0.5902 -0.9869 -0.5774 -1.0242 -0.6049 -1.0524 -0.5068 -1.1885 -
 0.5839 -1.1014
 -0.21 -1.11 -0.2357 -1.0442 -2.557 -0.953 -0.3 -0.88 -
 0.6147 -0.8117 -0.13 -0.72 -0.3235 -0.738 -0.5223 -0.9194 -0.547 -
 0.8687 -0.26 -1.11 -0.19 -1.11 -0.2367 -1.1109 -0.5915 -1.1179 -0.7
 -1.1 -0.5903 -0.9762 -0.5732 -0.9953 -0.5999 -1.0267 -0.5063 -1.1715 -
 0.5812 -1.0825
 -0.222 -1.08 -0.2483 -1.0182 -2.571 -0.937 -0.314 -0.864 -
 0.6119 -0.7915 -0.141 -0.7 -0.3277 -0.7187 -0.5194 -0.9037 -0.5441 -
 0.8493 -0.269 -1.08 -0.202 -1.08 -0.2484 -1.0809 -0.6012 -1.0879 -0.709

-1.07 -0.5902 -0.9643 -0.5687 -0.9655 -0.5941 -1.0028 -0.5056 -1.1528 -
0.5796 -1.0632
-0.235 -1.06 -0.2616 -0.9982 -2.585 -0.917 -0.328 -0.844 -
0.6103 -0.7714 -0.153 -0.68 -0.3323 -0.6991 -0.5165 -0.8893 -0.5412 -
0.8289 -0.28 -1.06 -0.213 -1.06 -0.2592 -1.0618 -0.6106 -1.0757 -0.718
-1.04 -0.5898 -0.9503 -0.5639 -0.9338 -0.5882 -0.9809 -0.5048 -1.1321 -
0.5789 -1.0435
-0.247 -1.03 -0.2736 -0.9708 -2.597 -0.896 -0.34 -0.823 -
0.6095 -0.7514 -0.165 -0.66 -0.337 -0.6793 -0.5136 -0.8757 -0.5388 -
0.8075 -0.29 -1.03 -0.225 -1.03 -0.2711 -1.0318 -0.6218 -1.0457 -0.729
-1.01 -0.5892 -0.9335 -0.5596 -0.8991 -0.5824 -0.96 -0.5038 -1.1093 -
0.5789 -1.023
-0.259 -1.01 -0.2853 -0.9502 -2.608 -0.874 -0.351 -0.801 -
0.6091 -0.7313 -0.178 -0.64 -0.3423 -0.6594 -0.511 -0.8628 -0.5372 -
0.7868 -0.3 -1.01 -0.237 -1.01 -0.283 -1.0127 -0.6322 -1.0336 -0.739
-0.98 -0.5884 -0.9134 -0.5557 -0.8604 -0.5773 -0.9379 -0.5026 -1.0845 -
0.5794 -1.002
-0.27 -0.98 -0.2957 -0.9228 -2.617 -0.853 -0.36 -0.78 -
0.6088 -0.7113 -0.19 -0.62 -0.3472 -0.6394 -0.5087 -0.8502 -0.5367 -0.766
-0.31 -0.98 -0.25 -0.98 -0.2958 -0.9827 -0.6437 -1.0036 -0.75 -0.95
-0.5874 -0.8895 -0.5516 -0.8225 -0.573 -0.9105 -0.5012 -1.0582 -0.5801 -
0.9803
-0.28 -0.955 -0.3049 -0.8992 -2.624 -0.833 -0.367 -0.76 -
0.6081 -0.6913 -0.202 -0.601 -0.3524 -0.6199 -0.5068 -0.838 -0.5373 -
0.7454 -0.319 -0.955 -0.264 -0.955 -0.3094 -0.9583 -0.6545 -0.9833 -0.76
-0.919 -0.5862 -0.8623 -0.5472 -0.7902 -0.5699 -0.879 -0.4996 -1.0312 -
0.581 -0.958
-0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
-0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
0.5818 -0.9351
-0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
-0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
0.5825 -0.9119
-0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79
-0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
0.583 -0.8882
-0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
-0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
-0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
0.8643
-0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811
-0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
0.5825 -0.8403
-0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822

-0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
0.5814 -0.81
-0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
-0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
0.5794 -0.7783
-0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
-0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
-0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
-0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134
-0.5433 -0.5068];

Prilozi

Prilog – P22 Kod razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz *Univerzalne Jednačine za Wh i Wm karakteristike* (Univerzalne jednačine iz Varijante 11 **Ovaj primjer je urađen sa – Furijerovom funkcijom 4 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 9 reda za Wm karakteristiku**)

Prilog za poglavlje 9.6 Analiza uticaja specifične brzine (nq) na rezultate dobijene proračunom prelaznih procesa na pumpnoj instalaciji (vrijednosti za Wh i Wm karakteristike dobijene modelskim ispitivanjima i iz Univerzalne jednačine iz Varijante 11 – Ovaj primjer je urađen sa – Furijerovom funkcijom 4 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 9 reda za Wm karakteristiku, koriste se u razvijenom numeričkom modelu u programu Matlab za proračun prelaznih procesa).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (*Univerzalne jednačine iz Varijante 11 – Ovaj primjer je urađen sa – Furijerovom funkcijom 4 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 9 reda za Wm karakteristiku*) u programu Matlab:

```
Start.m
%% Program namijenjen za pokretanje više nq-ova za analizu trazijenta
clear
close all
clc
nqt = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
bojaiz =
{'.:r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':.c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-r','-b','-g','-y','-m','-c','-k'};
```

```

%% Podaci dobijeni iz modela
run data_model.m

%% Odabir udara
varijanta = listdlg('ListString', ...
    {'1. Wh [f3-g5] <-> Wm [f2-g5]', '2. Wh [f3-g3] <-> Wm [f2-
g4]', '3. Wh [f3-g4] <-> Wm [f2-p7]', '4. Wh [f3-p8] <-> Wm [f2-p8]', '5. Wh
[f4-p9] <-> Wm [f2-p9]', '6. Wh [f5-p9] <-> Wm [f2-g3]', '7. Wh [f4-p8] <-> Wm
[f2-p6]'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi varijante za udar');

jk = size(data);
Theta = 0:1:360;
ThetaD = deg2rad(Theta);
dataWh = data(:,1:2:jk(2));
dataWm = data(:,2:2:jk(2));

%% Pokretanje analize za sve modele
vs = 1:length(nqt);

%% Pokretanje analize za sve modele
for c = vs
    nq = nqt(c);
    fhc = char(bojaiz(c));
    fhf = char(bojafun(c));
    tableiso = ['Uporedni rezultati za nq=', num2str(nq), '.xlsx'];
    leg{c*2-1} = ['model nq=', num2str(nq)]; % legenda za podatke modela
    leg{c*2} = ['funkc. za nq=', num2str(nq)]; % legenda za podatke dobijene
jednacinom
    run Clprogram.m % pokretanje koda za analizu trazijenta
end

%% Ispis legende na dijagrame
figure(1) % Dijagram za Wh
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(2) % Dijagram za Wm
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
leg([5 6 7 8]) = [];
figure(3) % Dijagram Time-Alpha
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(4) % Dijagram Time-V
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(5) % Dijagram Time-Head (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(6) % Dijagram Time-Head (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(7) % Dijagram Time-Head (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(8) % Dijagram Time-Head (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(9) % Dijagram Time-Discharge (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')

```

```

figure(10) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')
figure(11) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')
figure(12) % Dijagram Time-Discharge (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')

Clprogram.m
%% Trazijenti uzrokovani prestankom rada pumpi

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Å?e se izraÅ?unati prijelazni uslovi

NPC = 361; % Broj karakteristiÅ?nih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci
FB = dataWm(:,c);
FH = dataWh(:,c);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÅ?una podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od modela za nq=',num2str(nq)])

```

```

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅ?unati uslov prolaznog stanja = ',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅ?nih taÅ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Diagram za Wh
figure(1)
plot(Theta,FH,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wh'), title('Dijagram za Wh')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100,100,1000,900])
% Diagram za Wm
figure(2)
plot(Theta,FB,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wm'), title('Dijagram za Wm')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100,100,1000,900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅ?ina      PreÅ?nik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÅ?EUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % PovrÅ?ina popreÅ?nog presjeka cijevi (m2)
    AUNADJ = A(I);
end

```

```

AN = L(I)/(DT*A(I));
N(I) = AN;
AN1 = N(I);
if (AN-AN1) >= 0.5
    N(I) = N(I)+1;
end
A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
CA(I) = G*AR(I)/A(I);
CF(I) = F(I)*DT/(2*D(I)*AR(I));
F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach faktor
trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMP
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARAB(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARAB(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel

```

```

Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljjenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljjenje tabele za ispis -----
--
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
--
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
            Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
            vel = size(Excel);
            Excel = Excel(2:vel(1),:);
            p = size(Excel);
            ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
            TABLEe = array2table(ExcelNew,...

'VariableNames',{'Vrijeme','Alpha','V','Disch_1_1','Disch_N1_1','Pad_1_1','Pa
d_N1_1','Disch_1_2','Disch_N1_2','Pad_1_2','Pad_N1_2'});
            disp(' ')
            disp('
-----')
            disp('
Cijev No.2 | Cijev No.1
|')
            disp(TABLEe)

disp('*****
*****')

```

```

disp('*****
*****')
    disp('Cijev No    max. Pritisak    min. Pritisak')
    fprintf('    %.0f        %.2fm        %.2fm \n',Table2')
    break
end

%% PUMP AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMP.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP

```



```

    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['model nq=', num2str(nq), ' cijev 1 presjek',
        num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['model nq=', num2str(nq), ' cijev 2 presjek',
        num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end
end

% Dijagram Time-Alpha
figure(3)

plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),2), fhc, 'MarkerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
    title('Dijagram Vrijeme-Alfa')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-V
figure(4)

plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),3), fhc, 'MarkerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
    title('Dijagram Vrijeme-V')
    xlim([0 TLAST])

```

```

set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (connection pump and pipe Nu.1)
figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

```

```

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of model (during the transient process)
figure(4*(c-1)+13)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];

```

```

        Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
    end
    s = surf(vrijeme,duzina,Hnew);
    grid on, hold on
    colormap('turbo')
    colorbar
    title(['Pad za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
    xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
    xlim([0 TLAST]), ylim([0 sum(L)])
    s.EdgeColor = 'none';
    set(gcf, 'Position', [100, 100, 800, 700])

    % Diagram for Discharge of model (during the transient process)
    figure(4*(c-1)+14)
    s1 = surf(vrijeme,duzina,Qnew);
    grid on, hold on
    colormap('turbo')
    colorbar
    title(['Protok za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
    xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
    xlim([0 TLAST]), ylim([0 sum(L)])
    s1.EdgeColor = 'none';
    set(gcf, 'Position', [100, 100, 800, 700])
end
run C1programV2.m

```

C1programV2.m

```

%% Trazijenti uzrokovani prestankom rada pumpi

clear A A1 A2 A3 A4 ALPHA ALPHAe ALSPQ ALPV AN AN1 AR AUNADJ BETA C5 C6 CA CF
CN CP D DALPHA DENOM DT DTH DV
clear ER Excel ExcelNew F F1 F1AL F1V F2 F2AL F2V FB FH G H HMAX HMINHO HP HR
HRES I IP1 IPRINT IspisPodatakaTabela
clear J JJ JM1 JP1 K KK L M MB N N1 NN NN1 NO NP NP1 NPC NPP NR NRLP od p Q
QO QP QR T Table1 Table2 TABLEe TH TH1
clear TLAST TR V VE vel VESQ WR2 Z

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Å¼e se izraÅ¼unati prijelazni uslovi

NPC = 361; % Broj karakteristiÄnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)

```

```

NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci dobijeni od Fourierove jednacine i polinoma

FH = jedWh(nq,ThetaD,varijanta);
FB = jedWm(nq,ThetaD,varijanta);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÄ?una podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od Fourierove jednacine za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÄ?unati uslov prolaznog stanja =
',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÄ?nih taÄ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÄ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Dijagram za Wh
figure(1)

```

```

plot(Theta,FH,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

%Digram za Wm
figure(2)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÄUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % PovrÅina popreÅnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach Darcy-
Weisbach faktor trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMPV2
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end

```

```

Z = jedWh(nq,deg2rad(TH),varijanta);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = jedWm(nq,deg2rad(TH),varijanta);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljenje tabele za ispis -----
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end

```

```

Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
vel = size(Excel);
Excel = Excel(2:vel(1),:);
p = size(Excel);
ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
TABLEe = array2table(ExcelNew,...

```

```

'VariableNames',{'Vrijeme','Alpha','V','Disch_1_1','Disch_N1_1','Pad_1_1','Pa
d_N1_1','Disch_1_2','Disch_N1_2','Pad_1_2','Pad_N1_2'});

```

```

disp(' ')
disp('

```

```

|-----|
| disp(' | Cijev No.1
| Cijev No.2 |')
| disp(TABLEe) |

```

```

disp('*****
*****')

```

```

disp('*****
*****')

```

```

disp('Cijev No max. Pritisak min. Pritisak')
fprintf(' %.0f %.2fm %.2fm \n',Table2')
break
end

```

```

%% PUMPV2 AT UPSTREAM END

```

```

CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMPV2.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

```

```

%% INTERIOR POINTS

```

```

for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

```

```

%% SERIES JUNCTION

```

```

if NP ~= 1
    for I = 1:NP1

```



```

        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);

        end
    end

    %% RESERVOIR AT DOWNSTREAM END
    NN = N(NP)+1;
    NN1 = N(NP);
    HP(NP,NN) = HRES;
    CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
    QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

    %% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 1 presjek',
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 2 presjek',
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end
end

```

```

% Dijagram Time-Alpha
figure(3)

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),2),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
title('Dijagram Vrijeme-Alfa')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-V
figure(4)

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),3),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
title('Dijagram Vrijeme-V')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (connection pump and pipe Nu.1)
figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)

```

```

set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])

```

```

set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of function (during the transient process)
figure(4*(c-1)+15)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s2 = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za funkciju n_q=', num2str(nq), ' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s2.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])

% Diagram for Discharge of function (during the transient process)
figure(4*(c-1)+16)
s3 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za funkciju n_q=', num2str(nq), ' (tokom procesa
trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s3.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])
end

```

jedWh.m

```

function FH = jedWh(nq,ThetaD,varijanta)

%% obrada koeficijenata
% ff - jednacina furiera
if varijanta == 1
    ff = 3;
    Koef = [0.715731479330851 29.904965832957600 1.160146567645740
0.521115135250857 24.984627647082200 2.924225219363250 0.669699222908911
48.171790875051100 16.877203146165100 1.093124325893790

```

```

16.530859288034800  1.124728037889720  0.000000000000000
123.069952639871000  5.297192353276950
      -0.961523123293475  20.821344093580800  6.602453878194210
64.257648057580600  33.955125342916500  9.386353220569020  -
64.928459861354100  33.949656843977400  9.303213895257580  -0.553408365350271
43.537626921051000  2.662769940796440  -0.832693428738023
52.435524425571700  11.860111687227100
      1.752508344167960  19.813538033814300  1.338739746534640
423.391777872348000  29.423080141571000  0.233823124130313
14.034992024690400  192.667467724811000  84.128246511778100  -
2.249991305664610  52.979879468544200  2.414940141168370  -0.139425746706312
35.411065094104200  4.635405982702990
      -0.228259772514762  17.940643343430100  3.150874761319510
1.622551266692810  19.737858950059500  0.948089552133070
1543.400636295410000  39.201326063337000  9.564845520862440  -
1495.340285273880000  39.202390860318100  9.536202355573940  -
48.504466641276900  39.166154370154600  10.532068185319700
      52.774979545222600  19.948207260269500  0.382110550217316
0.263177598029735  36.944649226057900  1.154196394902190  -
0.441810896482947  20.178226600166000  1.910754413463700  -
49.076267398946200  50.575884925920200  12.341447824439800  49.056404431938300
50.553491696140300  12.272979751954900
      -0.181804234398022  19.327153282371900  4.958850828789490
0.000000000000000  26.029637164455600  0.002684600837807  -
0.191627659558586  33.994394599288800  8.496759972665970  -0.239544485919972
52.539088076212200  3.537489182415010  -0.007662269518264
41.686968452601200  0.721756412942864
      0.171794030111370  54.965027620881700  4.393250547557860
0.122789542611869  42.736325018115600  5.331583584358960  0.125185937307061
21.167598454897700  3.168706724130010  11.350749739153300
27.800622272514600  0.367470386336513  0.084923558027068
35.178568691978200  2.660337169981850
      0.683974778070928  28.479136553910500  10.684175903899800
1.059245427535040  51.273284066137800  20.043005489689600  1.540300759195000
16.534305521866800  0.955404836859471  0.081554743811410
39.737742947716300  2.241646592944000  0.413184604032852
21.483285325409600  4.496030498742180];
      GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);

      elseif varijanta == 2
          ff = 3;
          Koeff = [0.547307872624346  29.8839532563986  0.793246192203723
2.309685047217230  332.7703121851250  239.007138115351  0.102040658730334
43.9750016600212  1.73890423394828
      -0.640843699205076  20.9637652502637  0.804458763664244
0.178200238232620  21.3675216323105  10.513306899753500  -
10.439195981271300  1627.61262058135  958.911327386202
      1.696914405871140  19.9667095602136  1.078693182634310
2563039855.449910  29.4645537432429  0.139184491455413  1.055669091064470
174.558135048266  134.204326548231
      -0.340698312375039  25.8630362606411  12.577242648008500  -
89.040274353193300  47.1888824574428  7.037219629716410  88.861378955054300
47.1851558391851  7.0037284373794

```

```

10.5212705783009 19.7443505022493 0.555280900913813
0.207955165908923 36.9386083983734 0.865490915538270 -
0.102485396609892 97.7537061085187 109.176933764359
-0.181478865700741 19.3076730512134 4.891681598994380 -
0.190652562739006 34.0378712221283 8.685029036984850 -0.489680873225789
52.7736206038725 2.493916983317
15253182234484.2 84.3913147403198 4.992659747586930
0.114843207641356 42.5555276529245 10.898582871234300 0.119438110316359
21.1098882550937 3.364929063690
0.957616501610985 25.1725505727929 23.954052282718500
0.840879738870500 57.5954963477624 19.356757711087200 0.429351737084564
16.5531614483509 0.912340659718];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);

```

```

elseif varijanta == 3

```

```

ff = 3;
Koeff = [0.541944061628251 29.9112840097684 0.609750024000405
367254.1154988030 1015.46632507675000 268.780244089738000 -
3.248115803823190 47.7527080555991 7.827871488938230 3.067613744326430
47.2745171219860 6.8916449222616810
3558.27595727144 39.7803874584052 0.563866270550681 -
0.655122677605182 20.95809611855700 0.861535581007935 0.252438714671051
21.9706860056295 9.098398307081290 -219.142591015502000
5061.2938487694700 2096.985480589480000
1.753257619552930 19.7830735192274 1.646973739848750
0.355840125132201 27.87904920014190 4.399464526021200 0.394297739432654
42.6492408057384 6.113929831752710 57896858542275.2 824.9561617359720
135.150482547991000
0.618074311043399 20.9226089916430 0.746923433999019 -
0.458971083290531 22.67025888312530 9.181967353715210 -0.345830048302581
38.8447829814503 5.582997567637060 -0.346484063699974 54.5007057843973
12.019061272874800
17.203169456107400 19.9690362476728 0.396904337894192
0.215222047721478 36.91309306257100 0.867897634939713
10.307109676216700 68.7429160784018 24.928074260382400 -
11.451540447036400 71.7431334141354 26.729143588279700
-0.470905359789293 19.4695226030676 1.502145727627460 -
10772207070505.6 -8.57928427228217 4.288602187187170 -0.179943541469161
33.3340542180074 10.491749904664400 -0.436896743949830 52.7842153808616
2.562788678310650
1.861727066250480 82.6985044398997 17.083425428977600
0.118891597708152 40.96725307422590 6.788150256519830 0.125236941932015
21.1702636510723 3.150101855672350 70.626163963485500 27.7996969197635
0.311483670611709
0.947005281756741 24.7563868076686 24.717484926063400
0.859059033541582 59.50554823472470 21.118815767490900 0.373618340978890
16.5470804169307 0.943324093728692 0.138683979457977 39.7531160229800
1.300939985544000];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);

```

```

elseif varijanta == 4

```

```

ff = 3;

```

```

    Koeff = [-0.000000000719419155449666    0.0000002001394994474110    -
0.000023764960141    0.001569835734795    -0.0629469913535133    1.5648923022590600
-23.49247414158300    194.2309419847820    -675.488282721413
    -0.000000001523016309455770    0.0000004174874484811200    -
0.000048925444901    0.003197857344233    -0.1273605203951220    3.1614422875066100
-47.71855216007930    400.1219953806810    -1426.944971356050
    0.000000001522718068577850    -0.0000004154618973418480
0.000048438943916    -0.003147986716868    0.1245587951729840    -
3.0683940191356800    45.89313605637810    -380.5847947191610    1339.261581398480
    0.000000001110692155909410    -0.0000003026294716142210
0.000035209457530    -0.002281832835106    0.0899894602976154    -
2.2091496314307000    32.93945956558710    -272.5966545465320    958.297581351687
    0.000000000192612735161932    -0.0000000554425448082238
0.000006805925116    -0.000464329017993    0.0192103854214338    -
0.4923109589792610    7.61341706522743    -64.8226372153901    232.338425397081
    -0.000000000208891289028475    0.0000000582810601414563    -
0.000006936942087    0.000459275162479    -0.0184691388695222    0.4612827535088290
-6.98004516655937    58.4680159026686    -207.691669186717
    0.000000000138464448665096    -0.0000000386868107512570
0.000004628910294    -0.000309251125959    0.0125921729738134    -
0.3192838510771930    4.91194626223695    -41.8338962620285    150.852627955751
    -0.000000000136873279061494    0.0000000374362153743245    -
0.000004373515728    0.000284635370486    -0.0112700102873447    0.2775625886048120
-4.14612160321041    34.3004656268043    -119.239865644071];
    elseif varijanta == 5
        ff = 4;
        Koeff = [0.0000000001483124577611510    -0.000000045665937634766600
0.0000061357877970046800    -0.0004718019124193200    0.022858794966160900    -
0.72290265217385900    14.904405618379200    -192.929777701929
1420.95321736821    -4531.661823027010
    0.000000000149746639175877    -0.000000005590353141930380
0.0000008865274868445490    -0.0000787571629071348    0.004331881715268490    -
0.15325392842910800    3.491252098236360    -49.42289555231910
394.7563686236520    -1356.839102956130
    -0.0000000001561615533164640    0.000000048994403816912600    -
0.0000067063266430236000    0.0005251084191534630    -0.025891781569837900
0.83274221924664700    -17.448846331869500    229.409121150463    -1715.40142142772
5554.050146978870
    -0.0000000001098353663449900    0.000000034356138354869400    -
0.0000046876609075013900    0.0003658027867456140    -0.017971975524956000
0.57583846875931900    -12.018955721533900    157.410871214888    -1172.76778277565
3784.379042484440
    0.000000000429066366325918    -0.000000013387389445635400
0.0000018202543097994200    -0.0001414450183278470    0.006917574426346170    -
0.22068409136372600    4.590359053360550    -60.0139643577423
447.3984941818910    -1448.690295678320
    0.000000000210850648552858    -0.000000006507143318240710
0.0000008770652486108870    -0.0000677216662989428    0.003298958943502670    -
0.10506395814251700    2.185881397049690    -28.6264928632753
213.9661655604780    -694.969331998672
    -0.000000000329196048129478    0.000000010260353632250700    -
0.0000013949316249789700    0.0001084823448101510    -0.005313764954737800
0.16986189813235100    -3.540469620672820    46.35938029125110    -
345.7782831314710    1118.675045669680

```

```

-0.0000000000000440744767636384 0.000000000223304346718617 -
0.0000000409439272033431 0.0000039087285884900 -0.000221844837318895
0.00790572650884895 -0.178925823761283 2.50042322174394 -19.6975324318129
66.9223375772029
0.0000000000458451701841957 -0.000000014416839451208000
0.0000019773158226702200 -0.0001550616904532190 0.007652651619037800 -
0.24616732022711200 5.154659912457500 -67.67115282446900
504.9029624675620 -1630.22245311844
0.0000000000101532875002068 -0.000000003220251903217280
0.0000004458615800541910 -0.0000353162944111337 0.001760537106148740 -
0.05716707191022150 1.206609576121150 -15.93021615975910
119.1678726400810 -383.488164180874];

```

```

elseif varijanta == 6

```

```

    ff = 5;
    Koeff = [0.00000000000222752081735310 0.000000000000746043787443621
-0.0000000996979953557631 0.0000159910305085119 -0.00121789304382982
0.0541251324010482 -1.479805955797970 24.54960898214220 -
226.5789008824530 890.0673521014990
-0.00000000009853455894028930 0.000000029878451956899500000
-0.0000039529040602605100 0.0002993908888804500 -0.01430271029464040
0.4468440858784710 -9.127515208869680 117.51306604849600 -
864.9233259684540 2770.6755281101000
0.00000000006537081513489800 -
0.000000020305871676726200000 0.0000027635851293094100 -
0.0002163535500722580 0.01074058682124290 -0.3507198849776120
7.532893564066130 -102.57471636511800 802.5496341138720 -
2741.9375456265100
0.00000000001517519230302730 -
0.000000004960321329257650000 0.0000007154612462950320 -
0.0000597592595735836 0.00318296067274276 -0.1119422123509300
2.593431424771730 -38.04673273729810 319.4800663849460 -
1164.8959434468200
0.00000000024101930392032400 -
0.000000075238124405045100000 0.0000102508513132967000 -
0.0007994551828851060 0.03930161429305600 -1.2620431310661400
26.452038063744100 -348.69706904620800 2621.3372269439900 -
8555.6667189565200
0.00000000007788660088205660 -
0.000000024469978478046000000 0.0000033590198876066700 -
0.0002642302707014880 0.01311594213135450 -0.4256881437796030
9.025483550010260 -120.42925435045800 916.7327929538220 -
3029.9959514784600
-0.00000000003942001698406580 0.000000012217715847756700000
-0.0000016524894036455000 0.0001279340042024160 -0.00624384792629115
0.1990913323318370 -4.144782214762320 54.28923693214120 -
405.6852302594130 1316.8944618435100
0.00000000002457664382015730 -
0.000000008065392363847570000 0.0000011563609185520000 -
0.0000949274326042762 0.00490942641771828 -0.1656095133279460
3.637771032702450 -50.09613392005990 391.9116353377320 -
1325.5420757321700
0.0000000000949183684374935 -
0.000000002789641097342930000 0.0000003522864135437280 -

```



```
0.0000249166136057757 0.00107645967120288 -0.0289579453589674
0.469648850383232 -4.10250314680034 13.0347850621519 21.7580121829851
-0.00000000001809371173010940 0.000000005464185550308950000
-0.0000007221076652398840 0.0000548527943207524 -0.00264173379308249
0.0837145630047144 -1.746333116178210 23.12148877661600 -
176.1485818612130 587.3167315808940
-0.00000000000016802677567676 0.00000000560037280421419000
-0.0000001480108904131520 0.0000172709274948416 -0.00113336595664109
0.0454661343704326 -1.138536354368660 17.34989300307600 -
146.9199722947070 528.7883109465540
-0.00000000003508718158417060 0.000000010821734507197800000
-0.0000014561447524457000 0.0001121394252697340 -0.00544471830155742
0.1727836184680380 -3.582741239557160 46.79409137265480 -
349.1752107088000 1134.2056385207600];
```

```
elseif varijanta == 7
```

```
ff = 4;
```

```
Koeff = [-0.0000000007491715910670530 0.0000002091199311599920 -
0.00002490561744261790 0.001649271355949260 -0.06625528487281190
1.649038275173740 -24.76603550373240 204.7071071755390 -
711.4458471321500
-0.0000000010552420263987900 0.0000002881296126501090 -
0.00003363538470894380 0.002190419745732360 -0.08695421372091220
2.152897424241530 -32.44390700103780 271.9556476709870 -
971.1233567020060
0.0000000017005212852224300 -0.0000004660035178201750
0.00005456116608651340 -0.003559792726267500 0.14134330099473000 -
3.491969172977950 52.34569984559540 -434.7882844670870 1531.6580309777400
0.0000000010922471894073500 -0.0000002985640906956940
0.00003484597422847180 -0.002264894468442660 0.08954685687252240 -
2.202463228792380 32.87429142040740 -272.0556032536690 955.2517556144620
-0.0000000003930166973677600 0.0000001056755859092100 -
0.00001215839446054350 0.000781681754508763 -0.03071670486874540
0.755595348162435 -11.36437220232550 95.5397852324739 -
343.5058680103350
-0.0000000001214833445735680 0.0000000344915483728896 -
0.00000418797866792135 0.000283674943609533 -0.01171069210109040
0.301412052180571 -4.71924013416871 41.0566979362727 -
151.8625503481100
0.0000000002905762450021240 -0.0000000794415646938760
0.00000928872584457214 -0.000606074541814293 0.02411168834328690 -
0.598292940602111 9.03356140457960 -75.8188885722162 270.7354853335900
0.0000000000898237887908671 -0.0000000233314630185466
0.00000258067289746543 -0.000158815832950063 0.00595434699964155 -
0.139534434253989 2.00068577224751 -16.0831758472293 55.5696823478691
-0.0000000005325251158750800 0.0000001453112760685980 -
0.00001692065356855950 0.001096531963795250 -0.04318969609679080
1.057265931630640 -15.68971110071670 128.9466149671200 -
449.3476014531690
-0.0000000001453056302934750 0.0000000401292250758960 -
0.00000472232655328813 0.000308559341052150 -0.01221380495566130
0.299163515371805 -4.41793426917184 35.9051675777457 -
121.9609013937540];
```

```
end
```

```

if varijanta <= 3
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq);
elseif varijanta > 3
    a0 = polyval(Koeff(1,:),nq);
    a1 = polyval(Koeff(2,:),nq);
    b1 = polyval(Koeff(3,:),nq);
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq);
        b2 = polyval(Koeff(5,:),nq);
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq);
            b3 = polyval(Koeff(7,:),nq);
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq);
                b4 = polyval(Koeff(9,:),nq);
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq);
                    b5 = polyval(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq);
                        b6 = polyval(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = polyval(Koeff(14,:),nq);

```


jedWm.m

```
function FB = jedWm(nq,ThetaD,varijanta)
    %% obrada koeficijenata
    % ff - jednacina furiera
    ff = 2;
    if varijanta == 1

        Koeff = [0.2550536698126430 25.6186085901353 0.963267711627744
0.337927288514508 29.637663415084500 0.981293292472372 28966.07550917390
65.2509909609433 2.950351977592590 0.185993555581020 47.9268600950130
10.89020139569180 -2.407235575701770 54.4146992436426 2.260359124540420
-16620771727066.700 -4276.11273885084 805.599265318033 -
1109258261.09874 33.423922310980700 0.516355342831691 -
1.4553184642107200 29.6434273874913 0.628339785251443 1.315730559665290
68.9333960383609 25.364244941314900 7.696586293536820 0.579956382013546
55.0333295151463
324.12069894061200 29.5305502765131 0.289320739965899
0.851923564873571 72.185467156661800 24.553017487914800
0.2390879654207820 42.9992939636545 1.374890393223450 50.9868054813579
36.6261473513520 0.300523766914872 752.53901374966 -1196.893315916210
458.209590154823
0.7969616045235030 30.5481737462861 0.323116981487847
0.216205675422239 37.812036149190800 2.998374370756010
0.8786364970989780 26.5875750425643 0.285662853532393 0.269509239517786
49.8968970919004 8.755147692392940 0.241373123080481 17.1299699732532
8.327848676217870
15609923231.145100 33.4088970423167 0.493221992181572
0.339811595529765 17.156363734307600 9.158788121298710
0.2970961874516290 39.1121374566248 3.812809161841930 0.180831886464536
27.4815736160715 3.148470805194080 0.296441327664035 48.7546142263852
6.731023198418530
0.0919924360474903 28.1156484740068 6.426286057995100
0.292910452594169 9.913508345404570 14.563949274160200
0.0709808075667553 42.4620025926456 8.149659108637010 0.938585093478700
59.5435118000423 85.9380912870727 0.258296343141102 34.5462796697432
0.881787048543951];

        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2); % gauss 5

    elseif varijanta == 2

        Koeff = [0.2565340720957820 25.6190131658440 0.96484041817702
0.337554045255185 29.64017983253620 0.993738454543427 6780.105336248370
62.82816172127180 2.08283834103938 0.1616247773253950 45.5723867370634
9.27704032333352
-0.3100589044418280 25.4140487351679 1.16073952528412 -
0.586466836958781 31.24387084830800 4.686691909238580 -0.689118271729782
15.29679545017730 7.02390267918711 -0.8437096316550170 49.5825278216519
19.33923546847640
0.5840877456326120 30.3360080363224 5.36367655198547
108489741386884.00 949.80157258851400 157.090639472185000 0.464910905673951
42.33396678859710 8.81291764030294 0.6778739307366020 16.5739817924808
8.85392533399651
```

```

0.4789170184810000 30.4766951062495 0.41602004860087
0.210129349908645 37.92996540846660 2.963816417541680 0.234552442063483
16.72048667075920 11.78352371078880 0.2705319174861940 49.9406202391671
8.62217289280991
0.1814128688279530 40.0671301335334 7.67279200097386
0.363099490980210 7.49261833332073 30.091218205065800 0.068035782523532
51.70049384794580 4.24714421064911 0.1451378767477920 50.2963385279459
4.53382541975554
0.0938567377090819 28.2172498839754 8.47530755567248
13990856363678.50 -2854.41429239682000 520.586129016091000
0.595661587390582 64.00343615978220 34.61157020854780
0.0658942084280693 42.9262124546354 7.64207254916681];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2); % gauss 4

```

```

elseif varijanta == 3

```

```

Koeff = [0.000000001588890538391660 -0.0000003723117619424390
0.0000361422316558991 -0.001879364783403500 0.05641884501931590 -
0.9769263981065590 9.047712009035270 -34.666264303019000
-0.000000005684378149240630 0.0000013892024063298300 -
0.0001412588614686960 0.007725561947790710 -0.24470767032302400
4.4760105970231800 -43.672315511169600 174.519303665407000
0.000000005171184954836380 -0.0000012584894288055900
0.0001275738899707780 -0.006966559417897400 0.22080363358228700 -
4.0525365367820300 39.807951121075600 -160.624767567671000
-0.000000000617386024430864 0.0000001288300696868020 -
0.0000108068313108032 0.000465041564602690 -0.01081710278781060
0.1300433475802940 -0.671498532271456 0.864664277333494
-0.000000001150232150863960 0.0000002724498733260970 -
0.0000268503891151348 0.001424304326770460 -0.04385349511440470
0.7833281383274020 -7.526171798354300 30.394030483031300
0.000000000237800574036084 -0.0000000526584190793892
0.0000047464956991714 -0.000223461047310198 0.00584470233506904 -
0.0827567012675461 0.556205464096055 -0.190662750191647];

```

```

elseif varijanta == 4

```

```

Koeff = [-0.0000000006840884836399160 0.00000002033163725719810 -
0.000002567631155366350 0.000179570915438446 -0.007590747230637750
0.1982381601756740 -3.119852248198430 27.05342651952840 -99.0588045403801
-0.00000000040377961670024300 0.00000010494369507546700 -
0.000011568554439610600 0.000705321374079300 -0.025985571487810600
0.5923733518557350 -8.172496124873870 62.60546400655040 -
205.5542663092460
0.00000000050022893093365100 -0.00000013188219890021500
0.000014794437926265900 -0.000921225773664998 0.034797025323916800 -
0.8162277754127460 11.617271283441200 -91.85600077612810 310.2355426650230
0.00000000024881599502151600 -0.00000006878832130251460
0.000008113624322572120 -0.000532484238887428 0.021238426010244700 -
0.5266409305167510 7.924272316416050 -66.16170746138060 235.0725826112420
-0.00000000010541975058365400 0.00000002773281049058800 -
0.000003110592356459330 0.000194176808864644 -0.007377079229240390
0.1746936254601530 -2.518974327501390 20.22108573021130 -68.8364885751104

```

```

-0.000000000000612377653155314 0.00000000191560096445476 -
0.000000249177520075123 0.000017585846582828 -0.000734728677582416
0.0185399868579404 -0.274585672858887 2.16802870900847 -
5.9549101557933];

```

```
elseif varijanta == 5
```

```

Koeff = [0.000000000011680825665761900 -0.0000000036059735381334700
0.00000048710546843449600 -0.000037764389345331000
0.001849995311944690000 -0.059307127211933400 1.24220734128243000 -
16.364129806873900 122.84280925203100 -399.932227420309
-0.000000000008286958410112770 0.0000000021059446353916400 -
0.00000022620886526139200 0.000013401775540240400 -0.000479760733857257000
0.010704599425104200 -0.14827028363717600 1.223652782979380 -
5.35228604771694 7.90029710565952
-0.000000000043548432865377100 0.0000000136889711318116000 -
0.00000187210754186201000 0.000146014927381898000 -0.007148898950970430000
0.227605938501780000 -4.70835176538847000 60.994562633398300 -
448.97780213128700 1431.95128707579
-0.000000000019500134886293700 0.0000000061544763133041900 -
0.00000084802712938707700 0.000066871588176315400 -0.003321114253612500000
0.107574479152904000 -2.26945778527578000 30.034455812136700 -
226.07385214071800 737.354912413844
0.000000000012792679350824100 -0.0000000039797118643547200
0.00000053893707999339800 -0.000041657597046220100
0.002023602595716880000 -0.064016146126722200 1.31803429062862000 -
17.023924653370700 125.12829808155000 -398.348916411191
-0.000000000000116173506560012 0.000000000290596348520913 -
0.00000000272677229678402 0.000000100877427722979 0.000000972375484845918 -
0.000220375207931837 0.00815702558494035 -0.142862607203483
1.21534019161962 -2.96252574948479];

```

```
elseif varijanta == 6
```

```

Koeff = [0.2396989599392460 25.6152513832965 0.921235726763537
0.356686480636697 29.6181439335044 0.863734999340850 0.177838213610671
54.50312851955850 19.06095070390450
-161604085071244.00 -1348.64837068958 237.118925186141000 -
0.431556584079404 31.5813678777715 4.979020168320690 -0.732700395540283
51.37050333406420 15.82124676270580
397.8922912225740 61.7661994698937 2.035702378740950
0.0000000000000000 124.4074888973250 7.597395711925160
26.516151737300700 1115.66434507875000 572.44162899584500
1067684.0290807000 30.3755017996734 0.134329574271467 -
29282515.95866490 29.8365501392376 0.243334753472403 0.202057948914174
23.56465837532410 83.95311922599840
-4.1467342213550000 27.4518852445997 14.438662577382400
4.390855444171340 27.3740653678572 15.381516045760300 0.267119335754774
52.08208840300900 2.63767879223153
0.0757698656680684 26.2601890811220 6.898666253721750
0.971459766358391 45.8125229368510 54.950393330768900 0.419411152377490
6.00706284706127 13.56218462897350];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2); % gauss3

```

```

elseif varijanta == 7

    Koeff = [0.00000001667646610748540  -0.000003612804128723200
0.000315826181509237  -0.01420006601425680  0.344661600855802  -
4.25705497946271  20.86120312692360
-0.00000000243290800565087  0.000000967837775954358  -
0.000127902625673005  0.00793691727028947  -0.252072151343157
3.92651204989357  -24.13448331084370
0.00000000750720462958153  -0.000001812394333393670
0.000177883963489826  -0.00903186574287275  0.248688633617358  -
3.49359119179948  20.09429218921680
-0.00000002231684060267700  0.000004640553453036450  -
0.000387931116614583  0.01662287981585140  -0.383478472141252
4.49825797298139  -20.71132320249870
-0.00000000914709978171369  0.000001929139249688860  -
0.000164841787528002  0.00726905862181974  -0.173397935542602
2.10543615712011  -9.80350153749406
0.0000000055932574850391  -0.000001203423506701000
0.000105081202115758  -0.00472444461105914  0.115038160743676  -
1.43504638795362  8.11983020733536];

end

if varijanta <= 2 || varijanta == 6
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
end

```

```

end
w = GASS(Koeff(end,:),nq);
else
a0 = polyval(Koeff(1,:),nq);
a1 = polyval(Koeff(2,:),nq);
b1 = polyval(Koeff(3,:),nq);
if ff >= 2
a2 = polyval(Koeff(4,:),nq);
b2 = polyval(Koeff(5,:),nq);
if ff >= 3
a3 = polyval(Koeff(6,:),nq);
b3 = polyval(Koeff(7,:),nq);
if ff >= 4
a4 = polyval(Koeff(8,:),nq);
b4 = polyval(Koeff(9,:),nq);
if ff >= 5
a5 = polyval(Koeff(10,:),nq);
b5 = polyval(Koeff(11,:),nq);
if ff >= 6
a6 = polyval(Koeff(12,:),nq);
b6 = polyval(Koeff(13,:),nq);
if ff >= 7
a7 = polyval(Koeff(14,:),nq);
b7 = polyval(Koeff(15,:),nq);
if ff == 8
a8 = polyval(Koeff(16,:),nq);
b8 = polyval(Koeff(17,:),nq);
end
end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wm
if ff == 1
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);

```



```

elseif ff == 6
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
elseif ff == 7
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
end

end

```

PARAB.m

```

%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

```

```

    nq2 = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95
35.89 37.4 38 41.6 43.83 50 56];
    nqC = find(nq2 == nq);
    data_im = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42
-0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
    -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
    -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
    -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
    -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27   -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544

```

-0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008
 -0.19 -0.311 -0.1943 -0.2412 -1.063 -0.0839 -0.205 -0.0669 -
 0.2953 -0.0887 -0.19 -0.113 -0.228 -0.1468 -0.2671 -0.1816 -0.2519 -
 0.1122 -0.19 -0.311 -0.19 -0.311 -0.2187 -0.3009 -0.4577 -0.4055 -0.53
 -0.191 -0.342 -0.1465 -0.2203 -0.2552 -0.238 -0.2922 -0.1946 -0.205 -
 0.3299 -0.2808
 -0.17 -0.287 -0.1749 -0.2168 -1.045 -0.0584 -0.187 -0.0414 -
 0.2755 -0.048 -0.17 -0.095 -0.2082 -0.126 -0.2475 -0.1578 -0.231 -0.091
 -0.17 -0.287 -0.17 -0.287 -0.1975 -0.2764 -0.4267 -0.3862 -0.496 -
 0.161 -0.3187 -0.1177 -0.2025 -0.2291 -0.2222 -0.2707 -0.1812 -0.1791 -
 0.3077 -0.2581
 -0.151 -0.263 -0.1561 -0.1923 -1.027 -0.0329 -0.169 -0.0159 -
 0.255 -0.018 -0.151 -0.0774 -0.1891 -0.1043 -0.2283 -0.1319 -0.2102 -
 0.0581 -0.151 -0.263 -0.151 -0.263 -0.1773 -0.2519 -0.3966 -0.3669 -0.463
 -0.131 -0.2993 -0.0872 -0.188 -0.2014 -0.2064 -0.2472 -0.1676 -0.1473 -
 0.2873 -0.2314
 -0.13 -0.24 -0.1357 -0.1685 -1.008 -0.007 -0.15 0.01 -
 0.2346 0.009 -0.13 -0.06 -0.1693 -0.0814 -0.2096 -0.1034 -0.1893 -
 0.0279 -0.13 -0.24 -0.13 -0.24 -0.1553 -0.2282 -0.3662 -0.3502 -0.43
 -0.1 -0.2786 -0.0555 -0.1743 -0.1617 -0.1907 -0.2211 -0.154 -0.1178 -
 0.2698 -0.1989

-0.108 -0.217 -0.1146 -0.1445 -0.989 0.0196 -0.131 0.0366 -
 0.2135 0.0391 -0.108 -0.0426 -0.1492 -0.0572 -0.1915 -0.0722 -0.1684 0.0005
 -0.108 -0.217 -0.108 -0.217 -0.1325 -0.2045 -0.3363 -0.3338 -0.398 -
 0.0686 -0.2582 -0.0269 -0.1598 -0.1182 -0.1749 -0.1924 -0.1404 -0.0915 -
 0.2496 -0.1582
 -0.0862 -0.193 -0.0936 -0.1197 -0.97 0.0465 -0.112 0.0635 -
 0.1954 0.06 -0.0862 -0.0251 -0.1291 -0.0318 -0.1732 -0.0387 -0.1475 0.0245
 -0.0862 -0.193 -0.0862 -0.193 -0.1098 -0.1798 -0.3065 -0.3157 -0.366 -
 0.0371 -0.2372 -0.0017 -0.1445 -0.0806 -0.1591 -0.1611 -0.1266 -0.0677 -
 0.2277 -0.1083
 -0.0637 -0.169 -0.0721 -0.0949 -0.9511 0.073 -0.0931 0.09 -
 0.1749 0.0764 -0.0637 -0.00726 -0.1083 -0.0055 -0.1541 -0.0036 -0.1266
 0.0422 -0.0637 -0.169 -0.0637 -0.169 -0.0865 -0.1553 -0.2765 -0.297 -
 0.334 -0.00643 -0.2157 0.0212 -0.1286 -0.0487 -0.1393 -0.1277 -0.1127 -
 0.0454 -0.2072 -0.0708
 -0.0415 -0.145 -0.0513 -0.0704 -0.9337 0.099 -0.0757 0.116 -
 0.1553 0.0914 -0.0415 0.011 -0.0872 0.0162 -0.1341 0.0216 -0.1058 0.0608
 -0.0415 -0.145 -0.0415 -0.145 -0.0635 -0.1308 -0.2466 -0.2771 -0.302
 0.0228 -0.193 0.0426 -0.1121 -0.0197 -0.1187 -0.0886 -0.0987 -0.0237 -
 0.1874 -0.0495
 -0.02 -0.12 -0.0314 -0.0457 -0.918 0.123 -0.06 0.14 -
 0.1346 0.1063 -0.02 0.03 -0.0661 0.0364 -0.1134 0.043 -0.0849 0.0797
 -0.02 -0.12 -0.02 -0.12 -0.0411 -0.1056 -0.2168 -0.2538 -0.27 0.05
 -0.1723 0.0629 -0.0965 0.0079 -0.0981 -0.0615 -0.0845 -0.003 -0.1677 -
 0.0308
 0.000468 -0.0943 -0.0129 -0.021 -0.9042 0.145 -0.0462 0.162
 -0.115 0.1223 0.000459 0.0497 -0.0453 0.057 -0.0922 0.0645 -0.064
 0.0975 0.000471 -0.0943 0.000459 -0.0944 -0.0197 -0.0801 -0.1873 -
 0.2275 -0.238 0.0746 -0.1549 0.0824 -0.0825 0.0328 -0.0774 -0.0445 -
 0.0701 0.0175 -0.1491 -0.012
 0.0202 -0.0681 0.005 0.0037 -0.891 0.166 -0.033 0.183 -
 0.0936 0.1395 0.0202 0.0699 -0.0258 0.0778 -0.0731 0.086 -0.0431 0.1135
 0.0202 -0.0682 0.0202 -0.0682 0.0012 -0.0542 -0.1571 -0.1983 -0.205
 0.0971 -0.1394 0.1014 -0.0684 0.0539 -0.0568 -0.0249 -0.0556 0.0383 -
 0.1298 0.0086
 0.0398 -0.0418 0.0231 0.0282 -0.8767 0.186 -0.0187 0.203 -
 0.0725 0.1579 0.0397 0.0902 -0.0063 0.0988 -0.0536 0.1077 -0.0223 0.1285
 0.0398 -0.0418 0.0397 -0.0419 0.0219 -0.0284 -0.1262 -0.1678 -0.171 0.118
 -0.1221 0.12 -0.0542 0.0753 -0.0362 0.0003 -0.0408 0.0595 -0.1083
 0.0312
 0.0595 -0.0157 0.042 0.0523 -0.85957 0.205 -0.00157
 0.222 -0.0519 0.177 0.0595 0.11 0.0138 0.1196 -0.0332 0.1294 -
 0.0014 0.1489 0.0595 -0.0157 0.0595 -0.0158 0.0411 -0.0027 -0.0944 -
 0.1377 -0.136 0.139 -0.1027 0.1384 -0.0396 0.0969 -0.0156 0.0292 -
 0.0258 0.0812 -0.0898 0.0559
 0.08 0.01 0.06 0.0758 -0.838 0.223 0.02 0.24 -
 0.0307 0.1943 0.08 0.13 0.0348 0.1405 -0.0116 0.1512 0.0183 0.1705
 0.08 0.01 0.08 0.01 0.0524 0.0227 -0.0617 -0.1081 -0.1 0.16
 -0.0809 0.1567 -0.0245 0.1188 0.005 0.057 -0.0105 0.1033 -0.0665
 0.0822
 0.102 0.0349 0.07 0.0987 -0.8109 0.241 0.0471 0.258 -
 0.0084 0.2096 0.102 0.149 0.0571 0.1609 0.011 0.1731 0.0424 0.1901
 0.102 0.0349 0.102 0.0351 0.0597 0.0475 -0.0278 -0.0806 -0.0628 0.182
 -0.0549 0.1751 -0.0091 0.1411 0.0263 0.0831 0.0051 0.1258 -0.0421
 0.1092

	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	
0.075	0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	
0.2408	0.168	0.107	0.169	0.107	0.0775	0.145	0.073	0.143	
0.0471	0.249	0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	
0.1868	0.0108	0.1665							
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	
0.215	0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	
0.3814	0.27	0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191
0.344	0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	
0.1404	0.2953								
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	
0.2911	0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	
0.4118	0.333	0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285
0.389	0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	
0.2256	0.3524								

	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	
0.317	0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	
0.4226	0.355	0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318
0.402	0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	
0.3653	0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444
0.4	0.38	0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43
0.3652	0.442	0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5
0.4993	0.5	0.5	0.5	0.5	0.5				
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533

0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	
0.7066	0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	
0.5686	0.77	0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74
0.57	0.7249	0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	
0.7374	0.6415								
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	
0.7829	0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	
0.6064	0.881	0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795
0.58	0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	
0.8184	0.6917								
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	

0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	
0.8538	0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299
0.942	0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	
0.871	0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	
0.6296	0.955	0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88
0.573	0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	
0.9201	0.7368								
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	
0.9923	0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	
0.5485	1.15	1.17	1.19	0.502	0.95	0.647	1	0.594	1.02
0.543	0.9925	0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	
1.0508	0.7691								

	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	
1.0109	0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	
0.5382	1.2	1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04
1.0043	0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.534
0.7717									
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
0.6226	1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32
1.3	1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		0.483
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	
1.1321	0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	
0.4584	1.36	1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11
0.488	1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	
1.1592	0.7732								
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	
1.1382	0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	
0.4468	1.36	1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12
0.48	1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	
1.1403	0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355
1.36	1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								

	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	
1.1497	0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378
1.55	1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.36
1.1231	0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	
0.6545									
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	
1.1509	0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712
1.36	1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	
1.1532	0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608
1.6	1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296
0.3765									
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	
1.1559	0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548
1.38	1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36
1.139	0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	
0.6614									
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39

1.64 1.45 0.528 1.1 0.43 1.24 0.535 1.14 0.355 1.1348
0.3331 1.341 0.5309 1.5694 0.6853 1.1795 0.5544 1.3419 0.6804
1.29 0.3 1.19 0.403 0.616 0.358 1.4 0.26 1.1573
0.6974 1.62 0.81 1.1 0.332 1.1189 0.4151 1.1724 0.3576 1.4 1.65
1.45 0.53 1.1 0.414 1.24 0.541 1.14 0.35 1.13 0.3128
1.3461 0.5296 1.5932 0.7005 1.1863 0.5631 1.3609 0.702
1.28 0.285 1.18 0.397 0.614 0.36 1.4 0.248
1.1579 0.6984 1.62 0.812 1.1 0.334 1.12 0.4142 1.1729 0.3602
1.41 1.66 1.45 0.532 1.1 0.399 1.25 0.548 1.14 0.346
1.1262 0.3072 1.3509 0.5287 1.6165 0.7179 1.19 0.5691 1.3827
0.7266
1.28 0.274 1.18 0.39 0.613 0.362 1.4 0.236
1.1584 0.6993 1.62 0.814 1.1 0.337 1.121 0.4132 1.1736 0.3633
1.43 1.67 1.45 0.534 1.1 0.386 1.26 0.555 1.14 0.343
1.1224 0.3036 1.3565 0.5282 1.6398 0.7383 1.1927 0.5742 1.4058
0.7534
1.27 0.264 1.17 0.384 0.611 0.366 1.41 0.226
1.1588 0.7 1.61 0.816 1.1 0.338 1.1218 0.4122 1.1746 0.3664 1.44
1.68 1.45 0.536 1.1 0.376 1.27 0.562 1.14 0.341 1.1188
0.3012 1.3635 0.5292 1.6628 0.7594 1.1949 0.5789 1.4289 0.7807
1.26 0.257 1.17 0.378 0.608 0.37 1.41 0.217
1.1592 0.7007 1.61 0.818 1.1 0.34 1.1225 0.4111 1.1766 0.3698
1.46 1.69 1.44 0.538 1.1 0.368 1.27 0.569 1.14 0.34
1.1154 0.3006 1.3719 0.5377 1.6859 0.7796 1.1968 0.5833 1.4535
0.8102
1.26 0.25 1.16 0.372 0.606 0.374 1.41 0.21
1.1595 0.7012 1.6 0.82 1.1 0.343 1.1231 0.41 1.1796 0.3739 1.47
1.7 1.44 0.54 1.1 0.362 1.28 0.576 1.14 0.34 1.1119
0.3018 1.3807 0.5504 1.709 0.7998 1.1985 0.5877 1.482 0.8441
1.26 0.244 1.16 0.366 0.603 0.379 1.41 0.206
1.1598 0.7017 1.59 0.822 1.1 0.346 1.1236 0.4088 1.1815 0.3779
1.48 1.71 1.44 0.542 1.1 0.358 1.28 0.583 1.14 0.34
1.1084 0.3044 1.3888 0.5621 1.7309 0.8198 1.2004 0.5925 1.5135
0.8811
1.26 0.238 1.15 0.361 0.6 0.384 1.41 0.204
1.1599 0.702 1.59 0.824 1.1 0.349 1.124 0.4076 1.1827 0.3816
1.5 1.71 1.43 0.544 1.1 0.358 1.29 0.589 1.14 0.341
1.1059 0.3076 1.3953 0.5716 1.7507 0.8391 1.2026 0.5979 1.548
0.9205
1.26 0.233 1.14 0.356 0.597 0.388 1.41 0.205
1.16 0.7022 1.58 0.827 1.11 0.354 1.1242 0.4064 1.1834
0.3852 1.51 1.72 1.43 0.547 1.1 0.36 1.29 0.595 1.13
0.343 1.1048 0.3113 1.4004 0.5807 1.769 0.8579 1.2056 0.6042
1.5851 0.962
1.26 0.231 1.14 0.352 0.593 0.392 1.42 0.207
1.1601 0.7022 1.57 0.829 1.11 0.359 1.1243 0.4051 1.1832
0.3887 1.53 1.72 1.42 0.552 1.1 0.365 1.29 0.601 1.13
0.346 1.104 0.3162 1.4046 0.5898 1.7869 0.8772 1.209 0.6113
1.6192 1
1.26 0.23 1.13 0.348 0.589 0.396 1.42 0.21
1.1596 0.7022 1.56 0.83 1.11 0.366 1.1241 0.4032 1.182
0.3921 1.54 1.72 1.42 0.56 1.1 0.374 1.3 0.606 1.13 0.35
1.1035 0.3221 1.4081 0.599 1.8049 0.8982 1.2123 0.6187 1.6487
1.0326

	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	
1.1378	0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	
0.4086	1.62	1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12
1.1046	0.3575	1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	0.38
1.2002									
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	
1.1307	0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118
1.69	1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103
0.3642	1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253	
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	
1.1231	0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151
1.65	1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391
0.3705	1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472	1.1006
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	
1.115	0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184
1.66	1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397
1.0979	0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	
1.2651									
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	
1.0985	0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	
0.4254	1.69	1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11
0.41	1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	
1.8592	1.2904								
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	

0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	
1.075	0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	
0.4385	1.72	1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09
0.438	1.0719	0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	
1.8449	1.2968								
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	
1.0604	0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498
1.74	1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46
1.0598	0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	
1.2929									
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	
0.9975	0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	
0.5221	1.79	1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04

0.564	1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684
1.7374	1.2913							
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406
0.9903	0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796
1.78	1.52	1.39	1.01	1	0.62	1.17	0.726	1.03
1.0112	0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375
1.3025								
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974
1.315								
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123
1.7379	1.3281							
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417
0.968	0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679
0.5705	1.74	1.47	1.39	1.11	0.992	0.667	1.16	0.777
0.642	1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269
1.7379	1.3419							
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561
1.7375	1.3703							
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43
0.9396	0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062
1.69	1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369
1.3837								
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887
1.7349	1.397							
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442
0.9193	0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553
0.6477	1.66	1.41	1.43	1.3	0.972	0.765	1.14	0.858
0.752	0.9842	0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034
1.7315	1.4101							
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221
1.4354								

	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	
0.8915	0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	
0.7115	1.58	1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06
0.828	0.9676	0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	
1.7116	1.4585								
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	
0.8851	0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728
1.55	1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846
0.9629	0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	
1.4696									
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	
0.877	0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	
0.7445	1.52	1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06
0.863	0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	
1.6976	1.4801								
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	
0.847	0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	
0.7938	1.43	1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06
0.92	0.9425	0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	
1.6708	1.5054								
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	
0.8327	0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	
0.8443	1.34	1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05
0.981	0.9268	0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636
1.5246									
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	
0.8287	0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	
0.8616	1.31	1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05
1	0.9218	0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221
1.5268									
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	

0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	
0.8049	0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467
1.14	1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08
0.9008	0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	
1.5154									
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	
0.7922	0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	
0.9809	1.08	1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04
1.1	0.8937	0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754
1.5003									
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	
0.7558	1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442

0.939	1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	
0.736	1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	
1.0912	0.801	1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03
1.21	0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	
1.2689	1.4245								
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	
0.7317	1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976
0.78	0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	
0.7243	1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033
0.74	0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									

	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	
0.6719	1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	
1.0904	0.549	0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913
1.21	0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135
1.382									
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	
0.656	0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	
1.0727	0.514	0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888
1.19	0.7408	1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	
1.1152	1.3697								
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	
0.6385	0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	
1.0506	0.491	0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868
1.17	0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	
1.0851	1.3164								
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									

	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	
0.6102	0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	
1.0298	0.459	0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84
1.13	0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	
1.0311	1.2234								
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	
0.6	0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228
0.447	0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12
0.6762	0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	
1.1977									
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	
0.5885	0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	
1.0115	0.434	0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821
1.1	0.6669	0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894
1.1722									
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	
0.5433	0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946
0.374	0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	
0.531	0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	

0.9257	0.369	0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741
0.981	0.6178	0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	
0.8157	0.9903								
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	
0.5253	0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	
0.9159	0.37	0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733
0.961	0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	
0.7954	0.9668								
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	
0.513	0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	
0.8968	0.376	0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717
0.921	0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	
0.7537	0.9185								
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	
0.4714	0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809
0.38	0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8
0.5492									
0.7307	0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65

0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548

0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.405	0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335
0.2	0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	
0.39	0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	
0.3396	0.353	0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496
0.298	0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	
0.3304	0.206								
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492

0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.26
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	
0.4661	0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	
0.1609	0.379	-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508
0.141	0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	
0.3924	0.0552								
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52

0.1 0.5047 0.1111 0.477 0.0975 0.4633 0.0449 0.5068 0.0943 0.4217
0.0145
0.557 -0.0636 0.484 0.042 -0.544 0.0788 0.787 -0.068
0.5014 0.078 0.69 0.26 0.541 0.135 0.4746 0.022 0.5576 0.1
0.389 -0.22 0.677 0.125 0.523 0.0924 0.49 0.0651 0.524
0.0855 0.5134 0.0989 0.4863 0.0886 0.4706 0.0185 0.5133 0.0815
0.4313 0.0019
0.562 -0.0878 0.494 0.0317 -0.579 0.0592 0.803 -0.0767
0.5094 0.0618 0.695 0.24 0.547 0.12 0.4857 0.0113 0.5644
0.0841 0.392 -0.24 0.682 0.101 0.531 0.0723 0.499 0.0515 0.527
0.0707 0.5217 0.0869 0.4957 0.0776 0.4782 0.0016 0.5207 0.0701
0.4411 -0.0102
0.568 -0.112 0.504 0.0229 -0.612 0.0413 0.819 -0.0864
0.5169 0.0463 0.699 0.22 0.553 0.106 0.497 0.0014 0.5711
0.0667 0.394 -0.26 0.687 0.0778 0.539 0.0505 0.508 0.0384 0.531
0.0562 0.5295 0.0753 0.505 0.0626 0.4863 -0.0078 0.5286 0.0589 0.451
-0.0219
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0.5239 0.0322 0.704 0.2 0.558 0.0938 0.5084 -0.0073 0.5784 0.0499
0.396 -0.28 0.691 0.0542 0.547 0.0301 0.517 0.0256 0.535
0.0424 0.5371 0.0644 0.5141 0.0386 0.4948 -0.0144 0.5368 0.0468 0.461
-0.0336
0.579 -0.16 0.525 0.00764 -0.67 0.0103 0.85 -0.11
0.5306 0.0184 0.708 0.18 0.564 0.082 0.5199 -0.0152 0.5862
0.0388 0.399 -0.3 0.696 0.03 0.555 0.0141 0.526 0.0132 0.54
0.03 0.5446 0.0544 0.5232 0.0087 0.5036 -0.0209 0.5449 0.0326
0.4711 -0.0457
0.585 -0.183 0.537 -9.26E-05 -0.695 -0.00323 0.864 -
0.124 0.5372 0.0048 0.713 0.16 0.569 0.0704 0.5314 -0.0224 0.5943
0.0285 0.4 -0.32 0.7 0.00505 0.563 0.00484 0.534 0.0011 0.546
0.0193 0.5527 0.0448 0.5323 -0.0229 0.5126 -0.0299 0.5531 0.0126
0.4814 -0.058
0.591 -0.205 0.548 -0.00858 -0.72 -0.0158 0.877 -0.14
0.5436 -0.0085 0.717 0.139 0.575 0.0589 0.5431 -0.0294 0.6024 0.013
0.402 -0.34 0.705 -0.0206 0.572 0.000822 0.543 -0.0107 0.552
0.00964 0.5612 0.0356 0.5413 -0.0519 0.522 -0.0483 0.5614 -0.0051
0.4917 -0.0703
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0.0062 0.404 -0.36 0.709 -0.0468 0.581 -5.50E-07 0.551 -0.0222
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0.0172 0.502 -0.0824
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0.0278 0.405 -0.38 0.713 -0.0733 0.59 0.000268 0.559 -0.0334
0.564 -0.00923 0.5807 0.0172 0.5594 -0.0903 0.5391 -0.0852 0.5774 -
0.0276 0.5123 -0.0942
0.608 -0.27 0.583 -0.037 -0.787 -0.0501 0.91 -0.19
0.5617 -0.0465 0.729 0.08 0.595 0.0283 0.5789 -0.0521 0.6265 -
0.0501 0.406 -0.4 0.717 -0.1 0.6 -0.000458 0.568 -0.0444 0.57
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0.5226 -0.1057
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0.5674 -0.0583 0.732 0.0616 0.602 0.019 0.5911 -0.0613 0.6345 -
0.0718 0.407 -0.42 0.721 -0.127 0.611 -0.00338 0.576 -0.0552

0.575 -0.0324 0.5985 0.0009 0.5768 -0.1155 0.5534 -0.1014 0.5931 -
0.0445 0.5328 -0.1168
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0.0915 0.407 -0.44 0.724 -0.153 0.621 -0.00826 0.584 -0.066
0.579 -0.0462 0.6068 -0.0065 0.5853 -0.1269 0.5598 -0.1074 0.6009 -
0.052 0.543 -0.1276
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0.5784 -0.0808 0.738 0.0262 0.616 0.00106 0.6166 -0.0819 0.6505 -
0.1077 0.408 -0.46 0.727 -0.179 0.631 -0.0147 0.592 -0.0767 0.583
-0.0608 0.6146 -0.0135 0.5939 -0.1406 0.5656 -0.1128 0.6085 -0.0596
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0.1189 0.408 -0.48 0.73 -0.205 0.642 -0.0224 0.6 -0.0875 0.587 -
0.0756 0.6236 -0.0208 0.6025 -0.1542 0.571 -0.118 0.6161 -0.0675 0.5613
-0.1451
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0.5888 -0.1013 0.743 -0.01 0.634 -0.0151 0.6425 -0.1062 0.6667 -
0.1255 0.408 -0.5 0.732 -0.23 0.652 -0.0311 0.608 -0.0984 0.59
-0.09 0.6363 -0.0289 0.6108 -0.1674 0.5762 -0.1228 0.6236 -0.0764
0.5686 -0.1503
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0.594 -0.1108 0.744 -0.0291 0.643 -0.0231 0.6552 -0.1202 0.6753 -
0.1343 0.407 -0.52 0.734 -0.254 0.661 -0.041 0.616 -0.109 0.593
-0.104 0.6503 -0.038 0.6187 -0.1795 0.5811 -0.1267 0.631 -0.0865
0.5757 -0.1555
0.637 -0.424 0.646 -0.0918 -0.935 -0.141 0.944 -0.312
0.5994 -0.1198 0.745 -0.0489 0.652 -0.0313 0.6676 -0.1358 0.6844 -
0.145 0.406 -0.54 0.735 -0.278 0.671 -0.0522 0.625 -0.121 0.596
-0.116 0.6628 -0.0494 0.6259 -0.1897 0.5854 -0.1306 0.6384 -0.0976
0.5839 -0.1624
0.64 -0.446 0.653 -0.0976 -0.958 -0.158 0.944 -0.334
0.6048 -0.1285 0.745 -0.0691 0.66 -0.0399 0.6806 -0.1573 0.6942 -
0.1565 0.405 -0.56 0.735 -0.301 0.681 -0.0647 0.633 -0.132 0.598
-0.128 0.6743 -0.0624 0.6325 -0.1994 0.589 -0.1348 0.6458 -0.1092
0.5929 -0.171
0.641 -0.468 0.659 -0.104 -0.982 -0.178 0.943 -0.357
0.6101 -0.1369 0.745 -0.0896 0.669 -0.0485 0.6934 -0.1823 0.7047 -
0.1707 0.404 -0.58 0.735 -0.325 0.692 -0.0784 0.642 -0.144 0.599
-0.14 0.6837 -0.0758 0.639 -0.2098 0.5915 -0.1401 0.6531 -0.121
0.6023 -0.1807
0.642 -0.49 0.665 -0.11 -1.01 -0.199 0.94 -0.38
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-0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
0.5794 -0.7783
      -0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
      -0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
      -0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
      -0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
      -0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
      -0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
      -0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134 -
0.5433 -0.5068];

```

```

FH = data_im(:, (nqC-1)*2+1);
FB = data_im(:, (nqC-1)*2+2);

```

```

DX = 1;
I = fix(X/DX);
R = (X-I*DX)/DX;
if I == 0
    R = R-1;
end
I = I+1;
if I < 2
    I = 2;
end
if J == 1
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1)+R*(FH(I+1)+FH(I-1)-2*FH(I)));
elseif J == 2
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1)+R*(FB(I+1)+FB(I-1)-2*FB(I)));
end
end
end

```

PUMP.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHA == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0
            TH1 = TH1+2*pi;
        end
    end
    M = fix(TH/DTH)+1;
    if M == NPC
        M = NPC-1;
    end
    A1 = FH(M)*M-FH(M+1)*(M-1);
    A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
    A3 = FB(M)*M-FB(M+1)*(M-1);
    A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
    ALPSQ = ALPHA*ALPHA;
    VESQ = VE*VE;
    ALPV = ALPSQ+VESQ;
    F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
end

```

```

F2 = ALPHA-E-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+E+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = PARAB(TH,2,nq);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

PUMPV2.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHA == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0

```

```

        TH1 = TH1+2*pi;
    end
end
M = fix(TH/DTH)+1;
if M == NPC
    M = NPC-1;
end
A1 = FH(M)*M-FH(M+1)*(M-1);
A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
A3 = FB(M)*M-FB(M+1)*(M-1);
A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = jedWm(nq,deg2rad(TH),varijanta);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
        end
end
if JJ > 30
    break
end
end
end

```

data-model.m

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108

```

-0.422 -0.588 -0.4054 -0.532 -1.222 -0.409 -0.364 -0.392 -
 0.5227 -0.344 -0.422 -0.324 -0.4363 -0.3844 -0.451 -0.4464 -0.4815 -
 0.3791 -0.422 -0.588 -0.422 -0.588 -0.4645 -0.5839 -0.818 -0.6258 -0.925
 -0.54 -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
 0.5354 -0.4984
 -0.403 -0.565 -0.3893 -0.507 -1.213 -0.379 -0.355 -0.362 -
 0.4996 -0.3289 -0.403 -0.307 -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
 0.3618 -0.403 -0.565 -0.403 -0.565 -0.444 -0.5597 -0.7856 -0.6146 -0.889
 -0.502 -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
 0.5201 -0.4852
 -0.383 -0.541 -0.3721 -0.4812 -1.203 -0.349 -0.345 -0.332 -
 0.4772 -0.3146 -0.383 -0.289 -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
 0.3391 -0.383 -0.541 -0.383 -0.541 -0.4227 -0.5348 -0.753 -0.5993 -0.853
 -0.467 -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442 -0.3474 -0.3885 -
 0.5025 -0.4708
 -0.362 -0.516 -0.3537 -0.4545 -1.191 -0.318 -0.333 -0.301 -
 0.4558 -0.3006 -0.362 -0.27 -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
 0.3132 -0.362 -0.516 -0.362 -0.516 -0.4003 -0.509 -0.7194 -0.5813 -0.816
 -0.433 -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
 0.4855 -0.4544
 -0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008

	-0.19	-0.311	-0.1943	-0.2412	-1.063	-0.0839	-0.205	-0.0669	-
0.2953	-0.0887	-0.19	-0.113	-0.228	-0.1468	-0.2671	-0.1816	-0.2519	-
0.1122	-0.19	-0.311	-0.19	-0.311	-0.2187	-0.3009	-0.4577	-0.4055	-0.53
-0.191	-0.342	-0.1465	-0.2203	-0.2552	-0.238	-0.2922	-0.1946	-0.205	-
0.3299	-0.2808								
	-0.17	-0.287	-0.1749	-0.2168	-1.045	-0.0584	-0.187	-0.0414	-
0.2755	-0.048	-0.17	-0.095	-0.2082	-0.126	-0.2475	-0.1578	-0.231	-0.091
-0.17	-0.287	-0.17	-0.287	-0.1975	-0.2764	-0.4267	-0.3862	-0.496	-
0.161	-0.3187	-0.1177	-0.2025	-0.2291	-0.2222	-0.2707	-0.1812	-0.1791	-
0.3077	-0.2581								
	-0.151	-0.263	-0.1561	-0.1923	-1.027	-0.0329	-0.169	-0.0159	-
0.255	-0.018	-0.151	-0.0774	-0.1891	-0.1043	-0.2283	-0.1319	-0.2102	-
0.0581	-0.151	-0.263	-0.151	-0.263	-0.1773	-0.2519	-0.3966	-0.3669	-0.463
-0.131	-0.2993	-0.0872	-0.188	-0.2014	-0.2064	-0.2472	-0.1676	-0.1473	-
0.2873	-0.2314								
	-0.13	-0.24	-0.1357	-0.1685	-1.008	-0.007	-0.15	0.01	-
0.2346	0.009	-0.13	-0.06	-0.1693	-0.0814	-0.2096	-0.1034	-0.1893	-
0.0279	-0.13	-0.24	-0.13	-0.24	-0.1553	-0.2282	-0.3662	-0.3502	-0.43
-0.1	-0.2786	-0.0555	-0.1743	-0.1617	-0.1907	-0.2211	-0.154	-0.1178	-
0.2698	-0.1989								
	-0.108	-0.217	-0.1146	-0.1445	-0.989	0.0196	-0.131	0.0366	-
0.2135	0.0391	-0.108	-0.0426	-0.1492	-0.0572	-0.1915	-0.0722	-0.1684	0.0005
-0.108	-0.217	-0.108	-0.217	-0.1325	-0.2045	-0.3363	-0.3338	-0.398	-
0.0686	-0.2582	-0.0269	-0.1598	-0.1182	-0.1749	-0.1924	-0.1404	-0.0915	-
0.2496	-0.1582								
	-0.0862	-0.193	-0.0936	-0.1197	-0.97	0.0465	-0.112	0.0635	-
0.1954	0.06	-0.0862	-0.0251	-0.1291	-0.0318	-0.1732	-0.0387	-0.1475	0.0245
-0.0862	-0.193	-0.0862	-0.193	-0.1098	-0.1798	-0.3065	-0.3157	-0.366	-
0.0371	-0.2372	-0.0017	-0.1445	-0.0806	-0.1591	-0.1611	-0.1266	-0.0677	-
0.2277	-0.1083								
	-0.0637	-0.169	-0.0721	-0.0949	-0.9511	0.073	-0.0931	0.09	-
0.1749	0.0764	-0.0637	-0.00726	-0.1083	-0.0055	-0.1541	-0.0036	-0.1266	
0.0422	-0.0637	-0.169	-0.0637	-0.169	-0.0865	-0.1553	-0.2765	-0.297	-
0.334	-0.00643	-0.2157	0.0212	-0.1286	-0.0487	-0.1393	-0.1277	-0.1127	-
0.0454	-0.2072	-0.0708							
	-0.0415	-0.145	-0.0513	-0.0704	-0.9337	0.099	-0.0757	0.116	-
0.1553	0.0914	-0.0415	0.011	-0.0872	0.0162	-0.1341	0.0216	-0.1058	0.0608
-0.0415	-0.145	-0.0415	-0.145	-0.0635	-0.1308	-0.2466	-0.2771	-0.302	
0.0228	-0.193	0.0426	-0.1121	-0.0197	-0.1187	-0.0886	-0.0987	-0.0237	-
0.1874	-0.0495								
	-0.02	-0.12	-0.0314	-0.0457	-0.918	0.123	-0.06	0.14	-
0.1346	0.1063	-0.02	0.03	-0.0661	0.0364	-0.1134	0.043	-0.0849	0.0797
-0.02	-0.12	-0.02	-0.12	-0.0411	-0.1056	-0.2168	-0.2538	-0.27	0.05
-0.1723	0.0629	-0.0965	0.0079	-0.0981	-0.0615	-0.0845	-0.003	-0.1677	-
0.0308									
	0.000468	-0.0943	-0.0129	-0.021	-0.9042	0.145	-0.0462	0.162	-
0.115	0.1223	0.000459	0.0497	-0.0453	0.057	-0.0922	0.0645	-0.064	
0.0975	0.000471	-0.0943	0.000459	-0.0944	-0.0197	-0.0801	-0.1873	-	
0.2275	-0.238	0.0746	-0.1549	0.0824	-0.0825	0.0328	-0.0774	-0.0445	-
0.0701	0.0175	-0.1491	-0.012						
	0.0202	-0.0681	0.005	0.0037	-0.891	0.166	-0.033	0.183	-
0.0936	0.1395	0.0202	0.0699	-0.0258	0.0778	-0.0731	0.086	-0.0431	0.1135
0.0202	-0.0682	0.0202	-0.0682	0.0012	-0.0542	-0.1571	-0.1983	-0.205	
0.0971	-0.1394	0.1014	-0.0684	0.0539	-0.0568	-0.0249	-0.0556	0.0383	-
0.1298	0.0086								

	0.0398	-0.0418	0.0231	0.0282	-0.8767	0.186	-0.0187	0.203	-
0.0725	0.1579	0.0397	0.0902	-0.0063	0.0988	-0.0536	0.1077	-0.0223	0.1285
0.0398	-0.0418	0.0397	-0.0419	0.0219	-0.0284	-0.1262	-0.1678	-0.171	0.118
-0.1221	0.12	-0.0542	0.0753	-0.0362	0.0003	-0.0408	0.0595	-0.1083	
0.0312									
	0.0595	-0.0157	0.042	0.0523	-0.85957	0.205	-0.00157	0.222	
-0.0519	0.177	0.0595	0.11	0.0138	0.1196	-0.0332	0.1294	-0.0014	
0.1489	0.0595	-0.0157	0.0595	-0.0158	0.0411	-0.0027	-0.0944	-0.1377	-
0.136	0.139	-0.1027	0.1384	-0.0396	0.0969	-0.0156	0.0292	-0.0258	0.0812
-0.0898	0.0559								
	0.08	0.01	0.06	0.0758	-0.838	0.223	0.02	0.24	-
0.0307	0.1943	0.08	0.13	0.0348	0.1405	-0.0116	0.1512	0.0183	0.1705
0.08	0.01	0.08	0.01	0.0524	0.0227	-0.0617	-0.1081	-0.1	0.16
-0.0809	0.1567	-0.0245	0.1188	0.005	0.057	-0.0105	0.1033	-0.0665	
0.0822									
	0.102	0.0349	0.07	0.0987	-0.8109	0.241	0.0471	0.258	-
0.0084	0.2096	0.102	0.149	0.0571	0.1609	0.011	0.1731	0.0424	0.1901
0.102	0.0349	0.102	0.0351	0.0597	0.0475	-0.0278	-0.0806	-0.0628	0.182
-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								

	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405		
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								

	0.5	0.5	0.5	0.5	0.13		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4993	
0.5	0.5	0.5	0.5	0.5															
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508											
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272											
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527										
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092											
0.5295	0.515																		
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516											
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543											
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555										
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186											
0.5534	0.5307																		
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525											
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813											
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584										
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289											
0.5781	0.5457																		
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533											
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536										
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533										
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041											
0.5595																			
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608										
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6										
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622										
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733											
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545											
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596											
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664										
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611											
0.6513	0.5872																		
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549											
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834											
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686										
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722											
0.6734	0.6011																		
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552											
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054											
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706										
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695										
0.6148																			
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556											
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263											
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724										
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946											
0.7164	0.6283																		
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066										
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77										
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249										
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415											
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565											
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662											
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755										

0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94

0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36

1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.55									
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.6									

1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	0.3765
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807	
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441	
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205		
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51

1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	0.35
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
0.3575									
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.69									
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
0.3705									
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69

1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								

	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048	
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79	
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548		
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385		
1.2809										
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975	
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79	
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564		
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374		
1.2913										
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903	
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78	
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112	
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025		
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41		
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074		
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315										
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414		
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07		
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03	
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123		
1.7379	1.3281									
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968	
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74	
1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642		
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379		
1.3419										
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421		
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973	
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562		
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425		
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644		
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04	
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561		
1.7375	1.3703									
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396	
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69	
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71		
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369		
1.3837										
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436		
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587		
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04	
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887		
1.7349	1.397									
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193	
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66	
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842	
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101		
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448		
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663	

1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	

	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939

1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22	
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22	
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	1.22
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									

	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8089	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.20881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549
0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8205	0.848	1.15	0.9	1.16	0.9	1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6176	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408	
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	

0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	

0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		0.7307
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639

0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394		
0.5778	0.6973									
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195		
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058		
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629	
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154		
0.5624	0.6745									
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19		
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117	
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7	0.4968
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522		
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184		
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897		
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612	
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647		
0.5331	0.6296									
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176		
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827		
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604	
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379		
0.5205	0.606									
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168		
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756		
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597	
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71		
0.5091	0.5818									
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159		
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684		
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589	
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812		
0.4977	0.5568									
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15		
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609		
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58	
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523		
0.4856	0.5304									
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142		
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585	
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568	
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732		
0.5026										
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133		
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471		
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559	
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982		
0.4601	0.4744									
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126		
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418		
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548	
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743		
0.4458	0.4461									
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118		
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372		
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538	

0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.405
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	0.2
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									

	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								

	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767		
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644		
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527	
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701		
0.4411	-0.0102									
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864		
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711		
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531	
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451	
-0.0219										
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974		
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499	
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535		
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461	
-0.0336										
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11		
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862		
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54	
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326		
0.4711	-0.0457									
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-		
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943	
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546	
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126		
0.4814	-0.058									
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573	
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407	
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462		
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-	
0.1276										

	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								
	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								

	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467		
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-	
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594	
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718		
0.6482	-0.2387									
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49		
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-	
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59	
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656	
-0.252										
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515		
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-	
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586	
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952		
0.6624	-0.2654									
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541		
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-	
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581	
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179		
0.6681	-0.2794									
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568		
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-	
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575	
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507		
0.6733	-0.294									
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594		
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171	
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-	
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774	
-0.3087										
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429	-
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36	
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27		
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-	
0.3232										
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645		
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-	
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551	
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587		
0.6807	-0.3364									
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644	
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346	
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303		
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-	
0.3506										
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69		
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-	
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528	
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434		
0.6802	-0.3704									
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711		
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-	
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515	-
0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763	
-0.3958										

	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								
	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								

	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								
	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12

-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95		
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-	
1.2562										
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-	
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-	
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234	
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352		
0.0295	-1.2866									
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-	
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-	
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274	
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-	
0.0152	-1.3104									
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-	
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-	
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31	
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-	
0.0504	-1.3297									
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895	-
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815	
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-	
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-	
1.3459										
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-	
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-	
1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372	
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-	
0.1599	-1.36									
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-	
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-	
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398	
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-	
0.1987	-1.3725									
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-	
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-	
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42	
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-	
0.2339	-1.3837									
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037	-
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05	
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-	
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394	
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-	
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-	
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457	
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0.2892	-1.4035									
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-	
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-	
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472	
-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-	
0.3082	-1.4122									
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-	
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-	
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485	

-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-
0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-
0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
-1.31	-0.3969	-1.5769	-0.4352	-1.4786	-0.483	-1.5536	-0.3691	-1.5189	-
0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-
1.3927	-0.0252	-1.63	0.144	-1.64	0.0825	-1.6675	-0.3851	-1.8762	-0.528
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0.4329	-1.4409								
	0.0918	-1.64	0.1044	-1.5142	-2.121	-1.273	0.136	-1.2	-
0.5036	-1.4641	0.172	-1.12	-0.0959	-1.1146	-0.371	-1.5708	-0.4071	-
1.3932	-0.0327	-1.64	0.132	-1.64	0.071	-1.6647	-0.3924	-1.8526	-0.534
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0.4462	-1.44								
	0.08	-1.64	0.0914	-1.5113	-2.137	-1.263	0.12	-1.19	-
0.5267	-1.4656	0.16	-1.13	-0.1163	-1.1224	-0.4	-1.5713	-0.4265	-
1.3927	-0.04	-1.64	0.12	-1.65	0.0596	-1.6729	-0.3996	-1.8468	-0.54
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0.4584	-1.4355								
	0.0682	-1.64	0.0787	-1.5085	-2.152	-1.253	0.105	-1.18	-
0.5519	-1.4657	0.148	-1.12	-0.133	-1.1212	-0.4216	-1.5678	-0.4433	-
1.3913	-0.0473	-1.64	0.108	-1.64	0.0481	-1.6592	-0.4069	-1.8053	-0.546
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	0.0563	-1.64	0.0665	-1.5056	-2.1652	-1.243	0.0918	-1.17	-
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1.3892	-0.0548	-1.64	0.0957	-1.64	0.0364	-1.6556	-0.4142	-1.7738	-0.552
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	0.0444	-1.63	0.0541	-1.4928	-2.1786	-1.223	0.0784	-1.15	-
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-1.47 -0.5648 -1.1008 -0.5963 -1.2856 -0.6249 -1.275 -0.5059 -1.352 -
0.5897 -1.3159
-0.0796 -1.38 -0.0889 -1.2573 -2.369 -1.024 -0.112 -0.951 -
0.6133 -1.0365 -0.00777 -0.919 -0.2632 -0.9385 -0.5255 -1.203 -0.5416 -
1.1518 -0.161 -1.38 -0.0564 -1.38 -0.1091 -1.3846 -0.5096 -1.4194 -0.632
-1.43 -0.5694 -1.0852 -0.5952 -1.2577 -0.6235 -1.2592 -0.5062 -1.3355 -
0.5949 -1.2955
-0.09 -1.35 -0.1014 -1.2356 -2.387 -1.023 -0.13 -0.95 -
0.6124 -1.0158 -0.02 -0.9 -0.2705 -0.919 -0.5277 -1.1771 -0.5443 -
1.1273 -0.17 -1.35 -0.07 -1.35 -0.1222 -1.3546 -0.5188 -1.3894 -0.64

-1.4 -0.5733 -1.0723 -0.5941 -1.2268 -0.6217 -1.2429 -0.5065 -1.3197 -
 0.5994 -1.2731
 -0.101 -1.33 -0.1144 -1.2205 -2.405 -1.02 -0.148 -0.947 -
 0.6136 -0.9952 -0.0324 -0.881 -0.2776 -0.8997 -0.5295 -1.1508 -0.5468 -
 1.1049 -0.18 -1.33 -0.0828 -1.33 -0.1345 -1.3337 -0.527 -1.3615 -0.647
 -1.37 -0.5768 -1.0612 -0.593 -1.1988 -0.6198 -1.2257 -0.5068 -1.3044 -
 0.6031 -1.2491
 -0.113 -1.3 -0.1282 -1.1973 -2.423 -1.014 -0.166 -0.941 -
 0.6151 -0.9746 -0.0449 -0.863 -0.2846 -0.8811 -0.5307 -1.1239 -0.549 -
 1.0635 -0.19 -1.3 -0.095 -1.3 -0.1461 -1.3037 -0.5343 -1.3315 -0.653
 -1.34 -0.5798 -1.0511 -0.592 -1.1758 -0.618 -1.2069 -0.5071 -1.2898 -
 0.6056 -1.2262
 -0.125 -1.28 -0.1419 -1.1811 -2.441 -1.007 -0.184 -0.934 -
 0.6173 -0.9541 -0.0571 -0.845 -0.2911 -0.8628 -0.5315 -1.0961 -0.5508 -
 1.0271 -0.2 -1.28 -0.107 -1.28 -0.1575 -1.2827 -0.5416 -1.3036 -0.659
 -1.31 -0.5824 -1.0416 -0.5909 -1.1561 -0.6164 -1.1864 -0.5073 -1.2756 -
 0.6066 -1.2088
 -0.138 -1.25 -0.1563 -1.1576 -2.459 -1 -0.202 -0.927 -0.6207 -
 0.9336 -0.0689 -0.827 -0.2973 -0.8447 -0.5318 -1.0668 -0.5521 -0.9958 -0.21
 -1.25 -0.118 -1.25 -0.1681 -1.2527 -0.5487 -1.2736 -0.665 -1.28 -
 0.5846 -1.0325 -0.5896 -1.1376 -0.6153 -1.165 -0.5074 -1.2616 -0.6058 -
 1.1913
 -0.15 -1.23 -0.17 -1.1414 -2.477 -0.993 -0.22 -0.92 -
 0.6249 -0.9131 -0.08 -0.81 -0.3027 -0.8271 -0.5315 -1.0364 -0.553 -
 0.9692 -0.22 -1.23 -0.13 -1.23 -0.1794 -1.2318 -0.5552 -1.2457 -0.67
 -1.25 -0.5864 -1.0237 -0.5881 -1.1192 -0.6145 -1.1436 -0.5075 -1.2477 -
 0.6029 -1.1737
 -0.162 -1.21 -0.1834 -1.1254 -2.494 -0.987 -0.237 -0.914 -
 0.6274 -0.8927 -0.0904 -0.793 -0.3076 -0.8098 -0.5307 -1.007 -0.5533 -
 0.9464 -0.228 -1.21 -0.142 -1.21 -0.1908 -1.2109 -0.5616 -1.2179 -0.675
 -1.22 -0.5878 -1.0149 -0.5863 -1.0996 -0.6134 -1.123 -0.5075 -1.2336 -
 0.5984 -1.1559
 -0.174 -1.18 -0.1969 -1.1022 -2.511 -0.981 -0.254 -0.908 -
 0.6264 -0.8724 -0.1 -0.775 -0.3118 -0.7922 -0.5294 -0.9803 -0.5528 -
 0.9258 -0.236 -1.18 -0.154 -1.18 -0.2022 -1.1809 -0.5681 -1.1879 -0.68
 -1.19 -0.5889 -1.0059 -0.5839 -1.0773 -0.6117 -1.1029 -0.5073 -1.2192 -
 0.5931 -1.138
 -0.186 -1.16 -0.21 -1.0859 -2.527 -0.974 -0.27 -0.901 -
 0.6231 -0.8521 -0.11 -0.757 -0.3159 -0.7744 -0.5274 -0.957 -0.5517 -
 0.9064 -0.244 -1.16 -0.166 -1.16 -0.2136 -1.16 -0.5754 -1.16 -0.686
 -1.16 -0.5897 -0.9967 -0.581 -1.0522 -0.609 -1.0794 -0.5071 -1.2042 -
 0.588 -1.1198
 -0.198 -1.13 -0.2229 -1.0619 -2.542 -0.965 -0.285 -0.892 -
 0.6188 -0.8319 -0.12 -0.739 -0.3198 -0.7565 -0.525 -0.9368 -0.5497 -
 0.8875 -0.252 -1.13 -0.178 -1.13 -0.2251 -1.13 -0.5827 -1.13 -0.692
 -1.13 -0.5902 -0.9869 -0.5774 -1.0242 -0.6049 -1.0524 -0.5068 -1.1885 -
 0.5839 -1.1014
 -0.21 -1.11 -0.2357 -1.0442 -2.557 -0.953 -0.3 -0.88 -
 0.6147 -0.8117 -0.13 -0.72 -0.3235 -0.738 -0.5223 -0.9194 -0.547 -
 0.8687 -0.26 -1.11 -0.19 -1.11 -0.2367 -1.1109 -0.5915 -1.1179 -0.7
 -1.1 -0.5903 -0.9762 -0.5732 -0.9953 -0.5999 -1.0267 -0.5063 -1.1715 -
 0.5812 -1.0825
 -0.222 -1.08 -0.2483 -1.0182 -2.571 -0.937 -0.314 -0.864 -
 0.6119 -0.7915 -0.141 -0.7 -0.3277 -0.7187 -0.5194 -0.9037 -0.5441 -
 0.8493 -0.269 -1.08 -0.202 -1.08 -0.2484 -1.0809 -0.6012 -1.0879 -0.709

-1.07 -0.5902 -0.9643 -0.5687 -0.9655 -0.5941 -1.0028 -0.5056 -1.1528 -
0.5796 -1.0632
-0.235 -1.06 -0.2616 -0.9982 -2.585 -0.917 -0.328 -0.844 -
0.6103 -0.7714 -0.153 -0.68 -0.3323 -0.6991 -0.5165 -0.8893 -0.5412 -
0.8289 -0.28 -1.06 -0.213 -1.06 -0.2592 -1.0618 -0.6106 -1.0757 -0.718
-1.04 -0.5898 -0.9503 -0.5639 -0.9338 -0.5882 -0.9809 -0.5048 -1.1321 -
0.5789 -1.0435
-0.247 -1.03 -0.2736 -0.9708 -2.597 -0.896 -0.34 -0.823 -
0.6095 -0.7514 -0.165 -0.66 -0.337 -0.6793 -0.5136 -0.8757 -0.5388 -
0.8075 -0.29 -1.03 -0.225 -1.03 -0.2711 -1.0318 -0.6218 -1.0457 -0.729
-1.01 -0.5892 -0.9335 -0.5596 -0.8991 -0.5824 -0.96 -0.5038 -1.1093 -
0.5789 -1.023
-0.259 -1.01 -0.2853 -0.9502 -2.608 -0.874 -0.351 -0.801 -
0.6091 -0.7313 -0.178 -0.64 -0.3423 -0.6594 -0.511 -0.8628 -0.5372 -
0.7868 -0.3 -1.01 -0.237 -1.01 -0.283 -1.0127 -0.6322 -1.0336 -0.739
-0.98 -0.5884 -0.9134 -0.5557 -0.8604 -0.5773 -0.9379 -0.5026 -1.0845 -
0.5794 -1.002
-0.27 -0.98 -0.2957 -0.9228 -2.617 -0.853 -0.36 -0.78 -
0.6088 -0.7113 -0.19 -0.62 -0.3472 -0.6394 -0.5087 -0.8502 -0.5367 -0.766
-0.31 -0.98 -0.25 -0.98 -0.2958 -0.9827 -0.6437 -1.0036 -0.75 -0.95
-0.5874 -0.8895 -0.5516 -0.8225 -0.573 -0.9105 -0.5012 -1.0582 -0.5801 -
0.9803
-0.28 -0.955 -0.3049 -0.8992 -2.624 -0.833 -0.367 -0.76 -
0.6081 -0.6913 -0.202 -0.601 -0.3524 -0.6199 -0.5068 -0.838 -0.5373 -
0.7454 -0.319 -0.955 -0.264 -0.955 -0.3094 -0.9583 -0.6545 -0.9833 -0.76
-0.919 -0.5862 -0.8623 -0.5472 -0.7902 -0.5699 -0.879 -0.4996 -1.0312 -
0.581 -0.958
-0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
-0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
0.5818 -0.9351
-0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
-0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
0.5825 -0.9119
-0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79
-0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
0.583 -0.8882
-0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
-0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
-0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
0.8643
-0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811
-0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
0.5825 -0.8403
-0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822

-0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
0.5814 -0.81
-0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
-0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
0.5794 -0.7783
-0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
-0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
-0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
-0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134
-0.5433 -0.5068];

Prilozi

Prilog – P23 Kod razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 12 Ovaj primjer je urađen sa – Furijerovom funkcijom 5 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 3 reda – Gausov model od 3 pika za Wm karakteristiku)

Prilog za poglavlje 9.7 Analiza uticaja specifične brzine (nq) na rezultate dobijene proračunom prelaznih procesa na pumpnoj instalaciji (vrijednosti za Wh i Wm karakteristike dobijene modelskim ispitivanjima i iz Univerzalne jednačine iz Varijante 12 – Ovaj primjer je urađen sa – Furijerovom funkcijom 5 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 3 reda – Gausov model od 3 pika za Wm karakteristiku, koriste se u razvijenom numeričkom modelu u programu Matlab za proračun prelaznih procesa).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 12 – Ovaj primjer je urađen sa – Furijerovom funkcijom 5 reda i Polinomom 9 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Gausovom funkcijom 3 reda – Gausov model od 3 pika za Wm karakteristiku) u programu Matlab:

```
Start.m
%% Program namijenjen za pokretanje više nq-ova za analizu trazijenta
clear
close all
clc
nqt = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
```

```

bojaiz =
{'.:r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':.c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k', '--r', '--b', '--g', '--y', '--
m', '--c', '--k', '-.r', '-.b', '-.g', '-.y', '-.m', '-.c', '-.k'};

%% Podaci dobijeni iz modela
run data_model.m

%% Odabir udara
varijanta = listdlg('ListString', ...
    {'1. Wh [f3-g5] <-> Wm [f2-g5]', '2. Wh [f3-g3] <-> Wm [f2-
g4]', '3. Wh [f3-g4] <-> Wm [f2-p7]', '4. Wh [f3-p8] <-> Wm [f2-p8]', '5. Wh
[f4-p9] <-> Wm [f2-p9]', '6. Wh [f5-p9] <-> Wm [f2-g3]', '7. Wh [f4-p8] <-> Wm
[f2-p6]'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi varijante za udar');

jkk = size(data);
Theta = 0:1:360;
ThetaD = deg2rad(Theta);
dataWh = data(:,1:2:jkk(2));
dataWm = data(:,2:2:jkk(2));

%% Pokretanje analize za sve modele
vs = 1:length(nqt);

%% Pokretanje analize za sve modele
for c = vs
    nq = nqt(c);
    fhc = char(bojaiz(c));
    fhf = char(bojafun(c));
    tableiso = ['Uporedni rezultati za nq=', num2str(nq), '.xlsx'];
    leg{c*2-1} = ['model nq=', num2str(nq)]; % legenda za podatke modela
    leg{c*2} = ['funkc. za nq=', num2str(nq)]; % legenda za podatke dobijene
jeddacinom
    run Clprogram.m % pokretanje koda za analizu trazijenta
end

%% Ispis legende na dijagrame
figure(1) % Dijagram za Wh
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(2) % Dijagram za Wm
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
leg([5 6 7 8]) = [];
figure(3) % Dijagram Time-Alpha
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(4) % Dijagram Time-V
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(5) % Dijagram Time-Head (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(6) % Dijagram Time-Head (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(7) % Dijagram Time-Head (spoj cijevi sa strane cijevi 1)

```

```

legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(8) % Dijagram Time-Head (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(9) % Dijagram Time-Discharge (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(10) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(11) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(12) % Dijagram Time-Discharge (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')

Clprogram.m
%% Trazijenti uzrokovani prestankom rada pumpi

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj doseg na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åe se izraÅunati prijelazni uslovi

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci
FB = dataWm(:,c);
FH = dataWh(:,c);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÅuna podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

```

```

disp('=====')
disp([' Wh i Wm od modela za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅunati uslov prolaznog stanja = ',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅnih taÅaka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Diagram za Wh
figure(1)
plot(Theta,FH,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wh'), title('Dijagram za Wh')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100, 100, 1000, 900])
% Diagram za Wm
figure(2)
plot(Theta,FB,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wm'), title('Dijagram za Wm')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100, 100, 1000, 900])

if c ~= 3 && c ~= 4
disp(' ')
Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f      %.1f      %.2f      %.1f      %.3f \n',Table1')

disp('*****')

```



```

%% PRORAČUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % Površina poprečnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I) = L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach faktor
end
trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMP
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARAB(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARAB(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);

```

```

T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljjenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljjenje tabele za ispis -----
--
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
--
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
            Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
            vel = size(Excel);
            Excel = Excel(2:vel(1),:);
            p = size(Excel);
            ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
            TABLEe = array2table(ExcelNew,...

'VariableNames',{'Vrijeme','Alpha','V','Disch_1_1','Disch_N1_1','Pad_1_1','Pa
d_N1_1','Disch_1_2','Disch_N1_2','Pad_1_2','Pad_N1_2'});
            disp(' ')
            disp('
-----
|
-----
|')
            disp('
-----
|
-----
|')
            Cijev No.1
|
Cijev No.2
|')

```

```

disp(TABLEe)

disp('*****')

disp('*****')

disp('Cijev No max. Pritisak min. Pritisak')
fprintf(' %.0f %.2fm %.2fm \n',Table2')
break
end

%% PUMP AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMP.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

```

```

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
    end
    if T > TLAST
        break
    end
    end
    end
    ddd = size(Excel);
    for ks = 1:length(L)
        if ks < 10
            tableiso = ['model nq=', num2str(nq), ' cijev 1 presjek
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
            xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
        elseif ks >= 10
            tableiso = ['model nq=', num2str(nq), ' cijev 2 presjek
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
            xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
        end
    end
    end

    % Dijagram Time-Alpha
    figure(3)

    plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),2), fhc, 'Mar
kerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:len
gth(Excel(:,1)),1))), grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
        title('Dijagram Vrijeme-Alfa')
        xlim([0 TLAST])
        set(gca, 'xTick', 0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-V
    figure(4)

    plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),3), fhc, 'Mar
kerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:len
gth(Excel(:,1)),1))), grid on, hold on

```

```

    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
title('Dijagram Vrijeje-V')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (connection pump and pipe Nu.1)
    figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
    figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
    figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (end of pipe Nu.2)
    figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

```

```

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca,'xTick',0:1:TLAST)
    set(gcf,'Position',[100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of model (during the transient process)
figure(4*(c-1)+13)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);

```

```

for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 700])

% Diagram for Discharge of model (during the transient process)
figure(4*(c-1)+14)
s1 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s1.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 700])
end
run ClprogramV2.m

```

ClprogramV2.m

```

%% Trazijenti uzrokovani prestankom rada pumpi

clear A A1 A2 A3 A4 ALPHA ALPHAe ALSPQ ALPV AN AN1 AR AUNADJ BETA C5 C6 CA CF
CN CP D DALPHA DENOM DT DTH DV
clear ER Excel ExcelNew F F1 F1AL F1V F2 F2AL F2V FB FH G H HMAX HMINHO HP HR
HRES I IP1 IPRINT IspisPodatakaTabela
clear J JJ JM1 JP1 K KK L M MB N N1 NN NN1 NO NP NP1 NPC NPP NR NRLP od p Q
QO QP QR T Table1 Table2 TABLEe TH TH1
clear TLAST TR V VE vel VESQ WR2 Z

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åt se izraÅunati prijelazni uslovi

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe

```

```

QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci dobijeni od Fouriereve jednacine i polinoma

FH = jedWh(nq,ThetaD,varijanta);
FB = jedWm(nq,ThetaD,varijanta);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÅ?una podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od Fourierove jednacine za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅ?unati uslov prolaznog stanja =
',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅ?nih taÅ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

```



```

% Dijagram za Wh
figure(1)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

%Digram za Wm
figure(2)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅ¼ina      PreÅ¼nik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÄUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % Površina popreÄnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach Darcy-
Weisbach faktor trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMPV2
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);

```

```

    TH = rad2deg(TH); % *57.2985
end
Z = jedWh(nq,deg2rad(TH),varijanta);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = jedWm(nq,deg2rad(TH),varijanta);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljenje tabele za ispis -----
        --
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
        --
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
            end
        end
    end
end

```

```

        Table2(I,3) = HMIN(I);
    end
    Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
    vel = size(Excel);
    Excel = Excel(2:vel(1),:);
    p = size(Excel);
    ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
    TABLEe = array2table(ExcelNew,...

'VariableNames',{ 'Vrijeme', 'Alpha', 'V', 'Disch_1_1', 'Disch_N1_1', 'Pad_1_1', 'Pa
d_N1_1', 'Disch_1_2', 'Disch_N1_2', 'Pad_1_2', 'Pad_N1_2'});
    disp(' ')
    disp('

-----
-----')
    disp('          |          Cijev No.1
|          Cijev No.2          |')
    disp(TABLEe)

disp('*****')
disp('*****')

    disp('Cijev No    max. Pritisak    min. Pritisak')
    fprintf('    %.0f          %.2fm          %.2fm \n',Table2')
    break
end

%% PUMPV2 AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMPV2.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION

```

```

    if NP ~= 1
        for I = 1:NP1
            N1 = fix(N(I));
            NN = fix(N(1))+1;
            IP1 = I+1;
            CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
            CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
            HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
            HP(IP1,1) = HP(I,NN);
            QP(I,NN) = CP-CA(I)*HP(I,NN);
            QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
        end
    end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
for I = 1:NP
    NN = N(I)+1;
    for J = 1:NN
        Q(I,J) = QP(I,J);
        H(I,J) = HP(I,J);
    end
    if H(I,1) > HMAX(I)
        HMAX(I) = H(I,1);
    end
    if H(I,1) < HMIN(I)
        HMIN(I) = H(I,1);
    end
end
end
if K == IPRINT
    break
end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 1 presjek
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 2 presjek
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end

```

```

        end
    end

    % Dijagram Time-Alpha
    figure(3)

    plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),2),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
    title('Dijagram Vrijeme-Alfa')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-V
    figure(4)

    plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),3),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
    title('Dijagram Vrijeme-V')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (connection pump and pipe Nu.1)
    figure(5)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
    figure(6)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
        xlim([0 TLAST])
        set(gca, 'xTick',0:1:TLAST)
        set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
    figure(7)

    plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhf),
    grid on, hold on
        xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')

```

```

xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhf),
grid on, hold on

```

```

xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
xlim([0 TLAST])
set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of function (during the transient process)
figure(4*(c-1)+15)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s2 = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za funkciju n_q=', num2str(nq), ' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s2.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])

% Diagram for Discharge of function (during the transient process)
figure(4*(c-1)+16)
s3 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za funkciju n_q=', num2str(nq), ' (tokom procesa
trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s3.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])
end

```

jedWh.m

```

function FH = jedWh(nq,ThetaD,varijanta)

%% obrada koeficijenata
% ff - jednacina furiera
if varijanta == 1
    ff = 3;

```

```

Koeff = [0.715731479330851 29.904965832957600 1.160146567645740
0.521115135250857 24.984627647082200 2.924225219363250 0.669699222908911
48.171790875051100 16.877203146165100 1.093124325893790
16.530859288034800 1.124728037889720 0.000000000000000
123.069952639871000 5.297192353276950
-0.961523123293475 20.821344093580800 6.602453878194210
64.257648057580600 33.955125342916500 9.386353220569020 -
64.928459861354100 33.949656843977400 9.303213895257580 -0.553408365350271
43.537626921051000 2.662769940796440 -0.832693428738023
52.435524425571700 11.860111687227100
1.752508344167960 19.813538033814300 1.338739746534640
423.391777872348000 29.423080141571000 0.233823124130313
14.034992024690400 192.667467724811000 84.128246511778100 -
2.249991305664610 52.979879468544200 2.414940141168370 -0.139425746706312
35.411065094104200 4.635405982702990
-0.228259772514762 17.940643343430100 3.150874761319510
1.622551266692810 19.737858950059500 0.948089552133070
1543.400636295410000 39.201326063337000 9.564845520862440 -
1495.340285273880000 39.202390860318100 9.536202355573940 -
48.504466641276900 39.166154370154600 10.532068185319700
52.774979545222600 19.948207260269500 0.382110550217316
0.263177598029735 36.944649226057900 1.154196394902190 -
0.441810896482947 20.178226600166000 1.910754413463700 -
49.076267398946200 50.575884925920200 12.341447824439800 49.056404431938300
50.553491696140300 12.272979751954900
-0.181804234398022 19.327153282371900 4.958850828789490
0.000000000000000 26.029637164455600 0.002684600837807 -
0.191627659558586 33.994394599288800 8.496759972665970 -0.239544485919972
52.539088076212200 3.537489182415010 -0.007662269518264
41.686968452601200 0.721756412942864
0.171794030111370 54.965027620881700 4.393250547557860
0.122789542611869 42.736325018115600 5.331583584358960 0.125185937307061
21.167598454897700 3.168706724130010 11.350749739153300
27.800622272514600 0.367470386336513 0.084923558027068
35.178568691978200 2.660337169981850
0.683974778070928 28.479136553910500 10.684175903899800
1.059245427535040 51.273284066137800 20.043005489689600 1.540300759195000
16.534305521866800 0.955404836859471 0.081554743811410
39.737742947716300 2.241646592944000 0.413184604032852
21.483285325409600 4.496030498742180];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);

```

```

elseif varijanta == 2

```

```

    ff = 3;

```

```

    Koeff = [0.547307872624346 29.8839532563986 0.793246192203723
2.309685047217230 332.7703121851250 239.007138115351 0.102040658730334
43.9750016600212 1.73890423394828
-0.640843699205076 20.9637652502637 0.804458763664244
0.178200238232620 21.3675216323105 10.513306899753500 -
10.439195981271300 1627.61262058135 958.911327386202
1.696914405871140 19.9667095602136 1.078693182634310
2563039855.449910 29.4645537432429 0.139184491455413 1.055669091064470
174.558135048266 134.204326548231

```



```

-0.340698312375039 25.8630362606411 12.577242648008500 -
89.040274353193300 47.1888824574428 7.037219629716410 88.861378955054300
47.1851558391851 7.0037284373794
10.5212705783009 19.7443505022493 0.555280900913813
0.207955165908923 36.9386083983734 0.865490915538270 -
0.102485396609892 97.7537061085187 109.176933764359
-0.181478865700741 19.3076730512134 4.891681598994380 -
0.190652562739006 34.0378712221283 8.685029036984850 -0.489680873225789
52.7736206038725 2.493916983317
15253182234484.2 84.3913147403198 4.992659747586930
0.114843207641356 42.5555276529245 10.898582871234300 0.119438110316359
21.1098882550937 3.364929063690
0.957616501610985 25.1725505727929 23.954052282718500
0.840879738870500 57.5954963477624 19.356757711087200 0.429351737084564
16.5531614483509 0.912340659718];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);

elseif varijanta == 3
ff = 3;
Koeff = [0.541944061628251 29.9112840097684 0.609750024000405
367254.1154988030 1015.46632507675000 268.780244089738000 -
3.248115803823190 47.7527080555991 7.827871488938230 3.067613744326430
47.2745171219860 6.891644922616810
3558.27595727144 39.7803874584052 0.563866270550681 -
0.655122677605182 20.95809611855700 0.861535581007935 0.252438714671051
21.9706860056295 9.098398307081290 -219.142591015502000
5061.2938487694700 2096.985480589480000
1.753257619552930 19.7830735192274 1.646973739848750
0.355840125132201 27.87904920014190 4.399464526021200 0.394297739432654
42.6492408057384 6.113929831752710 57896858542275.2 824.9561617359720
135.150482547991000
0.618074311043399 20.9226089916430 0.746923433999019 -
0.458971083290531 22.67025888312530 9.181967353715210 -0.345830048302581
38.8447829814503 5.582997567637060 -0.346484063699974 54.5007057843973
12.019061272874800
17.203169456107400 19.9690362476728 0.396904337894192
0.215222047721478 36.91309306257100 0.867897634939713
10.307109676216700 68.7429160784018 24.928074260382400 -
11.451540447036400 71.7431334141354 26.729143588279700
-0.470905359789293 19.4695226030676 1.502145727627460 -
10772207070505.6 -8.57928427228217 4.288602187187170 -0.179943541469161
33.3340542180074 10.491749904664400 -0.436896743949830 52.7842153808616
2.562788678310650
1.861727066250480 82.6985044398997 17.083425428977600
0.118891597708152 40.96725307422590 6.788150256519830 0.125236941932015
21.1702636510723 3.150101855672350 70.626163963485500 27.7996969197635
0.311483670611709
0.947005281756741 24.7563868076686 24.717484926063400
0.859059033541582 59.50554823472470 21.118815767490900 0.373618340978890
16.5470804169307 0.943324093728692 0.138683979457977 39.7531160229800
1.300939985544000];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);

```

```

elseif varijanta == 4
    ff = 3;
    Koeff = [-0.000000000719419155449666    0.0000002001394994474110    -
0.000023764960141    0.001569835734795    -0.0629469913535133    1.5648923022590600
-23.49247414158300    194.2309419847820    -675.488282721413
    -0.000000001523016309455770    0.0000004174874484811200    -
0.000048925444901    0.003197857344233    -0.1273605203951220    3.1614422875066100
-47.71855216007930    400.1219953806810    -1426.944971356050
    0.000000001522718068577850    -0.0000004154618973418480
0.000048438943916    -0.003147986716868    0.1245587951729840    -
3.0683940191356800    45.89313605637810    -380.5847947191610    1339.261581398480
    0.000000001110692155909410    -0.0000003026294716142210
0.000035209457530    -0.002281832835106    0.0899894602976154    -
2.2091496314307000    32.93945956558710    -272.5966545465320    958.297581351687
    0.00000000192612735161932    -0.0000000554425448082238
0.000006805925116    -0.000464329017993    0.0192103854214338    -
0.4923109589792610    7.61341706522743    -64.8226372153901    232.338425397081
    -0.000000000208891289028475    0.0000000582810601414563    -
0.000006936942087    0.000459275162479    -0.0184691388695222    0.4612827535088290
-6.98004516655937    58.4680159026686    -207.691669186717
    0.000000000138464448665096    -0.0000000386868107512570
0.000004628910294    -0.000309251125959    0.0125921729738134    -
0.3192838510771930    4.91194626223695    -41.8338962620285    150.852627955751
    -0.000000000136873279061494    0.0000000374362153743245    -
0.000004373515728    0.000284635370486    -0.0112700102873447    0.2775625886048120
-4.14612160321041    34.3004656268043    -119.239865644071];
elseif varijanta == 5
    ff = 4;
    Koeff = [0.0000000001483124577611510    -0.000000045665937634766600
0.0000061357877970046800    -0.0004718019124193200    0.022858794966160900    -
0.72290265217385900    14.904405618379200    -192.929777701929
1420.95321736821    -4531.661823027010
    0.000000000149746639175877    -0.000000005590353141930380
0.0000008865274868445490    -0.0000787571629071348    0.004331881715268490    -
0.15325392842910800    3.491252098236360    -49.42289555231910
394.7563686236520    -1356.839102956130
    -0.0000000001561615533164640    0.000000048994403816912600    -
0.0000067063266430236000    0.0005251084191534630    -0.025891781569837900
0.83274221924664700    -17.448846331869500    229.409121150463    -1715.40142142772
5554.050146978870
    -0.0000000001098353663449900    0.000000034356138354869400    -
0.0000046876609075013900    0.0003658027867456140    -0.017971975524956000
0.57583846875931900    -12.018955721533900    157.410871214888    -1172.76778277565
3784.379042484440
    0.000000000429066366325918    -0.000000013387389445635400
0.0000018202543097994200    -0.0001414450183278470    0.006917574426346170    -
0.22068409136372600    4.590359053360550    -60.0139643577423
447.3984941818910    -1448.690295678320
    0.000000000210850648552858    -0.000000006507143318240710
0.0000008770652486108870    -0.0000677216662989428    0.003298958943502670    -
0.10506395814251700    2.185881397049690    -28.6264928632753
213.9661655604780    -694.969331998672
    -0.000000000329196048129478    0.000000010260353632250700    -
0.0000013949316249789700    0.0001084823448101510    -0.005313764954737800

```

```

0.16986189813235100 -3.540469620672820 46.35938029125110 -
345.7782831314710 1118.675045669680
-0.000000000000440744767636384 0.000000000223304346718617 -
0.0000000409439272033431 0.0000039087285884900 -0.000221844837318895
0.00790572650884895 -0.178925823761283 2.50042322174394 -19.6975324318129
66.9223375772029
0.0000000000458451701841957 -0.000000014416839451208000
0.0000019773158226702200 -0.0001550616904532190 0.007652651619037800 -
0.24616732022711200 5.154659912457500 -67.67115282446900
504.9029624675620 -1630.22245311844
0.0000000000101532875002068 -0.000000003220251903217280
0.0000004458615800541910 -0.0000353162944111337 0.001760537106148740 -
0.05716707191022150 1.206609576121150 -15.93021615975910
119.1678726400810 -383.488164180874];

```

```

elseif varijanta == 6

```

```

    ff = 5;

```

```

    Koef = [0.00000000000222752081735310 0.000000000000746043787443621
-0.0000000996979953557631 0.0000159910305085119 -0.00121789304382982
0.0541251324010482 -1.479805955797970 24.54960898214220 -
226.5789008824530 890.0673521014990
-0.00000000009853455894028930 0.000000029878451956899500000
-0.0000039529040602605100 0.0002993908888804500 -0.01430271029464040
0.4468440858784710 -9.127515208869680 117.51306604849600 -
864.9233259684540 2770.6755281101000
0.00000000006537081513489800 -
0.000000020305871676726200000 0.0000027635851293094100 -
0.0002163535500722580 0.01074058682124290 -0.3507198849776120
7.532893564066130 -102.57471636511800 802.5496341138720 -
2741.9375456265100
0.00000000001517519230302730 -
0.000000004960321329257650000 0.0000007154612462950320 -
0.0000597592595735836 0.00318296067274276 -0.1119422123509300
2.593431424771730 -38.04673273729810 319.4800663849460 -
1164.8959434468200
0.00000000024101930392032400 -
0.000000075238124405045100000 0.0000102508513132967000 -
0.0007994551828851060 0.03930161429305600 -1.2620431310661400
26.452038063744100 -348.69706904620800 2621.3372269439900 -
8555.6667189565200
0.00000000007788660088205660 -
0.000000024469978478046000000 0.0000033590198876066700 -
0.0002642302707014880 0.01311594213135450 -0.4256881437796030
9.025483550010260 -120.42925435045800 916.7327929538220 -
3029.9959514784600
-0.00000000003942001698406580 0.000000012217715847756700000
-0.0000016524894036455000 0.0001279340042024160 -0.00624384792629115
0.1990913323318370 -4.144782214762320 54.28923693214120 -
405.6852302594130 1316.8944618435100
0.00000000002457664382015730 -
0.000000008065392363847570000 0.0000011563609185520000 -
0.0000949274326042762 0.00490942641771828 -0.1656095133279460
3.637771032702450 -50.09613392005990 391.9116353377320 -
1325.5420757321700

```

```

0.00000000000949183684374935 -
0.000000002789641097342930000 0.0000003522864135437280 -
0.0000249166136057757 0.00107645967120288 -0.0289579453589674
0.469648850383232 -4.10250314680034 13.0347850621519 21.7580121829851
-0.00000000001809371173010940 0.000000005464185550308950000
-0.0000007221076652398840 0.0000548527943207524 -0.00264173379308249
0.0837145630047144 -1.746333116178210 23.12148877661600 -
176.1485818612130 587.3167315808940
-0.00000000000016802677567676 0.000000000560037280421419000
-0.0000001480108904131520 0.0000172709274948416 -0.00113336595664109
0.0454661343704326 -1.138536354368660 17.34989300307600 -
146.9199722947070 528.7883109465540
-0.00000000003508718158417060 0.000000010821734507197800000
-0.0000014561447524457000 0.0001121394252697340 -0.00544471830155742
0.1727836184680380 -3.582741239557160 46.79409137265480 -
349.1752107088000 1134.2056385207600];

```

```

elseif varijanta == 7
ff = 4;

```

```

Koeff = [-0.0000000007491715910670530 0.0000002091199311599920 -
0.00002490561744261790 0.001649271355949260 -0.06625528487281190
1.649038275173740 -24.76603550373240 204.7071071755390 -
711.4458471321500
-0.0000000010552420263987900 0.0000002881296126501090 -
0.00003363538470894380 0.002190419745732360 -0.08695421372091220
2.152897424241530 -32.44390700103780 271.9556476709870 -
971.1233567020060
0.0000000017005212852224300 -0.0000004660035178201750
0.00005456116608651340 -0.003559792726267500 0.14134330099473000 -
3.491969172977950 52.34569984559540 -434.7882844670870 1531.6580309777400
0.0000000010922471894073500 -0.0000002985640906956940
0.00003484597422847180 -0.002264894468442660 0.08954685687252240 -
2.202463228792380 32.87429142040740 -272.0556032536690 955.2517556144620
-0.0000000003930166973677600 0.0000001056755859092100 -
0.00001215839446054350 0.000781681754508763 -0.03071670486874540
0.755595348162435 -11.36437220232550 95.5397852324739 -
343.5058680103350
-0.0000000001214833445735680 0.0000000344915483728896 -
0.00000418797866792135 0.000283674943609533 -0.01171069210109040
0.301412052180571 -4.71924013416871 41.0566979362727 -
151.8625503481100
0.0000000002905762450021240 -0.0000000794415646938760
0.00000928872584457214 -0.000606074541814293 0.02411168834328690 -
0.598292940602111 9.03356140457960 -75.8188885722162 270.7354853335900
0.0000000000898237887908671 -0.0000000233314630185466
0.00000258067289746543 -0.000158815832950063 0.00595434699964155 -
0.139534434253989 2.00068577224751 -16.0831758472293 55.5696823478691
-0.0000000005325251158750800 0.0000001453112760685980 -
0.00001692065356855950 0.001096531963795250 -0.04318969609679080
1.057265931630640 -15.68971110071670 128.9466149671200 -
449.3476014531690
-0.0000000001453056302934750 0.0000000401292250758960 -
0.00000472232655328813 0.000308559341052150 -0.01221380495566130
0.299163515371805 -4.41793426917184 35.9051675777457 -
121.9609013937540];

```

```

end

if varijanta <= 3
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end

w = GASS(Koeff(end,:),nq);
elseif varijanta > 3
    a0 = polyval(Koeff(1,:),nq);
    a1 = polyval(Koeff(2,:),nq);
    b1 = polyval(Koeff(3,:),nq);
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq);
        b2 = polyval(Koeff(5,:),nq);
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq);
            b3 = polyval(Koeff(7,:),nq);
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq);
                b4 = polyval(Koeff(9,:),nq);
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq);
                    b5 = polyval(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq);
                        b6 = polyval(Koeff(13,:),nq);
                    end
                end
            end
        end
    end
end

```


jedWm.m

```
function FB = jedWm(nq,ThetaD,varijanta)
    %% obrada koeficijenata
    % ff - jednacina furiera
    ff = 2;
    if varijanta == 1

        Koeff = [0.2550536698126430 25.6186085901353 0.963267711627744
0.337927288514508 29.637663415084500 0.981293292472372 28966.07550917390
65.2509909609433 2.950351977592590 0.185993555581020 47.9268600950130
10.89020139569180 -2.407235575701770 54.4146992436426 2.260359124540420
-16620771727066.700 -4276.11273885084 805.599265318033 -
1109258261.09874 33.423922310980700 0.516355342831691 -
1.4553184642107200 29.6434273874913 0.628339785251443 1.315730559665290
68.9333960383609 25.364244941314900 7.696586293536820 0.579956382013546
55.0333295151463 324.12069894061200 29.5305502765131 0.289320739965899
0.851923564873571 72.185467156661800 24.553017487914800
0.2390879654207820 42.9992939636545 1.374890393223450 50.9868054813579
36.6261473513520 0.300523766914872 752.53901374966 -1196.893315916210
458.209590154823 0.7969616045235030 30.5481737462861 0.323116981487847
0.216205675422239 37.812036149190800 2.998374370756010
0.8786364970989780 26.5875750425643 0.285662853532393 0.269509239517786
49.8968970919004 8.755147692392940 0.241373123080481 17.1299699732532
8.327848676217870 15609923231.145100 33.4088970423167 0.493221992181572
0.339811595529765 17.156363734307600 9.158788121298710
0.2970961874516290 39.1121374566248 3.812809161841930 0.180831886464536
27.4815736160715 3.148470805194080 0.296441327664035 48.7546142263852
6.731023198418530 0.0919924360474903 28.1156484740068 6.426286057995100
0.292910452594169 9.913508345404570 14.563949274160200
0.0709808075667553 42.4620025926456 8.149659108637010 0.938585093478700
59.5435118000423 85.9380912870727 0.258296343141102 34.5462796697432
0.881787048543951];
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2); % gauss 5

    elseif varijanta == 2

        Koeff = [0.2565340720957820 25.6190131658440 0.96484041817702
0.337554045255185 29.64017983253620 0.993738454543427 6780.105336248370
62.82816172127180 2.08283834103938 0.1616247773253950 45.5723867370634
9.277040323333352 -0.3100589044418280 25.4140487351679 1.16073952528412 -
0.586466836958781 31.24387084830800 4.686691909238580 -0.689118271729782
15.29679545017730 7.02390267918711 -0.8437096316550170 49.5825278216519
19.33923546847640 0.5840877456326120 30.3360080363224 5.36367655198547
108489741386884.00 949.80157258851400 157.090639472185000 0.464910905673951
```

```

42.33396678859710    8.81291764030294    0.6778739307366020    16.5739817924808
8.85392533399651
    0.4789170184810000    30.4766951062495    0.41602004860087
0.210129349908645    37.92996540846660    2.963816417541680    0.234552442063483
16.72048667075920    11.78352371078880    0.2705319174861940    49.9406202391671
8.62217289280991
    0.1814128688279530    40.0671301335334    7.67279200097386
0.363099490980210    7.49261833332073    30.091218205065800    0.068035782523532
51.70049384794580    4.24714421064911    0.1451378767477920    50.2963385279459
4.53382541975554
    0.0938567377090819    28.2172498839754    8.47530755567248
13990856363678.50    -2854.41429239682000    520.586129016091000
0.595661587390582    64.00343615978220    34.61157020854780
0.0658942084280693    42.9262124546354    7.64207254916681];
    GAUSS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2); % gauss 4

```

```
elseif varijanta == 3
```

```

    Koef = [0.000000001588890538391660 -0.0000003723117619424390
0.0000361422316558991 -0.001879364783403500 0.05641884501931590 -
0.9769263981065590 9.047712009035270 -34.666264303019000
-0.000000005684378149240630 0.0000013892024063298300 -
0.0001412588614686960 0.007725561947790710 -0.24470767032302400
4.4760105970231800 -43.672315511169600 174.519303665407000
0.000000005171184954836380 -0.0000012584894288055900
0.0001275738899707780 -0.006966559417897400 0.22080363358228700 -
4.0525365367820300 39.807951121075600 -160.624767567671000
-0.000000000617386024430864 0.0000001288300696868020 -
0.0000108068313108032 0.000465041564602690 -0.01081710278781060
0.1300433475802940 -0.671498532271456 0.864664277333494
-0.000000001150232150863960 0.0000002724498733260970 -
0.0000268503891151348 0.001424304326770460 -0.04385349511440470
0.7833281383274020 -7.526171798354300 30.394030483031300
0.00000000237800574036084 -0.0000000526584190793892
0.0000047464956991714 -0.000223461047310198 0.00584470233506904 -
0.0827567012675461 0.556205464096055 -0.190662750191647];

```

```
elseif varijanta == 4
```

```

    Koef = [-0.0000000006840884836399160 0.00000002033163725719810 -
0.000002567631155366350 0.000179570915438446 -0.007590747230637750
0.1982381601756740 -3.119852248198430 27.05342651952840 -99.0588045403801
-0.00000000040377961670024300 0.00000010494369507546700 -
0.000011568554439610600 0.000705321374079300 -0.025985571487810600
0.5923733518557350 -8.172496124873870 62.60546400655040 -
205.5542663092460
0.00000000050022893093365100 -0.00000013188219890021500
0.000014794437926265900 -0.000921225773664998 0.034797025323916800 -
0.8162277754127460 11.617271283441200 -91.85600077612810 310.2355426650230
0.00000000024881599502151600 -0.00000006878832130251460
0.000008113624322572120 -0.000532484238887428 0.021238426010244700 -
0.5266409305167510 7.924272316416050 -66.16170746138060 235.0725826112420

```



```
-0.00000000010541975058365400 0.00000002773281049058800 -
0.000003110592356459330 0.000194176808864644 -0.007377079229240390
0.1746936254601530 -2.518974327501390 20.22108573021130 -68.8364885751104
-0.00000000000612377653155314 0.00000000191560096445476 -
0.000000249177520075123 0.000017585846582828 -0.000734728677582416
0.0185399868579404 -0.274585672858887 2.16802870900847 -
5.9549101557933];
```

```
elseif varijanta == 5
```

```
Koeff = [0.000000000011680825665761900 -0.0000000036059735381334700
0.00000048710546843449600 -0.000037764389345331000
0.001849995311944690000 -0.059307127211933400 1.24220734128243000 -
16.364129806873900 122.84280925203100 -399.932227420309
-0.000000000008286958410112770 0.0000000021059446353916400 -
0.00000022620886526139200 0.000013401775540240400 -0.000479760733857257000
0.010704599425104200 -0.14827028363717600 1.223652782979380 -
5.35228604771694 7.90029710565952
-0.000000000043548432865377100 0.0000000136889711318116000 -
0.00000187210754186201000 0.000146014927381898000 -0.007148898950970430000
0.227605938501780000 -4.70835176538847000 60.994562633398300 -
448.97780213128700 1431.95128707579
-0.000000000019500134886293700 0.0000000061544763133041900 -
0.00000084802712938707700 0.000066871588176315400 -0.003321114253612500000
0.107574479152904000 -2.26945778527578000 30.034455812136700 -
226.07385214071800 737.354912413844
0.0000000000012792679350824100 -0.0000000039797118643547200
0.00000053893707999339800 -0.000041657597046220100
0.002023602595716880000 -0.064016146126722200 1.31803429062862000 -
17.023924653370700 125.12829808155000 -398.348916411191
-0.000000000000116173506560012 0.0000000000290596348520913 -
0.00000000272677229678402 0.000000100877427722979 0.000000972375484845918 -
0.000220375207931837 0.00815702558494035 -0.142862607203483
1.21534019161962 -2.96252574948479];
```

```
elseif varijanta == 6
```

```
Koeff = [0.2396989599392460 25.6152513832965 0.921235726763537
0.356686480636697 29.6181439335044 0.863734999340850 0.177838213610671
54.50312851955850 19.06095070390450
-161604085071244.00 -1348.64837068958 237.118925186141000 -
0.431556584079404 31.5813678777715 4.979020168320690 -0.732700395540283
51.37050333406420 15.82124676270580
397.8922912225740 61.7661994698937 2.035702378740950
0.000000000000000 124.4074888973250 7.597395711925160
26.516151737300700 1115.66434507875000 572.44162899584500
1067684.0290807000 30.3755017996734 0.134329574271467 -
29282515.95866490 29.8365501392376 0.243334753472403 0.202057948914174
23.56465837532410 83.95311922599840
-4.1467342213550000 27.4518852445997 14.438662577382400
4.390855444171340 27.3740653678572 15.381516045760300 0.267119335754774
52.08208840300900 2.63767879223153
0.0757698656680684 26.2601890811220 6.898666253721750
0.971459766358391 45.8125229368510 54.950393330768900 0.419411152377490
6.00706284706127 13.56218462897350];
```



```

        end
    end
end
w = GASS(Koeff(end,:),nq);
else
a0 = polyval(Koeff(1,:),nq);
a1 = polyval(Koeff(2,:),nq);
b1 = polyval(Koeff(3,:),nq);
if ff >= 2
    a2 = polyval(Koeff(4,:),nq);
    b2 = polyval(Koeff(5,:),nq);
    if ff >= 3
        a3 = polyval(Koeff(6,:),nq);
        b3 = polyval(Koeff(7,:),nq);
        if ff >= 4
            a4 = polyval(Koeff(8,:),nq);
            b4 = polyval(Koeff(9,:),nq);
            if ff >= 5
                a5 = polyval(Koeff(10,:),nq);
                b5 = polyval(Koeff(11,:),nq);
                if ff >= 6
                    a6 = polyval(Koeff(12,:),nq);
                    b6 = polyval(Koeff(13,:),nq);
                    if ff >= 7
                        a7 = polyval(Koeff(14,:),nq);
                        b7 = polyval(Koeff(15,:),nq);
                        if ff == 8
                            a8 = polyval(Koeff(16,:),nq);
                            b8 = polyval(Koeff(17,:),nq);
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wm
if ff == 1
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +

```

```

a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);
    elseif ff == 6
        FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
    elseif ff == 7
        FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
    elseif ff == 8
        FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
    end
end
end

```

PARAB.m

```

%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

    nq2 = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95
35.89 37.4 38 41.6 43.83 50 56];
    nqC = find(nq2 == nq);
    data_im = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42
-0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
    -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
    -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
    -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
    -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27    -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816

```

-0.433 -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
 0.4855 -0.4544
 -0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008
 -0.19 -0.311 -0.1943 -0.2412 -1.063 -0.0839 -0.205 -0.0669 -
 0.2953 -0.0887 -0.19 -0.113 -0.228 -0.1468 -0.2671 -0.1816 -0.2519 -
 0.1122 -0.19 -0.311 -0.19 -0.311 -0.2187 -0.3009 -0.4577 -0.4055 -0.53
 -0.191 -0.342 -0.1465 -0.2203 -0.2552 -0.238 -0.2922 -0.1946 -0.205 -
 0.3299 -0.2808
 -0.17 -0.287 -0.1749 -0.2168 -1.045 -0.0584 -0.187 -0.0414 -
 0.2755 -0.048 -0.17 -0.095 -0.2082 -0.126 -0.2475 -0.1578 -0.231 -0.091
 -0.17 -0.287 -0.17 -0.287 -0.1975 -0.2764 -0.4267 -0.3862 -0.496 -
 0.161 -0.3187 -0.1177 -0.2025 -0.2291 -0.2222 -0.2707 -0.1812 -0.1791 -
 0.3077 -0.2581
 -0.151 -0.263 -0.1561 -0.1923 -1.027 -0.0329 -0.169 -0.0159 -
 0.255 -0.018 -0.151 -0.0774 -0.1891 -0.1043 -0.2283 -0.1319 -0.2102 -
 0.0581 -0.151 -0.263 -0.151 -0.263 -0.1773 -0.2519 -0.3966 -0.3669 -0.463
 -0.131 -0.2993 -0.0872 -0.188 -0.2014 -0.2064 -0.2472 -0.1676 -0.1473 -
 0.2873 -0.2314
 -0.13 -0.24 -0.1357 -0.1685 -1.008 -0.007 -0.15 0.01 -
 0.2346 0.009 -0.13 -0.06 -0.1693 -0.0814 -0.2096 -0.1034 -0.1893 -
 0.0279 -0.13 -0.24 -0.13 -0.24 -0.1553 -0.2282 -0.3662 -0.3502 -0.43

-0.1 -0.2786 -0.0555 -0.1743 -0.1617 -0.1907 -0.2211 -0.154 -0.1178 -
 0.2698 -0.1989
 -0.108 -0.217 -0.1146 -0.1445 -0.989 0.0196 -0.131 0.0366 -
 0.2135 0.0391 -0.108 -0.0426 -0.1492 -0.0572 -0.1915 -0.0722 -0.1684 0.0005
 -0.108 -0.217 -0.108 -0.217 -0.1325 -0.2045 -0.3363 -0.3338 -0.398 -
 0.0686 -0.2582 -0.0269 -0.1598 -0.1182 -0.1749 -0.1924 -0.1404 -0.0915 -
 0.2496 -0.1582
 -0.0862 -0.193 -0.0936 -0.1197 -0.97 0.0465 -0.112 0.0635 -
 0.1954 0.06 -0.0862 -0.0251 -0.1291 -0.0318 -0.1732 -0.0387 -0.1475 0.0245
 -0.0862 -0.193 -0.0862 -0.193 -0.1098 -0.1798 -0.3065 -0.3157 -0.366 -
 0.0371 -0.2372 -0.0017 -0.1445 -0.0806 -0.1591 -0.1611 -0.1266 -0.0677 -
 0.2277 -0.1083
 -0.0637 -0.169 -0.0721 -0.0949 -0.9511 0.073 -0.0931 0.09 -
 0.1749 0.0764 -0.0637 -0.00726 -0.1083 -0.0055 -0.1541 -0.0036 -0.1266
 0.0422 -0.0637 -0.169 -0.0637 -0.169 -0.0865 -0.1553 -0.2765 -0.297 -
 0.334 -0.00643 -0.2157 0.0212 -0.1286 -0.0487 -0.1393 -0.1277 -0.1127 -
 0.0454 -0.2072 -0.0708
 -0.0415 -0.145 -0.0513 -0.0704 -0.9337 0.099 -0.0757 0.116 -
 0.1553 0.0914 -0.0415 0.011 -0.0872 0.0162 -0.1341 0.0216 -0.1058 0.0608
 -0.0415 -0.145 -0.0415 -0.145 -0.0635 -0.1308 -0.2466 -0.2771 -0.302
 0.0228 -0.193 0.0426 -0.1121 -0.0197 -0.1187 -0.0886 -0.0987 -0.0237 -
 0.1874 -0.0495
 -0.02 -0.12 -0.0314 -0.0457 -0.918 0.123 -0.06 0.14 -
 0.1346 0.1063 -0.02 0.03 -0.0661 0.0364 -0.1134 0.043 -0.0849 0.0797
 -0.02 -0.12 -0.02 -0.12 -0.0411 -0.1056 -0.2168 -0.2538 -0.27 0.05
 -0.1723 0.0629 -0.0965 0.0079 -0.0981 -0.0615 -0.0845 -0.003 -0.1677 -
 0.0308
 0.000468 -0.0943 -0.0129 -0.021 -0.9042 0.145 -0.0462 0.162
 -0.115 0.1223 0.000459 0.0497 -0.0453 0.057 -0.0922 0.0645 -0.064
 0.0975 0.000471 -0.0943 0.000459 -0.0944 -0.0197 -0.0801 -0.1873 -
 0.2275 -0.238 0.0746 -0.1549 0.0824 -0.0825 0.0328 -0.0774 -0.0445 -
 0.0701 0.0175 -0.1491 -0.012
 0.0202 -0.0681 0.005 0.0037 -0.891 0.166 -0.033 0.183 -
 0.0936 0.1395 0.0202 0.0699 -0.0258 0.0778 -0.0731 0.086 -0.0431 0.1135
 0.0202 -0.0682 0.0202 -0.0682 0.0012 -0.0542 -0.1571 -0.1983 -0.205
 0.0971 -0.1394 0.1014 -0.0684 0.0539 -0.0568 -0.0249 -0.0556 0.0383 -
 0.1298 0.0086
 0.0398 -0.0418 0.0231 0.0282 -0.8767 0.186 -0.0187 0.203 -
 0.0725 0.1579 0.0397 0.0902 -0.0063 0.0988 -0.0536 0.1077 -0.0223 0.1285
 0.0398 -0.0418 0.0397 -0.0419 0.0219 -0.0284 -0.1262 -0.1678 -0.171 0.118
 -0.1221 0.12 -0.0542 0.0753 -0.0362 0.0003 -0.0408 0.0595 -0.1083
 0.0312
 0.0595 -0.0157 0.042 0.0523 -0.85957 0.205 -0.00157
 0.222 -0.0519 0.177 0.0595 0.11 0.0138 0.1196 -0.0332 0.1294 -
 0.0014 0.1489 0.0595 -0.0157 0.0595 -0.0158 0.0411 -0.0027 -0.0944 -
 0.1377 -0.136 0.139 -0.1027 0.1384 -0.0396 0.0969 -0.0156 0.0292 -
 0.0258 0.0812 -0.0898 0.0559
 0.08 0.01 0.06 0.0758 -0.838 0.223 0.02 0.24 -
 0.0307 0.1943 0.08 0.13 0.0348 0.1405 -0.0116 0.1512 0.0183 0.1705
 0.08 0.01 0.08 0.01 0.0524 0.0227 -0.0617 -0.1081 -0.1 0.16
 -0.0809 0.1567 -0.0245 0.1188 0.005 0.057 -0.0105 0.1033 -0.0665
 0.0822
 0.102 0.0349 0.07 0.0987 -0.8109 0.241 0.0471 0.258 -
 0.0084 0.2096 0.102 0.149 0.0571 0.1609 0.011 0.1731 0.0424 0.1901
 0.102 0.0349 0.102 0.0351 0.0597 0.0475 -0.0278 -0.0806 -0.0628 0.182

-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	
0.075	0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	
0.2408	0.168	0.107	0.169	0.107	0.0775	0.145	0.073	0.143	
0.0471	0.249	0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	
0.1868	0.0108	0.1665							
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	
0.215	0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	
0.3814	0.27	0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191
0.344	0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	
0.1404	0.2953								
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	
0.2911	0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	
0.4118	0.333	0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285

0.389 0.2836 0.3965 0.2221 0.3796 0.2747 0.3437 0.2233 0.3843
 0.2256 0.3524
 0.356 0.326 0.305 0.437 -0.296 0.451 0.373 0.45
 0.317 0.4491 0.357 0.369 0.3302 0.3969 0.3027 0.4256 0.3105
 0.4226 0.355 0.327 0.357 0.333 0.323 0.43 0.295 0.39 0.318
 0.402 0.3108 0.4125 0.2456 0.4025 0.3023 0.3608 0.2886 0.409 0.253
 0.3725
 0.378 0.353 0.323 0.449 -0.238 0.468 0.392 0.461
 0.3413 0.4689 0.379 0.389 0.3588 0.4122 0.3381 0.4361 0.3359
 0.4335 0.378 0.353 0.379 0.358 0.348 0.445 0.324 0.408 0.35
 0.416 0.3381 0.4276 0.2691 0.4211 0.3298 0.3787 0.3185 0.4264
 0.2845 0.3877
 0.4 0.38 0.347 0.46 -0.178 0.481 0.41 0.47
 0.3653 0.4868 0.4 0.41 0.3862 0.428 0.3721 0.4465 0.3629 0.4444
 0.4 0.38 0.4 0.38 0.374 0.463 0.353 0.426 0.38 0.43
 0.3652 0.442 0.2944 0.4377 0.3574 0.3971 0.3487 0.4422 0.3175 0.405
 0.421 0.408 0.374 0.469 -0.113 0.49 0.427 0.477
 0.3902 0.4958 0.419 0.431 0.368 0.452 0.3989 0.4613 0.3906
 0.4573 0.422 0.407 0.419 0.397 0.399 0.478 0.38 0.442 0.406
 0.445 0.3923 0.4559 0.3201 0.454 0.3843 0.4142 0.3793 0.4562
 0.3521 0.4251
 0.442 0.435 0.404 0.478 -0.0423 0.495 0.444 0.483
 0.4171 0.4976 0.438 0.452 0.388 0.462 0.423 0.477 0.4178
 0.4691 0.443 0.433 0.438 0.41 0.425 0.487 0.408 0.456 0.43
 0.46 0.4189 0.4686 0.3973 0.4741 0.41 0.4356 0.4104 0.4687
 0.3928 0.4482
 0.461 0.461 0.436 0.486 0.0249 0.496 0.462 0.488
 0.4454 0.4989 0.457 0.471 0.43 0.478 0.4479 0.4879 0.4452
 0.4798 0.463 0.458 0.457 0.419 0.451 0.491 0.437 0.47 0.453
 0.474 0.4449 0.4795 0.4298 0.4793 0.4389 0.4608 0.442 0.4802
 0.4292 0.4675
 0.481 0.483 0.468 0.493 0.0819 0.498 0.48 0.494
 0.4735 0.4997 0.477 0.487 0.471 0.491 0.474 0.4942 0.4726
 0.4901 0.482 0.48 0.477 0.425 0.476 0.495 0.468 0.485 0.476
 0.488 0.4719 0.4899 0.4775 0.4886 0.475 0.4824 0.4719 0.4905
 0.4652 0.4846
 0.5 0.5 0.5 0.5 0.13 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
 0.5 0.5 0.5 0.5 0.5 0.5 0.429 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
 0.4993 0.5 0.5 0.5 0.5 0.5
 0.519 0.512 0.53 0.507 0.172 0.504 0.522 0.508
 0.5246 0.479 0.526 0.509 0.526 0.508 0.5251 0.5081 0.5272
 0.5096 0.517 0.516 0.526 0.432 0.523 0.51 0.532 0.513 0.527
 0.51 0.5278 0.5097 0.5239 0.5091 0.533 0.514 0.5258 0.5092
 0.5295 0.515
 0.538 0.519 0.559 0.514 0.208 0.51 0.545 0.516
 0.5476 0.4474 0.554 0.514 0.553 0.515 0.5499 0.5164 0.5543
 0.5187 0.535 0.531 0.555 0.434 0.546 0.524 0.561 0.524 0.555
 0.519 0.554 0.5185 0.5524 0.5175 0.5589 0.531 0.5495 0.5186
 0.5534 0.5307
 0.558 0.523 0.586 0.52 0.241 0.518 0.568 0.525
 0.5688 0.4339 0.583 0.517 0.579 0.522 0.5759 0.5207 0.5813
 0.5275 0.553 0.545 0.586 0.435 0.568 0.542 0.587 0.535 0.584
 0.527 0.5784 0.5264 0.5832 0.5262 0.5763 0.5488 0.5712 0.5289
 0.5781 0.5457

	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	
0.7066	0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	
0.5686	0.77	0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74
0.57	0.7249	0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	
0.7374	0.6415								
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	
0.7829	0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	
0.6064	0.881	0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795
0.58	0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	
0.8184	0.6917								

	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	
0.8538	0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299
0.942	0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	
0.871	0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	
0.6296	0.955	0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88
0.573	0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	
0.9201	0.7368								
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	
0.9923	0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	

0.5485	1.15	1.17	1.19	0.502	0.95	0.647	1	0.594	1.02
0.543	0.9925	0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	
1.0508	0.7691								
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	
1.0109	0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	
0.5382	1.2	1.2	1.21	0.504	0.964	0.626	1.02	0.591	0.534
1.0043	0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	
0.7717									
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
0.6226	1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32
1.3	1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342
0.483									
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	
1.1321	0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	
0.4584	1.36	1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11
0.488	1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	
1.1592	0.7732								
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	
1.1382	0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	
0.4468	1.36	1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12
0.48	1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	
1.1403	0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355
1.36	1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13

0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	
1.1497	0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378
1.55	1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.36
1.1231	0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	
0.6545									
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	
1.1509	0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712
1.36	1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	
1.1532	0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608
1.6	1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296
0.3765									
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	
1.1559	0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548
1.38	1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36
1.139	0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	
0.6614									

	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566	
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39	
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348	
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804		
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573	
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4	1.65
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128	
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702			
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248		
1.1579	0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	
1.41	1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	
1.1262	0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827		
0.7266										
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236		
1.1584	0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	
1.43	1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	
1.1224	0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058		
0.7534										
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226		
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664	1.44
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188	
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807		
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217		
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698	
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34	
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535		
0.8102										
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21		
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739	1.47
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119	
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441		
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206		
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779	
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34	
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135		
0.8811										
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204		
1.1599	0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	
1.5	1.71	1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	
1.1059	0.3076	1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548		
0.9205										
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205		
1.16	0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834		
0.3852	1.51	1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	
0.343	1.1048	0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042		
1.5851	0.962									
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207		
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832		
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13	
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113		
1.6192	1									
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21		
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182		
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13	0.35

1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	
1.1378	0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	
0.4086	1.62	1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12
1.1046	0.3575	1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	0.38
1.2002									
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	
1.1307	0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118
1.69	1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103
0.3642	1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253	1.64
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	
1.1231	0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151
1.65	1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391
0.3705	1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472	1.1006
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	
1.115	0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184
1.66	1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397
1.0979	0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	
1.2651									
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	
1.0985	0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	
0.4254	1.69	1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11
0.41	1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	
1.8592	1.2904								
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								

	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	
1.075	0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	
0.4385	1.72	1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09
0.438	1.0719	0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	
1.8449	1.2968								
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	
1.0604	0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498
1.74	1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46
1.0598	0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	
1.2929									
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									

	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	
0.9975	0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	
0.5221	1.79	1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04
0.564	1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	
1.7374	1.2913								
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	
0.9903	0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324
1.78	1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581
1.0112	0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	
1.3025									
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41	
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074	
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378
1.315									
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414	
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07	
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123	
1.7379	1.3281								
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	
0.968	0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	
0.5705	1.74	1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03
0.642	1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	
1.7379	1.3419								
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421	
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562	
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425	
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644	
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561	
1.7375	1.3703								
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	
0.9396	0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618
1.69	1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369	
1.3837									
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436	
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587	
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887	
1.7349	1.397								
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	
0.9193	0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	
0.6477	1.66	1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05
0.752	0.9842	0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	
1.7315	1.4101								
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792

1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	
0.8915	0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	
0.7115	1.58	1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06
0.828	0.9676	0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	
1.7116	1.4585								
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	
0.8851	0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728
1.55	1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846
0.9629	0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	
1.4696									
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	
0.877	0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	
0.7445	1.52	1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06
0.863	0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	
1.6976	1.4801								
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	
0.847	0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	
0.7938	1.43	1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06
0.92	0.9425	0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	
1.6708	1.5054								
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	
0.8327	0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	
0.8443	1.34	1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05
0.981	0.9268	0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636
1.5246									
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	
0.8287	0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	
0.8616	1.31	1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05

1	0.9218	0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221
1.5268									
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	
0.8049	0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467
1.14	1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08
0.9008	0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	
1.5154									
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	
0.7922	0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	
0.9809	1.08	1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04
1.1	0.8937	0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754
1.5003									
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03

1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	
0.7558	1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442
0.939	1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	
0.736	1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	
1.0912	0.801	1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03
1.21	0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	
1.2689	1.4245								
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	
0.7317	1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976
0.78	0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	
0.7243	1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033
0.74	0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.22
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									

	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	1.22
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	
0.6719	1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	
1.0904	0.549	0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913
1.21	0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135
1.382									
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	
0.656	0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	
1.0727	0.514	0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888
1.19	0.7408	1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	
1.1152	1.3697								
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	
0.6385	0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	
1.0506	0.491	0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868
1.17	0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	
1.0851	1.3164								

	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	
0.6102	0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	
1.0298	0.459	0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84
1.13	0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	
1.0311	1.2234								
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	
0.6	0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228
0.447	0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12
0.6762	0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	
1.1977									
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	
0.5885	0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	
1.0115	0.434	0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821
1.1	0.6669	0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894
1.1722									
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	
0.5433	0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946
0.374	0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	

0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	
0.531	0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	
0.9257	0.369	0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741
0.981	0.6178	0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	
0.8157	0.9903								
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	
0.5253	0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	
0.9159	0.37	0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733
0.961	0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	
0.7954	0.9668								
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	
0.513	0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	
0.8968	0.376	0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717
0.921	0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	
0.7537	0.9185								
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	
0.4714	0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809
0.38	0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8
0.5492									
0.7307	0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66

0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858		
0.6099	0.7441									
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202		
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229		
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65	
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628		
0.5935	0.7206									
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198		
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145		
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639	
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394		
0.5778	0.6973									
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195		
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058		
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629	
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154		
0.5624	0.6745									
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19		
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117	
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7	0.4968
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522		
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184		
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897		
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612	
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647		
0.5331	0.6296									
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176		
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827		
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604	
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379		
0.5205	0.606									
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168		
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756		
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597	
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71		
0.5091	0.5818									
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159		
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684		
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589	
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812		
0.4977	0.5568									
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15		
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609		
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58	
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523		
0.4856	0.5304									
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142		
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585	
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568	
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732		
0.5026										
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133		
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471		
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559	

0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.405	0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335
0.2	0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	
0.39	0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	
0.3396	0.353	0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496

0.298	0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	
0.3304	0.206								
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	
0.4661	0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	
0.1609	0.379	-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508
0.141	0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	
0.3924	0.0552								
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114

0.4958 0.1225 0.4676 0.1054 0.4563 0.0763 0.5013 0.1097 0.412
 0.0278
 0.552 -0.04 0.474 0.0542 -0.505 0.0999 0.77 -0.06
 0.4932 0.0932 0.686 0.28 0.537 0.151 0.4636 0.0332 0.5508
 0.1152 0.387 -0.2 0.673 0.15 0.515 0.109 0.481 0.0792 0.52
 0.1 0.5047 0.1111 0.477 0.0975 0.4633 0.0449 0.5068 0.0943 0.4217
 0.0145
 0.557 -0.0636 0.484 0.042 -0.544 0.0788 0.787 -0.068
 0.5014 0.078 0.69 0.26 0.541 0.135 0.4746 0.022 0.5576 0.1
 0.389 -0.22 0.677 0.125 0.523 0.0924 0.49 0.0651 0.524
 0.0855 0.5134 0.0989 0.4863 0.0886 0.4706 0.0185 0.5133 0.0815
 0.4313 0.0019
 0.562 -0.0878 0.494 0.0317 -0.579 0.0592 0.803 -0.0767
 0.5094 0.0618 0.695 0.24 0.547 0.12 0.4857 0.0113 0.5644
 0.0841 0.392 -0.24 0.682 0.101 0.531 0.0723 0.499 0.0515 0.527
 0.0707 0.5217 0.0869 0.4957 0.0776 0.4782 0.0016 0.5207 0.0701
 0.4411 -0.0102
 0.568 -0.112 0.504 0.0229 -0.612 0.0413 0.819 -0.0864
 0.5169 0.0463 0.699 0.22 0.553 0.106 0.497 0.0014 0.5711
 0.0667 0.394 -0.26 0.687 0.0778 0.539 0.0505 0.508 0.0384 0.531
 0.0562 0.5295 0.0753 0.505 0.0626 0.4863 -0.0078 0.5286 0.0589 0.451
 -0.0219
 0.574 -0.136 0.514 0.0151 -0.642 0.0251 0.835 -0.0974
 0.5239 0.0322 0.704 0.2 0.558 0.0938 0.5084 -0.0073 0.5784 0.0499
 0.396 -0.28 0.691 0.0542 0.547 0.0301 0.517 0.0256 0.535
 0.0424 0.5371 0.0644 0.5141 0.0386 0.4948 -0.0144 0.5368 0.0468 0.461
 -0.0336
 0.579 -0.16 0.525 0.00764 -0.67 0.0103 0.85 -0.11
 0.5306 0.0184 0.708 0.18 0.564 0.082 0.5199 -0.0152 0.5862
 0.0388 0.399 -0.3 0.696 0.03 0.555 0.0141 0.526 0.0132 0.54
 0.03 0.5446 0.0544 0.5232 0.0087 0.5036 -0.0209 0.5449 0.0326
 0.4711 -0.0457
 0.585 -0.183 0.537 -9.26E-05 -0.695 -0.00323 0.864 -
 0.124 0.5372 0.0048 0.713 0.16 0.569 0.0704 0.5314 -0.0224 0.5943
 0.0285 0.4 -0.32 0.7 0.00505 0.563 0.00484 0.534 0.0011 0.546
 0.0193 0.5527 0.0448 0.5323 -0.0229 0.5126 -0.0299 0.5531 0.0126
 0.4814 -0.058
 0.591 -0.205 0.548 -0.00858 -0.72 -0.0158 0.877 -0.14
 0.5436 -0.0085 0.717 0.139 0.575 0.0589 0.5431 -0.0294 0.6024 0.013
 0.402 -0.34 0.705 -0.0206 0.572 0.000822 0.543 -0.0107 0.552
 0.00964 0.5612 0.0356 0.5413 -0.0519 0.522 -0.0483 0.5614 -0.0051
 0.4917 -0.0703
 0.597 -0.227 0.56 -0.0177 -0.743 -0.0276 0.889 -0.157
 0.5498 -0.0215 0.721 0.119 0.582 0.0479 0.5549 -0.0364 0.6104 -
 0.0062 0.404 -0.36 0.709 -0.0468 0.581 -5.50E-07 0.551 -0.0222
 0.558 0.000399 0.5705 0.0264 0.5504 -0.0741 0.5313 -0.0738 0.5694 -
 0.0172 0.502 -0.0824
 0.602 -0.248 0.572 -0.0273 -0.765 -0.039 0.9 -0.174
 0.5558 -0.0342 0.725 0.0992 0.589 0.0379 0.5669 -0.0439 0.6184 -
 0.0278 0.405 -0.38 0.713 -0.0733 0.59 0.000268 0.559 -0.0334
 0.564 -0.00923 0.5807 0.0172 0.5594 -0.0903 0.5391 -0.0852 0.5774 -
 0.0276 0.5123 -0.0942
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 0.5617 -0.0465 0.729 0.08 0.595 0.0283 0.5789 -0.0521 0.6265 -
 0.0501 0.406 -0.4 0.717 -0.1 0.6 -0.000458 0.568 -0.0444 0.57

-0.02 0.59 0.0088 0.5683 -0.104 0.5465 -0.0942 0.5853 -0.0365
 0.5226 -0.1057
 0.613 -0.292 0.594 -0.0466 -0.808 -0.0611 0.918 -0.205
 0.5674 -0.0583 0.732 0.0616 0.602 0.019 0.5911 -0.0613 0.6345 -
 0.0718 0.407 -0.42 0.721 -0.127 0.611 -0.00338 0.576 -0.0552
 0.575 -0.0324 0.5985 0.0009 0.5768 -0.1155 0.5534 -0.1014 0.5931 -
 0.0445 0.5328 -0.1168
 0.618 -0.314 0.604 -0.0559 -0.829 -0.0724 0.926 -0.22
 0.573 -0.0698 0.735 0.0438 0.608 0.00985 0.6037 -0.0713 0.6425 -
 0.0915 0.407 -0.44 0.724 -0.153 0.621 -0.00826 0.584 -0.066
 0.579 -0.0462 0.6068 -0.0065 0.5853 -0.1269 0.5598 -0.1074 0.6009 -
 0.052 0.543 -0.1276
 0.623 -0.336 0.614 -0.0646 -0.85 -0.0842 0.932 -0.236
 0.5784 -0.0808 0.738 0.0262 0.616 0.00106 0.6166 -0.0819 0.6505 -
 0.1077 0.408 -0.46 0.727 -0.179 0.631 -0.0147 0.592 -0.0767 0.583
 -0.0608 0.6146 -0.0135 0.5939 -0.1406 0.5656 -0.1128 0.6085 -0.0596
 0.5528 -0.1378
 0.627 -0.358 0.623 -0.0726 -0.871 -0.0967 0.936 -0.252
 0.5837 -0.0913 0.741 0.00834 0.624 -0.00717 0.6295 -0.0935 0.6586 -
 0.1189 0.408 -0.48 0.73 -0.205 0.642 -0.0224 0.6 -0.0875 0.587 -
 0.0756 0.6236 -0.0208 0.6025 -0.1542 0.571 -0.118 0.6161 -0.0675 0.5613
 -0.1451
 0.631 -0.38 0.631 -0.0796 -0.892 -0.11 0.94 -0.27
 0.5888 -0.1013 0.743 -0.01 0.634 -0.0151 0.6425 -0.1062 0.6667 -
 0.1255 0.408 -0.5 0.732 -0.23 0.652 -0.0311 0.608 -0.0984 0.59
 -0.09 0.6363 -0.0289 0.6108 -0.1674 0.5762 -0.1228 0.6236 -0.0764
 0.5686 -0.1503
 0.635 -0.402 0.639 -0.0859 -0.913 -0.125 0.943 -0.29
 0.594 -0.1108 0.744 -0.0291 0.643 -0.0231 0.6552 -0.1202 0.6753 -
 0.1343 0.407 -0.52 0.734 -0.254 0.661 -0.041 0.616 -0.109 0.593
 -0.104 0.6503 -0.038 0.6187 -0.1795 0.5811 -0.1267 0.631 -0.0865
 0.5757 -0.1555
 0.637 -0.424 0.646 -0.0918 -0.935 -0.141 0.944 -0.312
 0.5994 -0.1198 0.745 -0.0489 0.652 -0.0313 0.6676 -0.1358 0.6844 -
 0.145 0.406 -0.54 0.735 -0.278 0.671 -0.0522 0.625 -0.121 0.596
 -0.116 0.6628 -0.0494 0.6259 -0.1897 0.5854 -0.1306 0.6384 -0.0976
 0.5839 -0.1624
 0.64 -0.446 0.653 -0.0976 -0.958 -0.158 0.944 -0.334
 0.6048 -0.1285 0.745 -0.0691 0.66 -0.0399 0.6806 -0.1573 0.6942 -
 0.1565 0.405 -0.56 0.735 -0.301 0.681 -0.0647 0.633 -0.132 0.598
 -0.128 0.6743 -0.0624 0.6325 -0.1994 0.589 -0.1348 0.6458 -0.1092
 0.5929 -0.171
 0.641 -0.468 0.659 -0.104 -0.982 -0.178 0.943 -0.357
 0.6101 -0.1369 0.745 -0.0896 0.669 -0.0485 0.6934 -0.1823 0.7047 -
 0.1707 0.404 -0.58 0.735 -0.325 0.692 -0.0784 0.642 -0.144 0.599
 -0.14 0.6837 -0.0758 0.639 -0.2098 0.5915 -0.1401 0.6531 -0.121
 0.6023 -0.1807
 0.642 -0.49 0.665 -0.11 -1.01 -0.199 0.94 -0.38
 0.6153 -0.145 0.744 -0.11 0.677 -0.0577 0.7043 -0.2049 0.7153 -
 0.1868 0.402 -0.6 0.735 -0.35 0.701 -0.0917 0.651 -0.157 0.6 -
 0.15 0.6919 -0.0896 0.6457 -0.2219 0.5939 -0.1468 0.6601 -0.1328 0.6116
 -0.191
 0.642 -0.512 0.671 -0.117 -1.04 -0.221 0.936 -0.402
 0.6202 -0.1529 0.743 -0.13 0.685 -0.0679 0.7121 -0.2209 0.726 -
 0.2033 0.4 -0.62 0.733 -0.376 0.71 -0.103 0.66 -0.17 0.6 -0.16

0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467	
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718	
0.6482	-0.2387								
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49	
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59
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-0.252									
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515	
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952	
0.6624	-0.2654								
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541	
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581
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0.6681	-0.2794								
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568	
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575
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0.6733	-0.294								
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594	
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774
-0.3087									
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	
0.6429	-0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-
0.3297	0.36	-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56
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0.6797	-0.3232								
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0.644	-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-
0.352	0.346	-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54

-0.303 0.7756 -0.2324 0.6684 -0.3469 0.4711 -0.3634 0.7285 -0.3987
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 0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822
 -0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
 0.5814 -0.81
 -0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
 0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
 0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
 -0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
 0.5794 -0.7783
 -0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
 0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
 0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
 -0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
 0.5765 -0.7458
 -0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
 0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
 -0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
 -0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
 0.7117
 -0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
 0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
 0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
 -0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
 0.5683 -0.6754
 -0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
 0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
 0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
 -0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
 0.5636 -0.6363
 -0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
 0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
 0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
 -0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
 0.5572 -0.5948
 -0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
 0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
 0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
 -0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
 0.5503 -0.5514
 -0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
 0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
 0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96

```
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134 -  
0.5433 -0.5068];
```

```
FH = data_im(:,(nqC-1)*2+1);  
FB = data_im(:,(nqC-1)*2+2);
```

```
DX = 1;  
I = fix(X/DX);  
R = (X-I*DX)/DX;  
if I == 0  
    R = R-1;  
end  
I = I+1;  
if I < 2  
    I = 2;  
end  
if J == 1  
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1)+R*(FH(I+1)+FH(I-1)-2*FH(I)));  
elseif J == 2  
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1)+R*(FB(I+1)+FB(I-1)-2*FB(I)));  
end  
end
```

PUMP.m

```
%% SUBROUTINE PUMP  
KK = 0;  
JJ = 0;  
  
%% COMPUTATION OF PUMP DISCHARGE  
VE = V+DV;  
ALPHAE = ALPHA + DALPHA;  
while 1 == 1  
    JJ = JJ+1;  
    if VE == 0 && ALPHAE == 0  
        TH = 0;  
        TH1 = 0;  
    else  
        TH = atan2(ALPHAE,VE);  
        TH1 = TH;  
        TH = rad2deg(TH);  
        if TH < 0  
            TH = TH+360;  
        end  
        if TH1 < 0  
            TH1 = TH1+2*pi;  
        end  
    end  
    M = fix(TH/DTH)+1;  
    if M == NPC  
        M = NPC-1;  
    end  
    A1 = FH(M)*M-FH(M+1)*(M-1);  
    A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));  
    A3 = FB(M)*M-FB(M+1)*(M-1);
```

```

A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = PARAB(TH,2,nq);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
        end
end
if JJ > 30
    break
end
end
end

```

PUMPV2.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHA == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA,VE);
        TH1 = TH;
    end
end

```

```

    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    if TH1 < 0
        TH1 = TH1+2*pi;
    end
end
M = fix(TH/DTH)+1;
if M == NPC
    M = NPC-1;
end
A1 = FH(M)*M-FH(M+1)*(M-1);
A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
A3 = FB(M)*M-FB(M+1)*(M-1);
A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = jedWm(nq,deg2rad(TH),varijanta);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

data-model.m

```

data = [-0.44  -0.61  -0.42  -0.5557 -1.228  -0.437  -0.37  -0.42  -
0.5459 -0.3554 -0.44  -0.34  -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44  -0.61  -0.44  -0.61  -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58  -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
      -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54  -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
      -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
      -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
      -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27  -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544
      -0.34  -0.49  -0.3343 -0.4271 -1.178  -0.287  -0.32  -0.27  -
0.4355 -0.2861 -0.34  -0.25  -0.3662 -0.2943 -0.3932 -0.3398 -0.398  -
0.2873 -0.34  -0.49  -0.34  -0.49  -0.3771 -0.4824 -0.6864 -0.5609 -0.78
-0.4  -0.4751 -0.3178 -0.345  -0.4004 -0.3643 -0.4126 -0.3103 -0.364  -
0.4672 -0.4355
      -0.318  -0.464  -0.3146 -0.3997 -1.164  -0.256  -0.306  -0.239  -
0.413  -0.2699 -0.318  -0.23  -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
0.2614 -0.318  -0.464  -0.318  -0.464  -0.354  -0.456  -0.6534 -0.5388 -0.744
-0.369  -0.457  -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
0.4484 -0.4136
      -0.295  -0.438  -0.2936 -0.3722 -1.148  -0.225  -0.29  -0.208  -
0.3933 -0.2511 -0.295  -0.21  -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
0.2355 -0.295  -0.438  -0.295  -0.438  -0.3298 -0.4296 -0.6194 -0.5167 -0.707
-0.338  -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
0.4309 -0.3886
      -0.273  -0.411  -0.2733 -0.3444 -1.132  -0.195  -0.274  -0.178  -
0.3733 -0.2299 -0.273  -0.189  -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
0.2103 -0.273  -0.411  -0.273  -0.411  -0.3066 -0.4024 -0.5864 -0.4913 -0.671
-0.309  -0.4229 -0.257  -0.2916 -0.34  -0.3103 -0.3654 -0.2546 -0.3091 -
0.4151 -0.3608
      -0.251  -0.385  -0.2527 -0.3172 -1.115  -0.165  -0.257  -0.148  -
0.3544 -0.2064 -0.251  -0.169  -0.288  -0.207  -0.3259 -0.246  -0.3145 -
0.1826 -0.251  -0.385  -0.251  -0.385  -0.2834 -0.3761 -0.5533 -0.4685 -0.635
-0.279  -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
0.3941 -0.3351
      -0.23  -0.36  -0.2329 -0.2914 -1.098  -0.137  -0.24  -0.12  -
0.3346 -0.1724 -0.23  -0.15  -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
0.1548 -0.23  -0.36  -0.23  -0.36  -0.2612 -0.3507 -0.5213 -0.4466 -0.6
-0.25  -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
0.3738 -0.3187

```


	-0.21	-0.335	-0.2137	-0.2658	-1.081	-0.11	-0.223	-0.093	-
0.315	-0.1331	-0.21	-0.131	-0.2478	-0.1672	-0.2867	-0.2044	-0.2728	-
0.1324	-0.21	-0.335	-0.21	-0.335	-0.24	-0.3254	-0.4895	-0.4248	-0.565
-0.221	-0.3635	-0.1753	-0.2381	-0.2791	-0.2538	-0.3121	-0.208	-0.2289	-
0.3532	-0.3008								
	-0.19	-0.311	-0.1943	-0.2412	-1.063	-0.0839	-0.205	-0.0669	-
0.2953	-0.0887	-0.19	-0.113	-0.228	-0.1468	-0.2671	-0.1816	-0.2519	-
0.1122	-0.19	-0.311	-0.19	-0.311	-0.2187	-0.3009	-0.4577	-0.4055	-0.53
-0.191	-0.342	-0.1465	-0.2203	-0.2552	-0.238	-0.2922	-0.1946	-0.205	-
0.3299	-0.2808								
	-0.17	-0.287	-0.1749	-0.2168	-1.045	-0.0584	-0.187	-0.0414	-
0.2755	-0.048	-0.17	-0.095	-0.2082	-0.126	-0.2475	-0.1578	-0.231	-0.091
-0.17	-0.287	-0.17	-0.287	-0.1975	-0.2764	-0.4267	-0.3862	-0.496	-
0.161	-0.3187	-0.1177	-0.2025	-0.2291	-0.2222	-0.2707	-0.1812	-0.1791	-
0.3077	-0.2581								
	-0.151	-0.263	-0.1561	-0.1923	-1.027	-0.0329	-0.169	-0.0159	-
0.255	-0.018	-0.151	-0.0774	-0.1891	-0.1043	-0.2283	-0.1319	-0.2102	-
0.0581	-0.151	-0.263	-0.151	-0.263	-0.1773	-0.2519	-0.3966	-0.3669	-0.463
-0.131	-0.2993	-0.0872	-0.188	-0.2014	-0.2064	-0.2472	-0.1676	-0.1473	-
0.2873	-0.2314								
	-0.13	-0.24	-0.1357	-0.1685	-1.008	-0.007	-0.15	0.01	-
0.2346	0.009	-0.13	-0.06	-0.1693	-0.0814	-0.2096	-0.1034	-0.1893	-
0.0279	-0.13	-0.24	-0.13	-0.24	-0.1553	-0.2282	-0.3662	-0.3502	-0.43
-0.1	-0.2786	-0.0555	-0.1743	-0.1617	-0.1907	-0.2211	-0.154	-0.1178	-
0.2698	-0.1989								
	-0.108	-0.217	-0.1146	-0.1445	-0.989	0.0196	-0.131	0.0366	-
0.2135	0.0391	-0.108	-0.0426	-0.1492	-0.0572	-0.1915	-0.0722	-0.1684	0.0005
-0.108	-0.217	-0.108	-0.217	-0.1325	-0.2045	-0.3363	-0.3338	-0.398	-
0.0686	-0.2582	-0.0269	-0.1598	-0.1182	-0.1749	-0.1924	-0.1404	-0.0915	-
0.2496	-0.1582								
	-0.0862	-0.193	-0.0936	-0.1197	-0.97	0.0465	-0.112	0.0635	-
0.1954	0.06	-0.0862	-0.0251	-0.1291	-0.0318	-0.1732	-0.0387	-0.1475	0.0245
-0.0862	-0.193	-0.0862	-0.193	-0.1098	-0.1798	-0.3065	-0.3157	-0.366	-
0.0371	-0.2372	-0.0017	-0.1445	-0.0806	-0.1591	-0.1611	-0.1266	-0.0677	-
0.2277	-0.1083								
	-0.0637	-0.169	-0.0721	-0.0949	-0.9511	0.073	-0.0931	0.09	-
0.1749	0.0764	-0.0637	-0.00726	-0.1083	-0.0055	-0.1541	-0.0036	-0.1266	
0.0422	-0.0637	-0.169	-0.0637	-0.169	-0.0865	-0.1553	-0.2765	-0.297	-
0.334	-0.00643	-0.2157	0.0212	-0.1286	-0.0487	-0.1393	-0.1277	-0.1127	-
0.0454	-0.2072	-0.0708							
	-0.0415	-0.145	-0.0513	-0.0704	-0.9337	0.099	-0.0757	0.116	-
0.1553	0.0914	-0.0415	0.011	-0.0872	0.0162	-0.1341	0.0216	-0.1058	0.0608
-0.0415	-0.145	-0.0415	-0.145	-0.0635	-0.1308	-0.2466	-0.2771	-0.302	
0.0228	-0.193	0.0426	-0.1121	-0.0197	-0.1187	-0.0886	-0.0987	-0.0237	-
0.1874	-0.0495								
	-0.02	-0.12	-0.0314	-0.0457	-0.918	0.123	-0.06	0.14	-
0.1346	0.1063	-0.02	0.03	-0.0661	0.0364	-0.1134	0.043	-0.0849	0.0797
-0.02	-0.12	-0.02	-0.12	-0.0411	-0.1056	-0.2168	-0.2538	-0.27	0.05
-0.1723	0.0629	-0.0965	0.0079	-0.0981	-0.0615	-0.0845	-0.003	-0.1677	-
0.0308									
	0.000468	-0.0943	-0.0129	-0.021	-0.9042	0.145	-0.0462	0.162	-
0.115	0.1223	0.000459	0.0497	-0.0453	0.057	-0.0922	0.0645	-0.064	
0.0975	0.000471	-0.0943	0.000459	-0.0944	-0.0197	-0.0801	-0.1873	-	
0.2275	-0.238	0.0746	-0.1549	0.0824	-0.0825	0.0328	-0.0774	-0.0445	-
0.0701	0.0175	-0.1491	-0.012						

	0.0202	-0.0681	0.005	0.0037	-0.891	0.166	-0.033	0.183	-
0.0936	0.1395	0.0202	0.0699	-0.0258	0.0778	-0.0731	0.086	-0.0431	0.1135
0.0202	-0.0682	0.0202	-0.0682	0.0012	-0.0542	-0.1571	-0.1983	-0.205	
0.0971	-0.1394	0.1014	-0.0684	0.0539	-0.0568	-0.0249	-0.0556	0.0383	-
0.1298	0.0086								
	0.0398	-0.0418	0.0231	0.0282	-0.8767	0.186	-0.0187	0.203	-
0.0725	0.1579	0.0397	0.0902	-0.0063	0.0988	-0.0536	0.1077	-0.0223	0.1285
0.0398	-0.0418	0.0397	-0.0419	0.0219	-0.0284	-0.1262	-0.1678	-0.171	0.118
-0.1221	0.12	-0.0542	0.0753	-0.0362	0.0003	-0.0408	0.0595	-0.1083	
0.0312									
	0.0595	-0.0157	0.042	0.0523	-0.85957	0.205	-0.00157	0.222	
-0.0519	0.177	0.0595	0.11	0.0138	0.1196	-0.0332	0.1294	-0.0014	
0.1489	0.0595	-0.0157	0.0595	-0.0158	0.0411	-0.0027	-0.0944	-0.1377	-
0.136	0.139	-0.1027	0.1384	-0.0396	0.0969	-0.0156	0.0292	-0.0258	0.0812
-0.0898	0.0559								
	0.08	0.01	0.06	0.0758	-0.838	0.223	0.02	0.24	-
0.0307	0.1943	0.08	0.13	0.0348	0.1405	-0.0116	0.1512	0.0183	0.1705
0.08	0.01	0.08	0.01	0.0524	0.0227	-0.0617	-0.1081	-0.1	0.16
-0.0809	0.1567	-0.0245	0.1188	0.005	0.057	-0.0105	0.1033	-0.0665	
0.0822									
	0.102	0.0349	0.07	0.0987	-0.8109	0.241	0.0471	0.258	-
0.0084	0.2096	0.102	0.149	0.0571	0.1609	0.011	0.1731	0.0424	0.1901
0.102	0.0349	0.102	0.0351	0.0597	0.0475	-0.0278	-0.0806	-0.0628	0.182
-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								

	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4
0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405		
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								

	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5					0.4993
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77

0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415	
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92

0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	

0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36
1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.55									
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387

1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	0.3765
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807	
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.47	1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34
1.1119									
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441	
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.71									

1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205		
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51
1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	0.35
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
									0.3575
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
									1.69
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
									0.3705
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403

1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69
1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									

	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388		
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095		
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04	
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401		
1.7406	1.2722									
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048	
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79	
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548		
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385		
1.2809										
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975	
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79	
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564		
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374		
1.2913										
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903	
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78	
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112	
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025		
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41		
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074		
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315										
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414		
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07		
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03	
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123		
1.7379	1.3281									
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968	
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74	
1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642		
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379		
1.3419										
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421		
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973	
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562		
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425		
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644		
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04	
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561		
1.7375	1.3703									
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396	
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69	
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71		
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369		
1.3837										
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436		
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587		
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04	
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887		
1.7349	1.397									
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193	
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66	

1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101	
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448	
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	

	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03

1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939
1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22	
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22	
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	1.22
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									

	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									
	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8089	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.20881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549
0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8205	0.848	1.15	0.9	1.16	0.9	1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6176	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408	
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.304601	0.6702	0.8008	1.0419	0.48	
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	

0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
1.08									
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369

0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	
0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	0.7307	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65

0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548

0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.2
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								

	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									

	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068		
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1	
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524		
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815		
0.4313	0.0019									
	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767		
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644		
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527	
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701		
0.4411	-0.0102									
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864		
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711		
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531	
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451	
-0.0219										
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974		
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499	
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535		
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461	
-0.0336										
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11		
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862		
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54	
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326		
0.4711	-0.0457									
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-		
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943	
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546	
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126		
0.4814	-0.058									
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								

	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462	
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-
0.1276									
	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								
	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								

	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445		
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-	
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596	
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634		
0.6393	-0.2258									
	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467		
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-	
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594	
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718		
0.6482	-0.2387									
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49		
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-	
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59	
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656	
-0.252										
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515		
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-	
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586	
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952		
0.6624	-0.2654									
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541		
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-	
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581	
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179		
0.6681	-0.2794									
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568		
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-	
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575	
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507		
0.6733	-0.294									
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594		
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171	
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-	
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774	
-0.3087										
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429	-
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36	
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27		
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-	
0.3232										
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645		
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-	
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551	
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587		
0.6807	-0.3364									
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644	
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346	
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303		
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-	
0.3506										
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69		
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-	
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528	
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434		
0.6802	-0.3704									

	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711	
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515
0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763
-0.3958									
	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								
	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								

	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86		
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-	
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29	
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893		
0.4898	-0.7648									
	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863		
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-	
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255	-
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629	-
-0.7985										
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865		
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-	
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216	-
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316	-
-0.8451										
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866		
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-	
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175	-
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965	-
-0.8947										
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867		
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-	
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132	-
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335		
0.3626	-0.9316									
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87		
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-	
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09	-
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875		
0.3284	-0.9703									
	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875		
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-	
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491	-
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295	-
-1.0081										
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882		
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-	
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731		
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-	
1.1795	0.2536	-1.0475								
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889		
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-	
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-	
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212	-
0.2113	-1.0869									
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279	-
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148	-
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677	-
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264		
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089	-
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14	-
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943	-
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668		
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902		
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-	

1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151	-
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148	-
-1.2164										
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011	-
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12	-
-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95		-
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-	-
1.2562										
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-	-
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-	-
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234	-
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352		-
0.0295	-1.2866									-
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-	-
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-	-
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274	-
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-	-
0.0152	-1.3104									-
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-	-
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-	-
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31	-
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-	-
0.0504	-1.3297									-
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895	-
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815	-
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-	-
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-	-
1.3459										-
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-	-
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-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-	-
0.1599	-1.36									-
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-	-
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-	-
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-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-	-
0.1987	-1.3725									-
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-	-
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-	-
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0.2339	-1.3837									-
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037	-
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05	-
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0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394	-
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-	-
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-	-
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457	-
-1.14	-0.2412	-1.4857	-0.3176	-1.4603	-0.3779	-1.5481	-0.2243	-1.5076	-	-
0.2892	-1.4035									-
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-	-
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1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472	-

-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-
0.3082	-1.4122								
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485
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0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
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0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
-1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-
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	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
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0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-
1.3927	-0.0252	-1.63	0.144	-1.64	0.0825	-1.6675	-0.3851	-1.8762	-0.528
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0.4329	-1.4409								
	0.0918	-1.64	0.1044	-1.5142	-2.121	-1.273	0.136	-1.2	-
0.5036	-1.4641	0.172	-1.12	-0.0959	-1.1146	-0.371	-1.5708	-0.4071	-
1.3932	-0.0327	-1.64	0.132	-1.64	0.071	-1.6647	-0.3924	-1.8526	-0.534
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	0.08	-1.64	0.0914	-1.5113	-2.137	-1.263	0.12	-1.19	-
0.5267	-1.4656	0.16	-1.13	-0.1163	-1.1224	-0.4	-1.5713	-0.4265	-
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	0.0682	-1.64	0.0787	-1.5085	-2.152	-1.253	0.105	-1.18	-
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 -0.0602 -1.43 -0.0648 -1.2936 -2.3334 -1.026 -0.0764 -0.953 -
 0.6153 -1.0779 0.0162 -0.959 -0.2481 -0.9788 -0.5195 -1.2846 -0.5355 -
 1.2158 -0.146 -1.43 -0.0278 -1.43 -0.0816 -1.4364 -0.4909 -1.4851 -0.616
 -1.5 -0.5597 -1.1209 -0.5969 -1.3124 -0.6256 -1.2889 -0.5042 -1.369 -
 0.5839 -1.334
 -0.0698 -1.4 -0.0768 -1.2716 -2.3513 -1.024 -0.0943 -0.951 -
 0.6151 -1.0572 0.00429 -0.939 -0.2557 -0.9586 -0.5228 -1.2388 -0.5387 -
 1.1794 -0.154 -1.4 -0.0422 -1.4 -0.0955 -1.4064 -0.5003 -1.4551 -0.624
 -1.47 -0.5648 -1.1008 -0.5963 -1.2856 -0.6249 -1.275 -0.5059 -1.352 -
 0.5897 -1.3159
 -0.0796 -1.38 -0.0889 -1.2573 -2.369 -1.024 -0.112 -0.951 -
 0.6133 -1.0365 -0.00777 -0.919 -0.2632 -0.9385 -0.5255 -1.203 -0.5416 -
 1.1518 -0.161 -1.38 -0.0564 -1.38 -0.1091 -1.3846 -0.5096 -1.4194 -0.632

-1.43 -0.5694 -1.0852 -0.5952 -1.2577 -0.6235 -1.2592 -0.5062 -1.3355 -
0.5949 -1.2955
-0.09 -1.35 -0.1014 -1.2356 -2.387 -1.023 -0.13 -0.95 -
0.6124 -1.0158 -0.02 -0.9 -0.2705 -0.919 -0.5277 -1.1771 -0.5443 -
1.1273 -0.17 -1.35 -0.07 -1.35 -0.1222 -1.3546 -0.5188 -1.3894 -0.64
-1.4 -0.5733 -1.0723 -0.5941 -1.2268 -0.6217 -1.2429 -0.5065 -1.3197 -
0.5994 -1.2731
-0.101 -1.33 -0.1144 -1.2205 -2.405 -1.02 -0.148 -0.947 -
0.6136 -0.9952 -0.0324 -0.881 -0.2776 -0.8997 -0.5295 -1.1508 -0.5468 -
1.1049 -0.18 -1.33 -0.0828 -1.33 -0.1345 -1.3337 -0.527 -1.3615 -0.647
-1.37 -0.5768 -1.0612 -0.593 -1.1988 -0.6198 -1.2257 -0.5068 -1.3044 -
0.6031 -1.2491
-0.113 -1.3 -0.1282 -1.1973 -2.423 -1.014 -0.166 -0.941 -
0.6151 -0.9746 -0.0449 -0.863 -0.2846 -0.8811 -0.5307 -1.1239 -0.549 -
1.0635 -0.19 -1.3 -0.095 -1.3 -0.1461 -1.3037 -0.5343 -1.3315 -0.653
-1.34 -0.5798 -1.0511 -0.592 -1.1758 -0.618 -1.2069 -0.5071 -1.2898 -
0.6056 -1.2262
-0.125 -1.28 -0.1419 -1.1811 -2.441 -1.007 -0.184 -0.934 -
0.6173 -0.9541 -0.0571 -0.845 -0.2911 -0.8628 -0.5315 -1.0961 -0.5508 -
1.0271 -0.2 -1.28 -0.107 -1.28 -0.1575 -1.2827 -0.5416 -1.3036 -0.659
-1.31 -0.5824 -1.0416 -0.5909 -1.1561 -0.6164 -1.1864 -0.5073 -1.2756 -
0.6066 -1.2088
-0.138 -1.25 -0.1563 -1.1576 -2.459 -1.0202 -0.927 -0.6207 -
0.9336 -0.0689 -0.827 -0.2973 -0.8447 -0.5318 -1.0668 -0.5521 -0.9958 -0.21
-1.25 -0.118 -1.25 -0.1681 -1.2527 -0.5487 -1.2736 -0.665 -1.28 -
0.5846 -1.0325 -0.5896 -1.1376 -0.6153 -1.165 -0.5074 -1.2616 -0.6058 -
1.1913
-0.15 -1.23 -0.17 -1.1414 -2.477 -0.993 -0.22 -0.92 -
0.6249 -0.9131 -0.08 -0.81 -0.3027 -0.8271 -0.5315 -1.0364 -0.553 -
0.9692 -0.22 -1.23 -0.13 -1.23 -0.1794 -1.2318 -0.5552 -1.2457 -0.67
-1.25 -0.5864 -1.0237 -0.5881 -1.1192 -0.6145 -1.1436 -0.5075 -1.2477 -
0.6029 -1.1737
-0.162 -1.21 -0.1834 -1.1254 -2.494 -0.987 -0.237 -0.914 -
0.6274 -0.8927 -0.0904 -0.793 -0.3076 -0.8098 -0.5307 -1.007 -0.5533 -
0.9464 -0.228 -1.21 -0.142 -1.21 -0.1908 -1.2109 -0.5616 -1.2179 -0.675
-1.22 -0.5878 -1.0149 -0.5863 -1.0996 -0.6134 -1.123 -0.5075 -1.2336 -
0.5984 -1.1559
-0.174 -1.18 -0.1969 -1.1022 -2.511 -0.981 -0.254 -0.908 -
0.6264 -0.8724 -0.1 -0.775 -0.3118 -0.7922 -0.5294 -0.9803 -0.5528 -
0.9258 -0.236 -1.18 -0.154 -1.18 -0.2022 -1.1809 -0.5681 -1.1879 -0.68
-1.19 -0.5889 -1.0059 -0.5839 -1.0773 -0.6117 -1.1029 -0.5073 -1.2192 -
0.5931 -1.138
-0.186 -1.16 -0.21 -1.0859 -2.527 -0.974 -0.27 -0.901 -
0.6231 -0.8521 -0.11 -0.757 -0.3159 -0.7744 -0.5274 -0.957 -0.5517 -
0.9064 -0.244 -1.16 -0.166 -1.16 -0.2136 -1.16 -0.5754 -1.16 -0.686
-1.16 -0.5897 -0.9967 -0.581 -1.0522 -0.609 -1.0794 -0.5071 -1.2042 -
0.588 -1.1198
-0.198 -1.13 -0.2229 -1.0619 -2.542 -0.965 -0.285 -0.892 -
0.6188 -0.8319 -0.12 -0.739 -0.3198 -0.7565 -0.525 -0.9368 -0.5497 -
0.8875 -0.252 -1.13 -0.178 -1.13 -0.2251 -1.13 -0.5827 -1.13 -0.692
-1.13 -0.5902 -0.9869 -0.5774 -1.0242 -0.6049 -1.0524 -0.5068 -1.1885 -
0.5839 -1.1014
-0.21 -1.11 -0.2357 -1.0442 -2.557 -0.953 -0.3 -0.88 -
0.6147 -0.8117 -0.13 -0.72 -0.3235 -0.738 -0.5223 -0.9194 -0.547 -
0.8687 -0.26 -1.11 -0.19 -1.11 -0.2367 -1.1109 -0.5915 -1.1179 -0.7

-1.1 -0.5903 -0.9762 -0.5732 -0.9953 -0.5999 -1.0267 -0.5063 -1.1715 -
 0.5812 -1.0825
 -0.222 -1.08 -0.2483 -1.0182 -2.571 -0.937 -0.314 -0.864 -
 0.6119 -0.7915 -0.141 -0.7 -0.3277 -0.7187 -0.5194 -0.9037 -0.5441 -
 0.8493 -0.269 -1.08 -0.202 -1.08 -0.2484 -1.0809 -0.6012 -1.0879 -0.709
 -1.07 -0.5902 -0.9643 -0.5687 -0.9655 -0.5941 -1.0028 -0.5056 -1.1528 -
 0.5796 -1.0632
 -0.235 -1.06 -0.2616 -0.9982 -2.585 -0.917 -0.328 -0.844 -
 0.6103 -0.7714 -0.153 -0.68 -0.3323 -0.6991 -0.5165 -0.8893 -0.5412 -
 0.8289 -0.28 -1.06 -0.213 -1.06 -0.2592 -1.0618 -0.6106 -1.0757 -0.718
 -1.04 -0.5898 -0.9503 -0.5639 -0.9338 -0.5882 -0.9809 -0.5048 -1.1321 -
 0.5789 -1.0435
 -0.247 -1.03 -0.2736 -0.9708 -2.597 -0.896 -0.34 -0.823 -
 0.6095 -0.7514 -0.165 -0.66 -0.337 -0.6793 -0.5136 -0.8757 -0.5388 -
 0.8075 -0.29 -1.03 -0.225 -1.03 -0.2711 -1.0318 -0.6218 -1.0457 -0.729
 -1.01 -0.5892 -0.9335 -0.5596 -0.8991 -0.5824 -0.96 -0.5038 -1.1093 -
 0.5789 -1.023
 -0.259 -1.01 -0.2853 -0.9502 -2.608 -0.874 -0.351 -0.801 -
 0.6091 -0.7313 -0.178 -0.64 -0.3423 -0.6594 -0.511 -0.8628 -0.5372 -
 0.7868 -0.3 -1.01 -0.237 -1.01 -0.283 -1.0127 -0.6322 -1.0336 -0.739
 -0.98 -0.5884 -0.9134 -0.5557 -0.8604 -0.5773 -0.9379 -0.5026 -1.0845 -
 0.5794 -1.002
 -0.27 -0.98 -0.2957 -0.9228 -2.617 -0.853 -0.36 -0.78 -
 0.6088 -0.7113 -0.19 -0.62 -0.3472 -0.6394 -0.5087 -0.8502 -0.5367 -0.766
 -0.31 -0.98 -0.25 -0.98 -0.2958 -0.9827 -0.6437 -1.0036 -0.75 -0.95
 -0.5874 -0.8895 -0.5516 -0.8225 -0.573 -0.9105 -0.5012 -1.0582 -0.5801 -
 0.9803
 -0.28 -0.955 -0.3049 -0.8992 -2.624 -0.833 -0.367 -0.76 -
 0.6081 -0.6913 -0.202 -0.601 -0.3524 -0.6199 -0.5068 -0.838 -0.5373 -
 0.7454 -0.319 -0.955 -0.264 -0.955 -0.3094 -0.9583 -0.6545 -0.9833 -0.76
 -0.919 -0.5862 -0.8623 -0.5472 -0.7902 -0.5699 -0.879 -0.4996 -1.0312 -
 0.581 -0.958
 -0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
 0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
 0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
 -0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
 0.5818 -0.9351
 -0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
 0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
 0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
 -0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
 0.5825 -0.9119
 -0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
 0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
 0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79
 -0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
 0.583 -0.8882
 -0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
 0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
 -0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
 -0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
 0.8643
 -0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
 0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
 0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811

-0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
0.5825 -0.8403
-0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822
-0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
0.5814 -0.81
-0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
-0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
0.5794 -0.7783
-0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
-0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
-0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
-0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134
-0.5433 -0.5068];

Prilozi

Prilog – P24 Kod razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 13 Ovaj primjer je urađen sa – Furijerovom funkcijom 4 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 6 reda za Wm karakteristiku)

Prilog za poglavlje 9.8 Analiza uticaja specifične brzine (nq) na rezultate dobijene proračunom prelaznih procesa na pumpnoj instalaciji (vrijednosti za Wh i Wm karakteristike dobijene modelskim ispitivanjima i iz Univerzalne jednačine iz Varijante 13 – Ovaj primjer je urađen sa – Furijerovom funkcijom 4 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 6 reda za Wm karakteristiku, koriste se u razvijenom numeričkom modelu u programu Matlab za proračun prelaznih procesa).

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnom postrojenju, kao ulazni podaci su korištene vrijednosti za Wh i Wm karakteristike, (za pet modela radijalnih pumpi i za dvanest modela radijalnih pumpnih- turbina - nq) koje su dobijene preračunavanjem modelskih četvorokvadrantnih karakteristika Q_{11} , n_{11} , M_{11} , i iz Univerzalne Jednačine za Wh i Wm karakteristike (Univerzalne jednačine iz Varijante 13 – Ovaj primjer je urađen sa – Furijerovom funkcijom 4 reda i Polinomom 8 reda za Wh karakteristiku, Furijerovom funkcijom 2 reda i Polinomom 6 reda za Wm karakteristiku) u programu Matlab:

```
Start.m
%% Program namijenjen za pokretanje više nq-ova za analizu trazijenta
clear
close all
clc
nqt = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95 35.89
37.4 38 41.6 43.83 50 56];
bojaiz =
{'.:r',':ob',':+g',':*y',':xm',':dc',':^k',':vr',':>b',':<g',':py',':hm',':.c
',':ok',':*r',':*b',':*g',':*y',':*m',':*c',':*k'};
bojafun = {'-r','-b','-g','-y','-m','-c','-k','--r','--b','--g','--y','--
m','--c','--k','-.r','-.b','-.g','-.y','-.m','-.c','-.k'};
```



```

%% Podaci dobijeni iz modela
run data_model.m

%% Odabir udara
varijanta = listdlg('ListString', ...
    {'1. Wh [f3-g5] <-> Wm [f2-g5]', '2. Wh [f3-g3] <-> Wm [f2-
g4]', '3. Wh [f3-g4] <-> Wm [f2-p7]', '4. Wh [f3-p8] <-> Wm [f2-p8]', '5. Wh
[f4-p9] <-> Wm [f2-p9]', '6. Wh [f5-p9] <-> Wm [f2-g3]', '7. Wh [f4-p8] <-> Wm
[f2-p6]'}, ...
    'SelectionMode', 'single', ...
    'PromptString', 'Odaberi varijante za udar');

jk = size(data);
Theta = 0:1:360;
ThetaD = deg2rad(Theta);
dataWh = data(:,1:2:jk(2));
dataWm = data(:,2:2:jk(2));

%% Pokretanje analize za sve modele
vs = 1:length(nqt);

%% Pokretanje analize za sve modele
for c = vs
    nq = nqt(c);
    fhc = char(bojaiz(c));
    fhf = char(bojafun(c));
    tableiso = ['Uporedni rezultati za nq=', num2str(nq), '.xlsx'];
    leg{c*2-1} = ['model nq=', num2str(nq)]; % legenda za podatke modela
    leg{c*2} = ['funkc. za nq=', num2str(nq)]; % legenda za podatke dobijene
jednacinom
    run Clprogram.m % pokretanje koda za analizu trazijenta
end

%% Ispis legende na dijagrame
figure(1) % Dijagram za Wh
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(2) % Dijagram za Wm
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
leg([5 6 7 8]) = [];
figure(3) % Dijagram Time-Alpha
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(4) % Dijagram Time-V
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(5) % Dijagram Time-Head (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(6) % Dijagram Time-Head (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(7) % Dijagram Time-Head (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(8) % Dijagram Time-Head (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')
figure(9) % Dijagram Time-Discharge (spoj pumpe i cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize', 12), legend('boxoff')

```

```

figure(10) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')
figure(11) % Dijagram Time-Discharge (spoj cijevi sa strane cijevi 1)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')
figure(12) % Dijagram Time-Discharge (kraj cijevi 2)
legend(leg, 'Location', 'NorthEastOutside', 'FontSize',12), legend('boxoff')

Clprogram.m
%% Trazijenti uzrokovani prestankom rada pumpi

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Åt se izraÅunati prijelazni uslovi

NPC = 361; % Broj karakteristiÅnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)
NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci
FB = dataWm(:,c);
FH = dataWh(:,c);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÅuna podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75
0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100
1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012
0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od modela za nq=', num2str(nq)])

```

```

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÅ?unati uslov prolaznog stanja = ',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÅ?nih taÅ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÅ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Diagram za Wh
figure(1)
plot(Theta,FH,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wh'), title('Dijagram za Wh')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100,100,1000,900])
% Diagram za Wm
figure(2)
plot(Theta,FB,fhc,'MarkerIndices',1:5:360), hold on
grid on, xlabel('\Theta (ugao u stepenima)'), ylabel('Wm'), title('Dijagram za Wm')
xlim([0 360])
set(gca,'xTick',0:45:360)
set(gca,'XTickLabel',{'0','45','90','135','180','225','270','315','360'})
set(gcf,'Position',[100,100,1000,900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅ?ina      PreÅ?nik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÅ?EUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % PovrÅ?ina popreÅ?nog presjeka cijevi (m2)
    AUNADJ = A(I);
end

```

```

AN = L(I)/(DT*A(I));
N(I) = AN;
AN1 = N(I);
if (AN-AN1) >= 0.5
    N(I) = N(I)+1;
end
A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
CA(I) = G*AR(I)/A(I);
CF(I) = F(I)*DT/(2*D(I)*AR(I));
F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach faktor
trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMP
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end
Z = PARAB(TH,1,nq);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = PARAB(TH,2,nq);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel

```

```

Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljjenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljjenje tabele za ispis -----
--
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
--
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
            Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
            vel = size(Excel);
            Excel = Excel(2:vel(1),:);
            p = size(Excel);
            ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
            TABLEe = array2table(ExcelNew,...

'VariableNames',{'Vrijeme','Alpha','V','Disch_1_1','Disch_N1_1','Pad_1_1','Pa
d_N1_1','Disch_1_2','Disch_N1_2','Pad_1_2','Pad_N1_2'});
            disp(' ')
            disp('
-----
|                                     |                                     |
-----
disp('          |                                     |                                     |')
|          Cijev No.2          |                                     |          Cijev No.1
|                                     |                                     |
disp(TABLEe)

disp('*****
*****')

```

```

disp('*****
*****')
    disp('Cijev No    max. Pritisak    min. Pritisak')
    fprintf('    %.0f        %.2fm        %.2fm \n',Table2')
    break
end

%% PUMP AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMP.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1
        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);
    end
end

%% RESERVOIR AT DOWNSTREAM END
NN = N(NP)+1;
NN1 = N(NP);
HP(NP,NN) = HRES;
CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

%% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP

```

```

    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['model nq=', num2str(nq), ' cijev 1 presjek',
            num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['model nq=', num2str(nq), ' cijev 2 presjek',
            num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end
end

% Dijagram Time-Alpha
figure(3)

plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),2), fhc, 'MarkerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
    title('Dijagram Vrijeme-Alfa')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-V
figure(4)

plot(Excel(1:2:length(Excel(:,1)),1), Excel(1:2:length(Excel(:,1)),3), fhc, 'MarkerIndices', 1:length(Excel(1:2:length(Excel(:,1)),1))/30:length(Excel(1:2:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
    title('Dijagram Vrijeme-V')
    xlim([0 TLAST])

```

```

set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (connection pump and pipe Nu.1)
figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick', 0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

```



```

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
    figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
    figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhc,'M
arkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:NP
:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

    % Diagram Time-Discharge (end of pipe Nu.2)
    figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhc,'
MarkerIndices',1:length(Excel(1:NP:length(Excel(:,1)),1))/30:length(Excel(1:N
P:length(Excel(:,1)),1))), grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of model (during the transient process)
figure(4*(c-1)+13)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];

```

```

        Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
    end
    s = surf(vrijeme,duzina,Hnew);
    grid on, hold on
    colormap('turbo')
    colorbar
    title(['Pad za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
    xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
    xlim([0 TLAST]), ylim([0 sum(L)])
    s.EdgeColor = 'none';
    set(gcf, 'Position', [100, 100, 800, 700])

    % Diagram for Discharge of model (during the transient process)
    figure(4*(c-1)+14)
    s1 = surf(vrijeme,duzina,Qnew);
    grid on, hold on
    colormap('turbo')
    colorbar
    title(['Protok za model n_q=',num2str(nq),' (tokom procesa trazijenta)'])
    xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
    xlim([0 TLAST]), ylim([0 sum(L)])
    s1.EdgeColor = 'none';
    set(gcf, 'Position', [100, 100, 800, 700])
end
run C1programV2.m

```

C1programV2.m

```

%% Trazijenti uzrokovani prestankom rada pumpi

clear A A1 A2 A3 A4 ALPHA ALPHAe ALSPQ ALPV AN AN1 AR AUNADJ BETA C5 C6 CA CF
CN CP D DALPHA DENOM DT DTH DV
clear ER Excel ExcelNew F F1 F1AL F1V F2 F2AL F2V FB FH G H HMAX HMINHO HP HR
HRES I IP1 IPRINT IspisPodatakaTabela
clear J JJ JM1 JP1 K KK L M MB N N1 NN NN1 NO NP NP1 NPC NPP NR NRLP od p Q
QO QP QR T Table1 Table2 TABLEe TH TH1
clear TLAST TR V VE vel VESQ WR2 Z

NP = 20; % Broj cijevi (podjela)
NRLP = 4; % Broj dosega na posljednjoj cijevi |20
IPRINT = 2; % Broj vremenskog intervala nakon uslova
NPP = 2; % broj paralelnih pumpi
G = 9.81;
QO = 0.5; % Stabilno praznjenje (M3/S)
NO = 1100; % Brzina pumpe u stacionarnom stanju (RPM)
TLAST = 30; % Vrijeme do kojeg Å¼e se izraÅ¼unati prijelazni uslovi

NPC = 361; % Broj karakteristiÄnih tacaka krive pumpe
DTH = 1; % Theta interval za karakteristiku pumpe
QR = 0.25; % Nazivno Protok (M3/s)
HR = 60; % Procenjena visina (m)

```

```

NR = 1100; % Procenjena brzina pumpe (RPM)
ER = 0.84; % Efikasnost pumpe
WR2 = 16.85; %

%% Podaci dobijeni od Fourierove jednacine i polinoma

FH = jedWh(nq,ThetaD,varijanta);
FB = jedWm(nq,ThetaD,varijanta);

% Podaci za cijevi
% u sistemu su dvije cijevi ali zbog boljeg raÄ?una podijeljeno je na 50 m
L = [50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50]; %[450
550]; % Duzine cijevi (m)
D = [0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75]; %[0.75 0.75]; % Precnik cijevi (m)
A = [900 900 900 900 900 900 900 900 900 900 1100 1100 1100 1100 1100 1100 1100 1100 1100]; %[900 1100]; % Brzina talasa (m/s)
F = [0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.012 0.012 0.012 0.012 0.012 0.012 0.012 0.012]; % [0.01 0.012]; % Darcy-Weisbach
faktor trenja

DT = L(NP)/(NRLP*A(NP)); % Racunarski vremenski interval (s)

%% Ispis podataka
if c ~= 3 && c ~= 4
    disp(' ')

disp('=====')
disp([' Wh i Wm od Fourierove jednacine za nq=',num2str(nq)])

disp('=====')
disp(' ')
disp(['Broj cijevi = ',num2str(NP)])
disp(['Broj dosega na poslednjoj cijevi = ',num2str(NRLP)])
disp(['Stabilno praznjenje = ',num2str(QO),' m3/s'])
disp(['Brzina pumpe u stacionarnom stanju = ',num2str(NO),' RPM'])
disp(['Vrijeme za koje treba izraÄ?unati uslov prolaznog stanja =
',num2str(TLAST),' s'])
disp(['Broj paralelnih pumpi = ',num2str(NPP)])
disp(' ')
disp(['Broj karakteristiÄ?nih taÄ?aka na krivoj pumpe = ',num2str(NPC)])
disp(['Interval Theta karakteristiÄ?ne krive = ',num2str(DTH)])
disp(['Nazivno Protok = ',num2str(QR),' m3/s'])
disp(['Nazivna visina = ',num2str(HR),' m'])
disp(['Nazivna brzina pumpe = ',num2str(NO),' RPM'])
disp(['Efikasnost pumpe = ',num2str(ER)])
disp(['WR2 = ',num2str(WR2),' kg*m2'])
end

% Dijagram za Wh
figure(1)

```

```

plot(Theta,FH,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

%Digram za Wm
figure(2)
plot(Theta,FB,fhf), hold on
set(gcf, 'Position', [100, 100, 1000, 900])

if c ~= 3 && c ~= 4
    disp(' ')
    Table1 = [(1:1:NP)' L' D' A' F'];

disp('*****')
disp('Cijev No      DuÅina      PreÅnik      Brzina tal.      Faktor trenja')
fprintf('      %.0f          %.1f          %.2f          %.1f          %.3f \n',Table1')

disp('*****')
%% PRORAÄUN KONSTANTI CIJEVI
for I = 1:NP
    AR(I) = 0.7854*D(I)^2; % PovrÅina popreÅnog presjeka cijevi (m2)
    AUNADJ = A(I);
    AN = L(I)/(DT*A(I));
    N(I) = AN;
    AN1 = N(I);
    if (AN-AN1) >= 0.5
        N(I) = N(I)+1;
    end
    A(I)= L(I)/(DT*N(I)); % Brzina talasa (m/s)
    CA(I) = G*AR(I)/A(I);
    CF(I) = F(I)*DT/(2*D(I)*AR(I));
    F(I) = F(I)*L(I)/(2*G*D(I)*N(I)*AR(I)^2); % Darcy-Weisbach Darcy-
Weisbach faktor trenja
end

%% COMPUTATION OF CONSTANTS FOR PUMPV2
% The following constants are for SI units (HR in M, QR in M3/S and NR in
% RPM) For English units (HR in FT, QR in CFS and NR in RPM) replace
% 93604.99 by 595.875 and 4.775 by 153.744
TR = (93604.99*HR*QR)/(NR*ER); % Nazivni moment (N-M)
C5 = CA(1)*HR;
C6 = -(4.775*TR*DT)/(NR*WR2);
ALPHA = NO/NR;
V = QO/(NPP*QR);
DV = 0;
DALPHA = 0;

%% PRORACUN STANJA MIROVANJA
if V == 0
    TH = 0;
elseif V ~= 0
    TH = atan2(ALPHA,V);
    TH = rad2deg(TH); % *57.2985
end

```

```

Z = jedWh(nq,deg2rad(TH),varijanta);
HO = Z*HR*(ALPHA^2+V^2);
H(1,1) = HO;
Z = jedWm(nq,deg2rad(TH),varijanta);
BETA = Z*(ALPHA^2+V^2);
for I =1:NP
    NN = fix(N(I))+1;
    for J = 1:NN
        H(I,J) = H(I,1)-(J-1)*F(I)*QO^2;
        if I ~= NP && J == NN
            H(I+1,1) = H(I,NN);
        end
        Q(I,J) = QO;
    end
    HMAX(I) = H(I,1);
    HMIN(I) = H(I,1);
end
NN = N(NP)+1;
HRES = H(NP,NN);
T = 0;
NP1 = NP-1;

% Format tabele za export u excel
Excel = [1 2 3 4 5 6 7 8];

while 1 == 1
    K = 0;
    I = 1;
    NN = fix(N(1))+1;
    IspisPodatakaTabela = [T ALPHA V I H(1,1) H(1,NN) Q(1,1) Q(1,NN)];
    % pravljenje tabele za ispis -----
    vel = size(Excel);
    Excel(vel(1)+1,:) = IspisPodatakaTabela;
    % -----
    for I = 2:NP
        NN = fix(N(1))+1;
        IspisPodatakaTabela = [T ALPHA V I H(I,1) H(I,NN) Q(I,1)
Q(I,NN)];
        % pravljenje tabele za ispis -----
        vel = size(Excel);
        Excel(vel(1)+1,:) = IspisPodatakaTabela;
        % -----
    end
    while 1 == 1
        T = T+DT;
        K = K+1;
        if T > TLAST
            format bank
            for I = 1:NP
                Table2(I,1) = I;
                Table2(I,2) = HMAX(I);
                Table2(I,3) = HMIN(I);
            end
        end
    end
end

```

```

        Table2 = [Table2(1,1) max(Table2(1:9,2)) min(Table2(1:9,3));
Table2(2,1) max(Table2(10:20,2)) min(Table2(10:20,3))];
        vel = size(Excel);
        Excel = Excel(2:vel(1),:);
        p = size(Excel);
        ExcelNew = [Excel(1:NP:p(1),1) Excel(1:NP:p(1),2)
Excel(1:NP:p(1),3) Excel(1:NP:p(1),7) Excel(9:NP:p(1),8) Excel(1:NP:p(1),5)
Excel(9:NP:p(1),6) Excel(10:NP:p(1),7) Excel(NP:NP:p(1),8)
Excel(10:NP:p(1),5) Excel(NP:NP:p(1),6)];
        TABLEe = array2table(ExcelNew,...

'VariableNames',{ 'Vrijeme', 'Alpha', 'V', 'Disch_1_1', 'Disch_N1_1', 'Pad_1_1', 'Pa
d_N1_1', 'Disch_1_2', 'Disch_N1_2', 'Pad_1_2', 'Pad_N1_2'});
        disp(' ')
        disp('

-----')
        disp('          |          Cijev No.1
|          Cijev No.2          |')
        disp(TABLEe)

disp('*****
*****')

disp('*****
*****')
        disp('Cijev No  max. Pritisak  min. Pritisak')
        fprintf('   %.0f      %.2fm      %.2fm \n',Table2')
        break
end

%% PUMPV2 AT UPSTREAM END
CN = Q(1,2)-H(1,2)*CA(1)-CF(1)*Q(1,2)*abs(Q(1,2));
run PUMPV2.m
QP(1,1) = NPP*V*QR;
HP(1,1) = (QP(1,1)-CN)/CA(1);

%% INTERIOR POINTS
for I = 1:NP
    NN = N(I);
    for J = 2:NN
        JP1 = J+1;
        JM1 = J-1;
        CN = Q(I,JP1)-CA(I)*H(I,JP1)-
CF(I)*Q(I,JP1)*abs(Q(I,JP1));
        CP = Q(I,JM1)+CA(I)*H(I,JM1)-
CF(I)*Q(I,JM1)*abs(Q(I,JM1));
        QP(I,J) = 0.5*(CP+CN);
        HP(I,J) = (CP-QP(I,J))/CA(I);
    end
end

%% SERIES JUNCTION
if NP ~= 1
    for I = 1:NP1

```

```

        N1 = fix(N(I));
        NN = fix(N(1))+1;
        IP1 = I+1;
        CN = Q(IP1,2)-CA(IP1)*H(IP1,2)-
CF(IP1)*Q(IP1,2)*abs(Q(IP1,2));
        CP = Q(I,N1)+CA(I)*H(I,N1)-CF(I)*Q(I,N1)*abs(Q(I,N1));
        HP(I,NN) = (CP-CN)/(CA(I)+CA(IP1));
        HP(IP1,1) = HP(I,NN);
        QP(I,NN) = CP-CA(I)*HP(I,NN);
        QP(IP1,1) = CN+CA(IP1)*HP(IP1,1);

        end
    end

    %% RESERVOIR AT DOWNSTREAM END
    NN = N(NP)+1;
    NN1 = N(NP);
    HP(NP,NN) = HRES;
    CP = Q(NP,NN1)+CA(NP)*H(NP,NN1)-CF(NP)*Q(NP,NN1)*abs(Q(NP,NN1));
    QP(NP,NN) = CP-CA(NP)*HP(NP,NN);

    %% STORING MAX.AND MIN. PRESSURES AND VARIABLES FOR NEXT TIME
STEP
    for I = 1:NP
        NN = N(I)+1;
        for J = 1:NN
            Q(I,J) = QP(I,J);
            H(I,J) = HP(I,J);
        end
        if H(I,1) > HMAX(I)
            HMAX(I) = H(I,1);
        end
        if H(I,1) < HMIN(I)
            HMIN(I) = H(I,1);
        end
    end
    end
    if K == IPRINT
        break
    end
end
if T > TLAST
    break
end
end
ddd = size(Excel);
for ks = 1:length(L)
    if ks < 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 1 presjek',
', num2str(ks), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    elseif ks >= 10
        tableiso = ['Funkcija nq=', num2str(nq), ' cijev 2 presjek',
', num2str(ks-9), ' ', num2str(50*ks-50), '-', num2str(50*ks), '.xlsx'];
        xlswrite(tableiso, Excel(ks:length(L):ddd(1), :))
    end
end
end

```

```

% Dijagram Time-Alpha
figure(3)

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),2),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Alfa (dimenzionalna brzina)'),
title('Dijagram Vrijeme-Alfa')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-V
figure(4)

plot(Excel(1:2:length(Excel(:,1)),1),Excel(1:2:length(Excel(:,1)),3),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('V (dimenzionalno Protok)'),
title('Dijagram Vrijeme-V')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (connection pump and pipe Nu.1)
figure(5)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.2)
figure(6)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),5),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi na strani cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (pipes joint on a side of pipe Nu.1)
figure(7)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)

```



```

set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Pad (end of pipe Nu.2)
figure(8)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),6),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('H-Pad [m]'), title('Dijagram Vrijeme-Pad
(kraj cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (connection pump and pipe Nu.1)
figure(9)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(1:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj pumpe i cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.2)
figure(10)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(10:NP:length(Excel(:,1)),7),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 2)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (pipes joint on a side of pipe Nu.1)
figure(11)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(9:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (spoj cijevi strana cijevi 1)')
    xlim([0 TLAST])
    set(gca, 'xTick',0:1:TLAST)
    set(gcf, 'Position', [100, 100, 1200, 900])

% Diagram Time-Discharge (end of pipe Nu.2)
figure(12)

plot(Excel(1:NP:length(Excel(:,1)),1),Excel(NP:NP:length(Excel(:,1)),8),fhf),
grid on, hold on
    xlabel('Vrijeme [s]'), ylabel('Q-Protok [m^3/s]'), title('Dijagram
Vrijeme-Protok (kraj cijevi 2)')
    xlim([0 TLAST])

```

```

set(gca, 'xTick', 0:1:TLAST)
set(gcf, 'Position', [100, 100, 1200, 900])

%% Making 3D diagrams
% Diagram for Pad of function (during the transient process)
figure(4*(c-1)+15)
vrijeme = Excel(1:NP:vel(1)-1);
duzina = 0:50:450+550;
sss = size(vrijeme);
mmm = size(duzina);
for i = 1:sss(2)
    Hnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,5); Excel(NP*(i-1)+1:NP*i,6)];
    Qnew(1:mmm(2),i) = [Excel(NP*(i-1)+1,7); Excel(NP*(i-1)+1:NP*i,8)];
end
s2 = surf(vrijeme,duzina,Hnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Pad za funkciju n_q=', num2str(nq), ' (tokom procesa trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Pad
[m]')
xlim([0 TLAST]), ylim([0 sum(L)])
s2.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])

% Diagram for Discharge of function (during the transient process)
figure(4*(c-1)+16)
s3 = surf(vrijeme,duzina,Qnew);
grid on, hold on
colormap('turbo')
colorbar
title(['Protok za funkciju n_q=', num2str(nq), ' (tokom procesa
trazijenta)'])
xlabel('Vrijeme [s]'), ylabel('Udaljenost od pumpe [m]'), zlabel('Protok
[m^3/s]')
xlim([0 TLAST]), ylim([0 sum(L)])
s3.EdgeColor = 'none';
set(gcf, 'Position', [100, 100, 800, 800])
end

```

jedWh.m

```
function FH = jedWh(nq,ThetaD,varijanta)
```

```

%% obrada koeficijenata
% ff - jednacina furiera
if varijanta == 1
    ff = 3;
    Koef = [0.715731479330851 29.904965832957600 1.160146567645740
0.521115135250857 24.984627647082200 2.924225219363250 0.669699222908911
48.171790875051100 16.877203146165100 1.093124325893790

```

```

16.530859288034800  1.124728037889720  0.000000000000000
123.069952639871000  5.297192353276950
      -0.961523123293475  20.821344093580800  6.602453878194210
64.257648057580600  33.955125342916500  9.386353220569020  -
64.928459861354100  33.949656843977400  9.303213895257580  -0.553408365350271
43.537626921051000  2.662769940796440  -0.832693428738023
52.435524425571700  11.860111687227100
      1.752508344167960  19.813538033814300  1.338739746534640
423.391777872348000  29.423080141571000  0.233823124130313
14.034992024690400  192.667467724811000  84.128246511778100  -
2.249991305664610  52.979879468544200  2.414940141168370  -0.139425746706312
35.411065094104200  4.635405982702990
      -0.228259772514762  17.940643343430100  3.150874761319510
1.622551266692810  19.737858950059500  0.948089552133070
1543.400636295410000  39.201326063337000  9.564845520862440  -
1495.340285273880000  39.202390860318100  9.536202355573940  -
48.504466641276900  39.166154370154600  10.532068185319700
      52.774979545222600  19.948207260269500  0.382110550217316
0.263177598029735  36.944649226057900  1.154196394902190  -
0.441810896482947  20.178226600166000  1.910754413463700  -
49.076267398946200  50.575884925920200  12.341447824439800  49.056404431938300
50.553491696140300  12.272979751954900
      -0.181804234398022  19.327153282371900  4.958850828789490
0.000000000000000  26.029637164455600  0.002684600837807  -
0.191627659558586  33.994394599288800  8.496759972665970  -0.239544485919972
52.539088076212200  3.537489182415010  -0.007662269518264
41.686968452601200  0.721756412942864
      0.171794030111370  54.965027620881700  4.393250547557860
0.122789542611869  42.736325018115600  5.331583584358960  0.125185937307061
21.167598454897700  3.168706724130010  11.350749739153300
27.800622272514600  0.367470386336513  0.084923558027068
35.178568691978200  2.660337169981850
      0.683974778070928  28.479136553910500  10.684175903899800
1.059245427535040  51.273284066137800  20.043005489689600  1.540300759195000
16.534305521866800  0.955404836859471  0.081554743811410
39.737742947716300  2.241646592944000  0.413184604032852
21.483285325409600  4.496030498742180];
      GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2);

      elseif varijanta == 2
          ff = 3;
          Koeff = [0.547307872624346  29.8839532563986  0.793246192203723
2.309685047217230  332.7703121851250  239.007138115351  0.102040658730334
43.9750016600212  1.73890423394828
      -0.640843699205076  20.9637652502637  0.804458763664244
0.178200238232620  21.3675216323105  10.513306899753500  -
10.439195981271300  1627.61262058135  958.911327386202
      1.696914405871140  19.9667095602136  1.078693182634310
2563039855.449910  29.4645537432429  0.139184491455413  1.055669091064470
174.558135048266  134.204326548231
      -0.340698312375039  25.8630362606411  12.577242648008500  -
89.040274353193300  47.1888824574428  7.037219629716410  88.861378955054300
47.1851558391851  7.0037284373794

```

```

10.5212705783009 19.7443505022493 0.555280900913813
0.207955165908923 36.9386083983734 0.865490915538270 -
0.102485396609892 97.7537061085187 109.176933764359
-0.181478865700741 19.3076730512134 4.891681598994380 -
0.190652562739006 34.0378712221283 8.685029036984850 -0.489680873225789
52.7736206038725 2.493916983317
15253182234484.2 84.3913147403198 4.992659747586930
0.114843207641356 42.5555276529245 10.898582871234300 0.119438110316359
21.1098882550937 3.364929063690
0.957616501610985 25.1725505727929 23.954052282718500
0.840879738870500 57.5954963477624 19.356757711087200 0.429351737084564
16.5531614483509 0.912340659718];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2);

```

```

elseif varijanta == 3

```

```

ff = 3;
Koeff = [0.541944061628251 29.9112840097684 0.609750024000405
367254.1154988030 1015.46632507675000 268.780244089738000 -
3.248115803823190 47.7527080555991 7.827871488938230 3.067613744326430
47.2745171219860 6.8916449222616810
3558.27595727144 39.7803874584052 0.563866270550681 -
0.655122677605182 20.95809611855700 0.861535581007935 0.252438714671051
21.9706860056295 9.098398307081290 -219.142591015502000
5061.2938487694700 2096.985480589480000
1.753257619552930 19.7830735192274 1.646973739848750
0.355840125132201 27.87904920014190 4.399464526021200 0.394297739432654
42.6492408057384 6.113929831752710 57896858542275.2 824.9561617359720
135.150482547991000
0.618074311043399 20.9226089916430 0.746923433999019 -
0.458971083290531 22.67025888312530 9.181967353715210 -0.345830048302581
38.8447829814503 5.582997567637060 -0.346484063699974 54.5007057843973
12.019061272874800
17.203169456107400 19.9690362476728 0.396904337894192
0.215222047721478 36.91309306257100 0.867897634939713
10.307109676216700 68.7429160784018 24.928074260382400 -
11.451540447036400 71.7431334141354 26.729143588279700
-0.470905359789293 19.4695226030676 1.502145727627460 -
10772207070505.6 -8.57928427228217 4.288602187187170 -0.179943541469161
33.3340542180074 10.491749904664400 -0.436896743949830 52.7842153808616
2.562788678310650
1.861727066250480 82.6985044398997 17.083425428977600
0.118891597708152 40.96725307422590 6.788150256519830 0.125236941932015
21.1702636510723 3.150101855672350 70.626163963485500 27.7996969197635
0.311483670611709
0.947005281756741 24.7563868076686 24.717484926063400
0.859059033541582 59.50554823472470 21.118815767490900 0.373618340978890
16.5470804169307 0.943324093728692 0.138683979457977 39.7531160229800
1.300939985544000];

```

```

GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2);

```

```

elseif varijanta == 4

```

```

ff = 3;

```

```

    Koeff = [-0.000000000719419155449666    0.0000002001394994474110    -
0.000023764960141    0.001569835734795    -0.0629469913535133    1.5648923022590600
-23.49247414158300    194.2309419847820    -675.488282721413
    -0.000000001523016309455770    0.0000004174874484811200    -
0.000048925444901    0.003197857344233    -0.1273605203951220    3.1614422875066100
-47.71855216007930    400.1219953806810    -1426.944971356050
    0.000000001522718068577850    -0.0000004154618973418480
0.000048438943916    -0.003147986716868    0.1245587951729840    -
3.0683940191356800    45.89313605637810    -380.5847947191610    1339.261581398480
    0.000000001110692155909410    -0.0000003026294716142210
0.000035209457530    -0.002281832835106    0.0899894602976154    -
2.2091496314307000    32.93945956558710    -272.5966545465320    958.297581351687
    0.000000000192612735161932    -0.0000000554425448082238
0.000006805925116    -0.000464329017993    0.0192103854214338    -
0.4923109589792610    7.61341706522743    -64.8226372153901    232.338425397081
    -0.000000000208891289028475    0.0000000582810601414563    -
0.000006936942087    0.000459275162479    -0.0184691388695222    0.4612827535088290
-6.98004516655937    58.4680159026686    -207.691669186717
    0.000000000138464448665096    -0.0000000386868107512570
0.000004628910294    -0.000309251125959    0.0125921729738134    -
0.3192838510771930    4.91194626223695    -41.8338962620285    150.852627955751
    -0.000000000136873279061494    0.0000000374362153743245    -
0.000004373515728    0.000284635370486    -0.0112700102873447    0.2775625886048120
-4.14612160321041    34.3004656268043    -119.239865644071];
    elseif varijanta == 5
        ff = 4;
        Koeff = [0.0000000001483124577611510    -0.000000045665937634766600
0.0000061357877970046800    -0.0004718019124193200    0.022858794966160900    -
0.72290265217385900    14.904405618379200    -192.929777701929
1420.95321736821    -4531.661823027010
    0.000000000149746639175877    -0.000000005590353141930380
0.0000008865274868445490    -0.0000787571629071348    0.004331881715268490    -
0.15325392842910800    3.491252098236360    -49.42289555231910
394.7563686236520    -1356.839102956130
    -0.0000000001561615533164640    0.000000048994403816912600    -
0.0000067063266430236000    0.0005251084191534630    -0.025891781569837900
0.83274221924664700    -17.448846331869500    229.409121150463    -1715.40142142772
5554.050146978870
    -0.0000000001098353663449900    0.000000034356138354869400    -
0.0000046876609075013900    0.0003658027867456140    -0.017971975524956000
0.57583846875931900    -12.018955721533900    157.410871214888    -1172.76778277565
3784.379042484440
    0.000000000429066366325918    -0.000000013387389445635400
0.0000018202543097994200    -0.0001414450183278470    0.006917574426346170    -
0.22068409136372600    4.590359053360550    -60.0139643577423
447.3984941818910    -1448.690295678320
    0.000000000210850648552858    -0.000000006507143318240710
0.0000008770652486108870    -0.0000677216662989428    0.003298958943502670    -
0.10506395814251700    2.185881397049690    -28.6264928632753
213.9661655604780    -694.969331998672
    -0.000000000329196048129478    0.000000010260353632250700    -
0.0000013949316249789700    0.0001084823448101510    -0.005313764954737800
0.16986189813235100    -3.540469620672820    46.35938029125110    -
345.7782831314710    1118.675045669680

```

```

-0.000000000000440744767636384 0.000000000223304346718617 -
0.0000000409439272033431 0.0000039087285884900 -0.000221844837318895
0.00790572650884895 -0.178925823761283 2.50042322174394 -19.6975324318129
66.9223375772029
0.0000000000458451701841957 -0.000000014416839451208000
0.0000019773158226702200 -0.0001550616904532190 0.007652651619037800 -
0.24616732022711200 5.154659912457500 -67.67115282446900
504.9029624675620 -1630.22245311844
0.0000000000101532875002068 -0.000000003220251903217280
0.0000004458615800541910 -0.0000353162944111337 0.001760537106148740 -
0.05716707191022150 1.206609576121150 -15.93021615975910
119.1678726400810 -383.488164180874];

```

```

elseif varijanta == 6

```

```

    ff = 5;
    Koeff = [0.00000000000222752081735310 0.000000000000746043787443621
-0.0000000996979953557631 0.0000159910305085119 -0.00121789304382982
0.0541251324010482 -1.479805955797970 24.54960898214220 -
226.5789008824530 890.0673521014990
-0.00000000009853455894028930 0.000000029878451956899500000
-0.0000039529040602605100 0.0002993908888804500 -0.01430271029464040
0.4468440858784710 -9.127515208869680 117.51306604849600 -
864.9233259684540 2770.6755281101000
0.00000000006537081513489800 -
0.000000020305871676726200000 0.0000027635851293094100 -
0.0002163535500722580 0.01074058682124290 -0.3507198849776120
7.532893564066130 -102.57471636511800 802.5496341138720 -
2741.9375456265100
0.00000000001517519230302730 -
0.000000004960321329257650000 0.0000007154612462950320 -
0.0000597592595735836 0.00318296067274276 -0.1119422123509300
2.593431424771730 -38.04673273729810 319.4800663849460 -
1164.8959434468200
0.00000000024101930392032400 -
0.000000075238124405045100000 0.0000102508513132967000 -
0.0007994551828851060 0.03930161429305600 -1.2620431310661400
26.452038063744100 -348.69706904620800 2621.3372269439900 -
8555.6667189565200
0.00000000007788660088205660 -
0.000000024469978478046000000 0.0000033590198876066700 -
0.0002642302707014880 0.01311594213135450 -0.4256881437796030
9.025483550010260 -120.42925435045800 916.7327929538220 -
3029.9959514784600
-0.00000000003942001698406580 0.000000012217715847756700000
-0.0000016524894036455000 0.0001279340042024160 -0.00624384792629115
0.1990913323318370 -4.144782214762320 54.28923693214120 -
405.6852302594130 1316.8944618435100
0.00000000002457664382015730 -
0.000000008065392363847570000 0.0000011563609185520000 -
0.0000949274326042762 0.00490942641771828 -0.1656095133279460
3.637771032702450 -50.09613392005990 391.9116353377320 -
1325.5420757321700
0.0000000000949183684374935 -
0.000000002789641097342930000 0.0000003522864135437280 -

```

```
0.0000249166136057757 0.00107645967120288 -0.0289579453589674
0.469648850383232 -4.10250314680034 13.0347850621519 21.7580121829851
-0.00000000001809371173010940 0.000000005464185550308950000
-0.0000007221076652398840 0.0000548527943207524 -0.00264173379308249
0.0837145630047144 -1.746333116178210 23.12148877661600 -
176.1485818612130 587.3167315808940
-0.00000000000016802677567676 0.00000000560037280421419000
-0.0000001480108904131520 0.0000172709274948416 -0.00113336595664109
0.0454661343704326 -1.138536354368660 17.34989300307600 -
146.9199722947070 528.7883109465540
-0.00000000003508718158417060 0.000000010821734507197800000
-0.0000014561447524457000 0.0001121394252697340 -0.00544471830155742
0.1727836184680380 -3.582741239557160 46.79409137265480 -
349.1752107088000 1134.2056385207600];
```

```
elseif varijanta == 7
```

```
ff = 4;
```

```
Koeff = [-0.0000000007491715910670530 0.0000002091199311599920 -
0.00002490561744261790 0.001649271355949260 -0.06625528487281190
1.649038275173740 -24.76603550373240 204.7071071755390 -
711.4458471321500
-0.0000000010552420263987900 0.0000002881296126501090 -
0.00003363538470894380 0.002190419745732360 -0.08695421372091220
2.152897424241530 -32.44390700103780 271.9556476709870 -
971.1233567020060
0.0000000017005212852224300 -0.0000004660035178201750
0.00005456116608651340 -0.003559792726267500 0.14134330099473000 -
3.491969172977950 52.34569984559540 -434.7882844670870 1531.6580309777400
0.0000000010922471894073500 -0.0000002985640906956940
0.00003484597422847180 -0.002264894468442660 0.08954685687252240 -
2.202463228792380 32.87429142040740 -272.0556032536690 955.2517556144620
-0.0000000003930166973677600 0.0000001056755859092100 -
0.00001215839446054350 0.000781681754508763 -0.03071670486874540
0.755595348162435 -11.36437220232550 95.5397852324739 -
343.5058680103350
-0.0000000001214833445735680 0.0000000344915483728896 -
0.00000418797866792135 0.000283674943609533 -0.01171069210109040
0.301412052180571 -4.71924013416871 41.0566979362727 -
151.8625503481100
0.0000000002905762450021240 -0.0000000794415646938760
0.00000928872584457214 -0.000606074541814293 0.02411168834328690 -
0.598292940602111 9.03356140457960 -75.8188885722162 270.7354853335900
0.0000000000898237887908671 -0.0000000233314630185466
0.00000258067289746543 -0.000158815832950063 0.00595434699964155 -
0.139534434253989 2.00068577224751 -16.0831758472293 55.5696823478691
-0.0000000005325251158750800 0.0000001453112760685980 -
0.00001692065356855950 0.001096531963795250 -0.04318969609679080
1.057265931630640 -15.68971110071670 128.9466149671200 -
449.3476014531690
-0.0000000001453056302934750 0.0000000401292250758960 -
0.00000472232655328813 0.000308559341052150 -0.01221380495566130
0.299163515371805 -4.41793426917184 35.9051675777457 -
121.9609013937540];
```

```
end
```

```

if varijanta <= 3
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
w = GASS(Koeff(end,:),nq);
elseif varijanta > 3
    a0 = polyval(Koeff(1,:),nq);
    a1 = polyval(Koeff(2,:),nq);
    b1 = polyval(Koeff(3,:),nq);
    if ff >= 2
        a2 = polyval(Koeff(4,:),nq);
        b2 = polyval(Koeff(5,:),nq);
        if ff >= 3
            a3 = polyval(Koeff(6,:),nq);
            b3 = polyval(Koeff(7,:),nq);
            if ff >= 4
                a4 = polyval(Koeff(8,:),nq);
                b4 = polyval(Koeff(9,:),nq);
                if ff >= 5
                    a5 = polyval(Koeff(10,:),nq);
                    b5 = polyval(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = polyval(Koeff(12,:),nq);
                        b6 = polyval(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = polyval(Koeff(14,:),nq);

```


jedWm.m

```
function FB = jedWm(nq,ThetaD,varijanta)
    %% obrada koeficijenata
    % ff - jednacina furiera
    ff = 2;
    if varijanta == 1

        Koeff = [0.2550536698126430 25.6186085901353 0.963267711627744
0.337927288514508 29.637663415084500 0.981293292472372 28966.07550917390
65.2509909609433 2.950351977592590 0.185993555581020 47.9268600950130
10.89020139569180 -2.407235575701770 54.4146992436426 2.260359124540420
-16620771727066.700 -4276.11273885084 805.599265318033 -
1109258261.09874 33.423922310980700 0.516355342831691 -
1.4553184642107200 29.6434273874913 0.628339785251443 1.315730559665290
68.9333960383609 25.364244941314900 7.696586293536820 0.579956382013546
55.0333295151463
324.12069894061200 29.5305502765131 0.289320739965899
0.851923564873571 72.185467156661800 24.553017487914800
0.2390879654207820 42.9992939636545 1.374890393223450 50.9868054813579
36.6261473513520 0.300523766914872 752.53901374966 -1196.893315916210
458.209590154823
0.7969616045235030 30.5481737462861 0.323116981487847
0.216205675422239 37.812036149190800 2.998374370756010
0.8786364970989780 26.5875750425643 0.285662853532393 0.269509239517786
49.8968970919004 8.755147692392940 0.241373123080481 17.1299699732532
8.327848676217870
15609923231.145100 33.4088970423167 0.493221992181572
0.339811595529765 17.156363734307600 9.158788121298710
0.2970961874516290 39.1121374566248 3.812809161841930 0.180831886464536
27.4815736160715 3.148470805194080 0.296441327664035 48.7546142263852
6.731023198418530
0.0919924360474903 28.1156484740068 6.426286057995100
0.292910452594169 9.913508345404570 14.563949274160200
0.0709808075667553 42.4620025926456 8.149659108637010 0.938585093478700
59.5435118000423 85.9380912870727 0.258296343141102 34.5462796697432
0.881787048543951];
        GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2)+a(13)*exp(-(x-a(14))/a(15)).^2); % gauss 5

    elseif varijanta == 2

        Koeff = [0.2565340720957820 25.6190131658440 0.96484041817702
0.337554045255185 29.64017983253620 0.993738454543427 6780.105336248370
62.82816172127180 2.08283834103938 0.1616247773253950 45.5723867370634
9.27704032333352
-0.3100589044418280 25.4140487351679 1.16073952528412 -
0.586466836958781 31.24387084830800 4.686691909238580 -0.689118271729782
15.29679545017730 7.02390267918711 -0.8437096316550170 49.5825278216519
19.33923546847640
0.5840877456326120 30.3360080363224 5.36367655198547
108489741386884.00 949.80157258851400 157.090639472185000 0.464910905673951
42.33396678859710 8.81291764030294 0.6778739307366020 16.5739817924808
8.85392533399651
```

```

0.4789170184810000 30.4766951062495 0.41602004860087
0.210129349908645 37.92996540846660 2.963816417541680 0.234552442063483
16.72048667075920 11.78352371078880 0.2705319174861940 49.9406202391671
8.62217289280991
0.1814128688279530 40.0671301335334 7.67279200097386
0.363099490980210 7.49261833332073 30.091218205065800 0.068035782523532
51.70049384794580 4.24714421064911 0.1451378767477920 50.2963385279459
4.53382541975554
0.0938567377090819 28.2172498839754 8.47530755567248
13990856363678.50 -2854.41429239682000 520.586129016091000
0.595661587390582 64.00343615978220 34.61157020854780
0.0658942084280693 42.9262124546354 7.64207254916681];
GASS = @(a,x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2)+a(10)*exp(-(x-
a(11))/a(12)).^2); % gauss 4

```

```

elseif varijanta == 3

```

```

Koeff = [0.000000001588890538391660 -0.0000003723117619424390
0.0000361422316558991 -0.001879364783403500 0.05641884501931590 -
0.9769263981065590 9.047712009035270 -34.666264303019000
-0.000000005684378149240630 0.0000013892024063298300 -
0.0001412588614686960 0.007725561947790710 -0.24470767032302400
4.4760105970231800 -43.672315511169600 174.519303665407000
0.000000005171184954836380 -0.0000012584894288055900
0.0001275738899707780 -0.006966559417897400 0.22080363358228700 -
4.0525365367820300 39.807951121075600 -160.624767567671000
-0.000000000617386024430864 0.0000001288300696868020 -
0.0000108068313108032 0.000465041564602690 -0.01081710278781060
0.1300433475802940 -0.671498532271456 0.864664277333494
-0.000000001150232150863960 0.0000002724498733260970 -
0.0000268503891151348 0.001424304326770460 -0.04385349511440470
0.7833281383274020 -7.526171798354300 30.394030483031300
0.000000000237800574036084 -0.0000000526584190793892
0.0000047464956991714 -0.000223461047310198 0.00584470233506904 -
0.0827567012675461 0.556205464096055 -0.190662750191647];

```

```

elseif varijanta == 4

```

```

Koeff = [-0.0000000006840884836399160 0.00000002033163725719810 -
0.000002567631155366350 0.000179570915438446 -0.007590747230637750
0.1982381601756740 -3.119852248198430 27.05342651952840 -99.0588045403801
-0.00000000040377961670024300 0.00000010494369507546700 -
0.000011568554439610600 0.000705321374079300 -0.025985571487810600
0.5923733518557350 -8.172496124873870 62.60546400655040 -
205.5542663092460
0.00000000050022893093365100 -0.00000013188219890021500
0.000014794437926265900 -0.000921225773664998 0.034797025323916800 -
0.8162277754127460 11.617271283441200 -91.85600077612810 310.2355426650230
0.00000000024881599502151600 -0.00000006878832130251460
0.000008113624322572120 -0.000532484238887428 0.021238426010244700 -
0.5266409305167510 7.924272316416050 -66.16170746138060 235.0725826112420
-0.00000000010541975058365400 0.00000002773281049058800 -
0.000003110592356459330 0.000194176808864644 -0.007377079229240390
0.1746936254601530 -2.518974327501390 20.22108573021130 -68.8364885751104

```

```

-0.000000000000612377653155314 0.00000000191560096445476 -
0.000000249177520075123 0.000017585846582828 -0.000734728677582416
0.0185399868579404 -0.274585672858887 2.16802870900847 -
5.9549101557933];

```

```
elseif varijanta == 5
```

```

Koeff = [0.000000000011680825665761900 -0.0000000036059735381334700
0.00000048710546843449600 -0.000037764389345331000
0.001849995311944690000 -0.059307127211933400 1.24220734128243000 -
16.364129806873900 122.84280925203100 -399.932227420309
-0.000000000008286958410112770 0.0000000021059446353916400 -
0.00000022620886526139200 0.000013401775540240400 -0.000479760733857257000
0.010704599425104200 -0.14827028363717600 1.223652782979380 -
5.35228604771694 7.90029710565952
-0.000000000043548432865377100 0.0000000136889711318116000 -
0.00000187210754186201000 0.000146014927381898000 -0.007148898950970430000
0.227605938501780000 -4.70835176538847000 60.994562633398300 -
448.97780213128700 1431.95128707579
-0.000000000019500134886293700 0.0000000061544763133041900 -
0.00000084802712938707700 0.000066871588176315400 -0.003321114253612500000
0.107574479152904000 -2.26945778527578000 30.034455812136700 -
226.07385214071800 737.354912413844
0.000000000012792679350824100 -0.0000000039797118643547200
0.00000053893707999339800 -0.000041657597046220100
0.002023602595716880000 -0.064016146126722200 1.31803429062862000 -
17.023924653370700 125.12829808155000 -398.348916411191
-0.000000000000116173506560012 0.0000000000290596348520913 -
0.00000000272677229678402 0.000000100877427722979 0.000000972375484845918 -
0.000220375207931837 0.00815702558494035 -0.142862607203483
1.21534019161962 -2.96252574948479];

```

```
elseif varijanta == 6
```

```

Koeff = [0.2396989599392460 25.6152513832965 0.921235726763537
0.356686480636697 29.6181439335044 0.863734999340850 0.177838213610671
54.50312851955850 19.06095070390450
-161604085071244.00 -1348.64837068958 237.118925186141000 -
0.431556584079404 31.5813678777715 4.979020168320690 -0.732700395540283
51.37050333406420 15.82124676270580
397.8922912225740 61.7661994698937 2.035702378740950
0.0000000000000000 124.4074888973250 7.597395711925160
26.516151737300700 1115.66434507875000 572.44162899584500
1067684.0290807000 30.3755017996734 0.134329574271467 -
29282515.95866490 29.8365501392376 0.243334753472403 0.202057948914174
23.56465837532410 83.95311922599840
-4.1467342213550000 27.4518852445997 14.438662577382400
4.390855444171340 27.3740653678572 15.381516045760300 0.267119335754774
52.08208840300900 2.63767879223153
0.0757698656680684 26.2601890811220 6.898666253721750
0.971459766358391 45.8125229368510 54.950393330768900 0.419411152377490
6.00706284706127 13.56218462897350];

```

```

GASS = @(a, x) a(1)*exp(-(x-a(2))/a(3)).^2)+a(4)*exp(-(x-
a(5))/a(6)).^2)+a(7)*exp(-(x-a(8))/a(9)).^2); % gauss3

```

```

elseif varijanta == 7

    Koeff = [0.00000001667646610748540 -0.000003612804128723200
0.000315826181509237 -0.01420006601425680 0.344661600855802 -
4.25705497946271 20.86120312692360
-0.00000000243290800565087 0.000000967837775954358 -
0.000127902625673005 0.00793691727028947 -0.252072151343157
3.92651204989357 -24.13448331084370
0.00000000750720462958153 -0.000001812394333393670
0.000177883963489826 -0.00903186574287275 0.248688633617358 -
3.49359119179948 20.09429218921680
-0.00000002231684060267700 0.000004640553453036450 -
0.000387931116614583 0.01662287981585140 -0.383478472141252
4.49825797298139 -20.71132320249870
-0.00000000914709978171369 0.000001929139249688860 -
0.000164841787528002 0.00726905862181974 -0.173397935542602
2.10543615712011 -9.80350153749406
0.0000000055932574850391 -0.000001203423506701000
0.000105081202115758 -0.00472444461105914 0.115038160743676 -
1.43504638795362 8.11983020733536];

end

if varijanta <= 2 || varijanta == 6
    a0 = GASS(Koeff(1,:),nq);
    a1 = GASS(Koeff(2,:),nq);
    b1 = GASS(Koeff(3,:),nq);
    if ff >= 2
        a2 = GASS(Koeff(4,:),nq);
        b2 = GASS(Koeff(5,:),nq);
        if ff >= 3
            a3 = GASS(Koeff(6,:),nq);
            b3 = GASS(Koeff(7,:),nq);
            if ff >= 4
                a4 = GASS(Koeff(8,:),nq);
                b4 = GASS(Koeff(9,:),nq);
                if ff >= 5
                    a5 = GASS(Koeff(10,:),nq);
                    b5 = GASS(Koeff(11,:),nq);
                    if ff >= 6
                        a6 = GASS(Koeff(12,:),nq);
                        b6 = GASS(Koeff(13,:),nq);
                        if ff >= 7
                            a7 = GASS(Koeff(14,:),nq);
                            b7 = GASS(Koeff(15,:),nq);
                            if ff == 8
                                a8 = GASS(Koeff(16,:),nq);
                                b8 = GASS(Koeff(17,:),nq);
                            end
                        end
                    end
                end
            end
        end
    end
end
end
end
end
end
end
end
end

```

```

end
w = GASS(Koeff(end,:),nq);
else
a0 = polyval(Koeff(1,:),nq);
a1 = polyval(Koeff(2,:),nq);
b1 = polyval(Koeff(3,:),nq);
if ff >= 2
a2 = polyval(Koeff(4,:),nq);
b2 = polyval(Koeff(5,:),nq);
if ff >= 3
a3 = polyval(Koeff(6,:),nq);
b3 = polyval(Koeff(7,:),nq);
if ff >= 4
a4 = polyval(Koeff(8,:),nq);
b4 = polyval(Koeff(9,:),nq);
if ff >= 5
a5 = polyval(Koeff(10,:),nq);
b5 = polyval(Koeff(11,:),nq);
if ff >= 6
a6 = polyval(Koeff(12,:),nq);
b6 = polyval(Koeff(13,:),nq);
if ff >= 7
a7 = polyval(Koeff(14,:),nq);
b7 = polyval(Koeff(15,:),nq);
if ff == 8
a8 = polyval(Koeff(16,:),nq);
b8 = polyval(Koeff(17,:),nq);
end
end
end
end
end
end
end
end
end
end
w = polyval(Koeff(end,:),nq);
end

%% Dobijanje Wm
if ff == 1
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w);
elseif ff == 2
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w);
elseif ff == 3
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w);
elseif ff == 4
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w);
elseif ff == 5
FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w);

```

```

elseif ff == 6
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w);
elseif ff == 7
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w);
elseif ff == 8
    FB = a0 + a1*cos(ThetaD.*w) + b1*sin(ThetaD.*w) + a2*cos(2*ThetaD.*w)
+ b2*sin(2*ThetaD.*w) + a3*cos(3*ThetaD.*w) + b3*sin(3*ThetaD.*w) +
a4*cos(4*ThetaD.*w) + b4*sin(4*ThetaD.*w) + a5*cos(5*ThetaD.*w) +
b5*sin(5*ThetaD.*w) + a6*cos(6*ThetaD.*w) + b6*sin(6*ThetaD.*w) +
a7*cos(7*ThetaD.*w) + b7*sin(7*ThetaD.*w) + a8*cos(8*ThetaD.*w) +
b8*sin(8*ThetaD.*w);
end

end

```

PARAB.m

```

%% SUBROUTINE PARAB(X,J,Z)
function Z = PARAB(X,J,nq)

```

```

    nq2 = [15.7 17.53 20.73 22.1 24.8 25.5 26.24 27 28.6 28.8 30.3 30.95
35.89 37.4 38 41.6 43.83 50 56];
    nqC = find(nq2 == nq);
    data_im = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42
-0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108
            -0.422  -0.588  -0.4054 -0.532  -1.222  -0.409  -0.364  -0.392  -
0.5227 -0.344  -0.422  -0.324  -0.4363 -0.3844 -0.451  -0.4464 -0.4815 -
0.3791 -0.422  -0.588  -0.422  -0.588  -0.4645 -0.5839 -0.818  -0.6258 -0.925
-0.54    -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
0.5354 -0.4984
            -0.403  -0.565  -0.3893 -0.507  -1.213  -0.379  -0.355  -0.362  -
0.4996 -0.3289 -0.403  -0.307  -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
0.3618 -0.403  -0.565  -0.403  -0.565  -0.444  -0.5597 -0.7856 -0.6146 -0.889
-0.502  -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
0.5201 -0.4852
            -0.383  -0.541  -0.3721 -0.4812 -1.203  -0.349  -0.345  -0.332  -
0.4772 -0.3146 -0.383  -0.289  -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
0.3391 -0.383  -0.541  -0.383  -0.541  -0.4227 -0.5348 -0.753  -0.5993 -0.853
-0.467  -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442  -0.3474 -0.3885 -
0.5025 -0.4708
            -0.362  -0.516  -0.3537 -0.4545 -1.191  -0.318  -0.333  -0.301  -
0.4558 -0.3006 -0.362  -0.27   -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
0.3132 -0.362  -0.516  -0.362  -0.516  -0.4003 -0.509  -0.7194 -0.5813 -0.816
-0.433  -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
0.4855 -0.4544

```

-0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008
 -0.19 -0.311 -0.1943 -0.2412 -1.063 -0.0839 -0.205 -0.0669 -
 0.2953 -0.0887 -0.19 -0.113 -0.228 -0.1468 -0.2671 -0.1816 -0.2519 -
 0.1122 -0.19 -0.311 -0.19 -0.311 -0.2187 -0.3009 -0.4577 -0.4055 -0.53
 -0.191 -0.342 -0.1465 -0.2203 -0.2552 -0.238 -0.2922 -0.1946 -0.205 -
 0.3299 -0.2808
 -0.17 -0.287 -0.1749 -0.2168 -1.045 -0.0584 -0.187 -0.0414 -
 0.2755 -0.048 -0.17 -0.095 -0.2082 -0.126 -0.2475 -0.1578 -0.231 -0.091
 -0.17 -0.287 -0.17 -0.287 -0.1975 -0.2764 -0.4267 -0.3862 -0.496 -
 0.161 -0.3187 -0.1177 -0.2025 -0.2291 -0.2222 -0.2707 -0.1812 -0.1791 -
 0.3077 -0.2581
 -0.151 -0.263 -0.1561 -0.1923 -1.027 -0.0329 -0.169 -0.0159 -
 0.255 -0.018 -0.151 -0.0774 -0.1891 -0.1043 -0.2283 -0.1319 -0.2102 -
 0.0581 -0.151 -0.263 -0.151 -0.263 -0.1773 -0.2519 -0.3966 -0.3669 -0.463
 -0.131 -0.2993 -0.0872 -0.188 -0.2014 -0.2064 -0.2472 -0.1676 -0.1473 -
 0.2873 -0.2314
 -0.13 -0.24 -0.1357 -0.1685 -1.008 -0.007 -0.15 0.01 -
 0.2346 0.009 -0.13 -0.06 -0.1693 -0.0814 -0.2096 -0.1034 -0.1893 -
 0.0279 -0.13 -0.24 -0.13 -0.24 -0.1553 -0.2282 -0.3662 -0.3502 -0.43
 -0.1 -0.2786 -0.0555 -0.1743 -0.1617 -0.1907 -0.2211 -0.154 -0.1178 -
 0.2698 -0.1989

-0.108 -0.217 -0.1146 -0.1445 -0.989 0.0196 -0.131 0.0366 -
 0.2135 0.0391 -0.108 -0.0426 -0.1492 -0.0572 -0.1915 -0.0722 -0.1684 0.0005
 -0.108 -0.217 -0.108 -0.217 -0.1325 -0.2045 -0.3363 -0.3338 -0.398 -
 0.0686 -0.2582 -0.0269 -0.1598 -0.1182 -0.1749 -0.1924 -0.1404 -0.0915 -
 0.2496 -0.1582
 -0.0862 -0.193 -0.0936 -0.1197 -0.97 0.0465 -0.112 0.0635 -
 0.1954 0.06 -0.0862 -0.0251 -0.1291 -0.0318 -0.1732 -0.0387 -0.1475 0.0245
 -0.0862 -0.193 -0.0862 -0.193 -0.1098 -0.1798 -0.3065 -0.3157 -0.366 -
 0.0371 -0.2372 -0.0017 -0.1445 -0.0806 -0.1591 -0.1611 -0.1266 -0.0677 -
 0.2277 -0.1083
 -0.0637 -0.169 -0.0721 -0.0949 -0.9511 0.073 -0.0931 0.09 -
 0.1749 0.0764 -0.0637 -0.00726 -0.1083 -0.0055 -0.1541 -0.0036 -0.1266
 0.0422 -0.0637 -0.169 -0.0637 -0.169 -0.0865 -0.1553 -0.2765 -0.297 -
 0.334 -0.00643 -0.2157 0.0212 -0.1286 -0.0487 -0.1393 -0.1277 -0.1127 -
 0.0454 -0.2072 -0.0708
 -0.0415 -0.145 -0.0513 -0.0704 -0.9337 0.099 -0.0757 0.116 -
 0.1553 0.0914 -0.0415 0.011 -0.0872 0.0162 -0.1341 0.0216 -0.1058 0.0608
 -0.0415 -0.145 -0.0415 -0.145 -0.0635 -0.1308 -0.2466 -0.2771 -0.302
 0.0228 -0.193 0.0426 -0.1121 -0.0197 -0.1187 -0.0886 -0.0987 -0.0237 -
 0.1874 -0.0495
 -0.02 -0.12 -0.0314 -0.0457 -0.918 0.123 -0.06 0.14 -
 0.1346 0.1063 -0.02 0.03 -0.0661 0.0364 -0.1134 0.043 -0.0849 0.0797
 -0.02 -0.12 -0.02 -0.12 -0.0411 -0.1056 -0.2168 -0.2538 -0.27 0.05
 -0.1723 0.0629 -0.0965 0.0079 -0.0981 -0.0615 -0.0845 -0.003 -0.1677 -
 0.0308
 0.000468 -0.0943 -0.0129 -0.021 -0.9042 0.145 -0.0462 0.162
 -0.115 0.1223 0.000459 0.0497 -0.0453 0.057 -0.0922 0.0645 -0.064
 0.0975 0.000471 -0.0943 0.000459 -0.0944 -0.0197 -0.0801 -0.1873 -
 0.2275 -0.238 0.0746 -0.1549 0.0824 -0.0825 0.0328 -0.0774 -0.0445 -
 0.0701 0.0175 -0.1491 -0.012
 0.0202 -0.0681 0.005 0.0037 -0.891 0.166 -0.033 0.183 -
 0.0936 0.1395 0.0202 0.0699 -0.0258 0.0778 -0.0731 0.086 -0.0431 0.1135
 0.0202 -0.0682 0.0202 -0.0682 0.0012 -0.0542 -0.1571 -0.1983 -0.205
 0.0971 -0.1394 0.1014 -0.0684 0.0539 -0.0568 -0.0249 -0.0556 0.0383 -
 0.1298 0.0086
 0.0398 -0.0418 0.0231 0.0282 -0.8767 0.186 -0.0187 0.203 -
 0.0725 0.1579 0.0397 0.0902 -0.0063 0.0988 -0.0536 0.1077 -0.0223 0.1285
 0.0398 -0.0418 0.0397 -0.0419 0.0219 -0.0284 -0.1262 -0.1678 -0.171 0.118
 -0.1221 0.12 -0.0542 0.0753 -0.0362 0.0003 -0.0408 0.0595 -0.1083
 0.0312
 0.0595 -0.0157 0.042 0.0523 -0.85957 0.205 -0.00157
 0.222 -0.0519 0.177 0.0595 0.11 0.0138 0.1196 -0.0332 0.1294 -
 0.0014 0.1489 0.0595 -0.0157 0.0595 -0.0158 0.0411 -0.0027 -0.0944 -
 0.1377 -0.136 0.139 -0.1027 0.1384 -0.0396 0.0969 -0.0156 0.0292 -
 0.0258 0.0812 -0.0898 0.0559
 0.08 0.01 0.06 0.0758 -0.838 0.223 0.02 0.24 -
 0.0307 0.1943 0.08 0.13 0.0348 0.1405 -0.0116 0.1512 0.0183 0.1705
 0.08 0.01 0.08 0.01 0.0524 0.0227 -0.0617 -0.1081 -0.1 0.16
 -0.0809 0.1567 -0.0245 0.1188 0.005 0.057 -0.0105 0.1033 -0.0665
 0.0822
 0.102 0.0349 0.07 0.0987 -0.8109 0.241 0.0471 0.258 -
 0.0084 0.2096 0.102 0.149 0.0571 0.1609 0.011 0.1731 0.0424 0.1901
 0.102 0.0349 0.102 0.0351 0.0597 0.0475 -0.0278 -0.0806 -0.0628 0.182
 -0.0549 0.1751 -0.0091 0.1411 0.0263 0.0831 0.0051 0.1258 -0.0421
 0.1092

	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	
0.075	0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	
0.2408	0.168	0.107	0.169	0.107	0.0775	0.145	0.073	0.143	
0.0471	0.249	0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	
0.1868	0.0108	0.1665							
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								
	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	
0.215	0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	
0.3814	0.27	0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191
0.344	0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	
0.1404	0.2953								
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	
0.2911	0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	
0.4118	0.333	0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285
0.389	0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	
0.2256	0.3524								

	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	
0.317	0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	
0.4226	0.355	0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318
0.402	0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	
0.3653	0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444
0.4	0.38	0.4	0.38	0.374	0.463	0.353	0.426	0.38	0.43
0.3652	0.442	0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								
	0.5	0.5	0.5	0.5	0.13	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5
0.4993	0.5	0.5	0.5	0.5	0.5				
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508	
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272	
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092	
0.5295	0.515								
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516	
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543	
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186	
0.5534	0.5307								
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525	
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813	
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289	
0.5781	0.5457								
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533	
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533

0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041	
0.5595									
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733	
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545	
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596	
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611	
0.6513	0.5872								
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549	
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834	
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722	
0.6734	0.6011								
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552	
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054	
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695
0.6148									
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556	
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263	
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946	
0.7164	0.6283								
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	
0.7066	0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	
0.5686	0.77	0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74
0.57	0.7249	0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	
0.7374	0.6415								
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565	
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662	
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755
0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	
0.7829	0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	
0.6064	0.881	0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795
0.58	0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	
0.8184	0.6917								
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	

0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	
0.8538	0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299
0.942	0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	
0.871	0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	
0.6296	0.955	0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88
0.573	0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	
0.9201	0.7368								
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94
0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	
0.9923	0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	
0.5485	1.15	1.17	1.19	0.502	0.95	0.647	1	0.594	1.02
0.543	0.9925	0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	
1.0508	0.7691								

	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	
1.0109	0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	
0.5382	1.2	1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04
1.0043	0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.534
0.7717									
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
0.6226	1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32
1.3	1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		0.483
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	
1.1321	0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	
0.4584	1.36	1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11
0.488	1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	
1.1592	0.7732								
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	
1.1382	0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	
0.4468	1.36	1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12
0.48	1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	
1.1403	0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355
1.36	1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								

	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	
1.1497	0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378
1.55	1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.36
1.1231	0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	
0.6545									
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	
1.1509	0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712
1.36	1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	
1.1532	0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608
1.6	1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296
0.3765									
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	
1.1559	0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548
1.38	1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36
1.139	0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	
0.6614									
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39

1.64 1.45 0.528 1.1 0.43 1.24 0.535 1.14 0.355 1.1348
0.3331 1.341 0.5309 1.5694 0.6853 1.1795 0.5544 1.3419 0.6804
1.29 0.3 1.19 0.403 0.616 0.358 1.4 0.26 1.1573
0.6974 1.62 0.81 1.1 0.332 1.1189 0.4151 1.1724 0.3576 1.4 1.65
1.45 0.53 1.1 0.414 1.24 0.541 1.14 0.35 1.13 0.3128
1.3461 0.5296 1.5932 0.7005 1.1863 0.5631 1.3609 0.702
1.28 0.285 1.18 0.397 0.614 0.36 1.4 0.248
1.1579 0.6984 1.62 0.812 1.1 0.334 1.12 0.4142 1.1729 0.3602
1.41 1.66 1.45 0.532 1.1 0.399 1.25 0.548 1.14 0.346
1.1262 0.3072 1.3509 0.5287 1.6165 0.7179 1.19 0.5691 1.3827
0.7266
1.28 0.274 1.18 0.39 0.613 0.362 1.4 0.236
1.1584 0.6993 1.62 0.814 1.1 0.337 1.121 0.4132 1.1736 0.3633
1.43 1.67 1.45 0.534 1.1 0.386 1.26 0.555 1.14 0.343
1.1224 0.3036 1.3565 0.5282 1.6398 0.7383 1.1927 0.5742 1.4058
0.7534
1.27 0.264 1.17 0.384 0.611 0.366 1.41 0.226
1.1588 0.7 1.61 0.816 1.1 0.338 1.1218 0.4122 1.1746 0.3664 1.44
1.68 1.45 0.536 1.1 0.376 1.27 0.562 1.14 0.341 1.1188
0.3012 1.3635 0.5292 1.6628 0.7594 1.1949 0.5789 1.4289 0.7807
1.26 0.257 1.17 0.378 0.608 0.37 1.41 0.217
1.1592 0.7007 1.61 0.818 1.1 0.34 1.1225 0.4111 1.1766 0.3698
1.46 1.69 1.44 0.538 1.1 0.368 1.27 0.569 1.14 0.34
1.1154 0.3006 1.3719 0.5377 1.6859 0.7796 1.1968 0.5833 1.4535
0.8102
1.26 0.25 1.16 0.372 0.606 0.374 1.41 0.21
1.1595 0.7012 1.6 0.82 1.1 0.343 1.1231 0.41 1.1796 0.3739 1.47
1.7 1.44 0.54 1.1 0.362 1.28 0.576 1.14 0.34 1.1119
0.3018 1.3807 0.5504 1.709 0.7998 1.1985 0.5877 1.482 0.8441
1.26 0.244 1.16 0.366 0.603 0.379 1.41 0.206
1.1598 0.7017 1.59 0.822 1.1 0.346 1.1236 0.4088 1.1815 0.3779
1.48 1.71 1.44 0.542 1.1 0.358 1.28 0.583 1.14 0.34
1.1084 0.3044 1.3888 0.5621 1.7309 0.8198 1.2004 0.5925 1.5135
0.8811
1.26 0.238 1.15 0.361 0.6 0.384 1.41 0.204
1.1599 0.702 1.59 0.824 1.1 0.349 1.124 0.4076 1.1827 0.3816
1.5 1.71 1.43 0.544 1.1 0.358 1.29 0.589 1.14 0.341
1.1059 0.3076 1.3953 0.5716 1.7507 0.8391 1.2026 0.5979 1.548
0.9205
1.26 0.233 1.14 0.356 0.597 0.388 1.41 0.205
1.16 0.7022 1.58 0.827 1.11 0.354 1.1242 0.4064 1.1834
0.3852 1.51 1.72 1.43 0.547 1.1 0.36 1.29 0.595 1.13
0.343 1.1048 0.3113 1.4004 0.5807 1.769 0.8579 1.2056 0.6042
1.5851 0.962
1.26 0.231 1.14 0.352 0.593 0.392 1.42 0.207
1.1601 0.7022 1.57 0.829 1.11 0.359 1.1243 0.4051 1.1832
0.3887 1.53 1.72 1.42 0.552 1.1 0.365 1.29 0.601 1.13
0.346 1.104 0.3162 1.4046 0.5898 1.7869 0.8772 1.209 0.6113
1.6192 1
1.26 0.23 1.13 0.348 0.589 0.396 1.42 0.21
1.1596 0.7022 1.56 0.83 1.11 0.366 1.1241 0.4032 1.182
0.3921 1.54 1.72 1.42 0.56 1.1 0.374 1.3 0.606 1.13 0.35
1.1035 0.3221 1.4081 0.599 1.8049 0.8982 1.2123 0.6187 1.6487
1.0326

	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	
1.1378	0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	
0.4086	1.62	1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12
1.1046	0.3575	1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	0.38
1.2002									
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	
1.1307	0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118
1.69	1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103
0.3642	1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253	
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	
1.1231	0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151
1.65	1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391
0.3705	1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472	1.1006
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	
1.115	0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184
1.66	1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397
1.0979	0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	
1.2651									
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	
1.0985	0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	
0.4254	1.69	1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11
0.41	1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	
1.8592	1.2904								
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	

0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	
1.075	0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	
0.4385	1.72	1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09
0.438	1.0719	0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	
1.8449	1.2968								
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	
1.0604	0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498
1.74	1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46
1.0598	0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	
1.2929									
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								
	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548	
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385	
1.2809									
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	
0.9975	0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	
0.5221	1.79	1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04

0.564	1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684
1.7374	1.2913							
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406
0.9903	0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796
1.78	1.52	1.39	1.01	1	0.62	1.17	0.726	1.03
1.0112	0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375
1.3025								
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974
1.7378								
1.315								
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76
1.03								
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123
1.7379	1.3281							
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417
0.968	0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679
0.5705	1.74	1.47	1.39	1.11	0.992	0.667	1.16	0.777
1.03								
0.642	1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269
1.7379	1.3419							
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661
0.5864								1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665
0.9973								
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81
1.04								
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561
1.7375	1.3703							
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43
0.9396	0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062
0.618								
1.69	1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04
0.71								
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369
1.3837								
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843
1.04								
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887
1.7349	1.397							
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442
0.9193	0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553
0.6477	1.66	1.41	1.43	1.3	0.972	0.765	1.14	0.858
1.05								
0.752	0.9842	0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034
1.7315	1.4101							
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519
0.663								
1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05
0.772								
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271
1.423								
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491
0.6792								
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06
0.791								
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221
1.4354								

	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	
0.8915	0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	
0.7115	1.58	1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06
0.828	0.9676	0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	
1.7116	1.4585								
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	
0.8851	0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728
1.55	1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846
0.9629	0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	
1.4696									
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	
0.877	0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	
0.7445	1.52	1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06
0.863	0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	
1.6976	1.4801								
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	
0.847	0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	
0.7938	1.43	1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06
0.92	0.9425	0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	
1.6708	1.5054								
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	
0.8327	0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	
0.8443	1.34	1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05
0.981	0.9268	0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636
1.5246									
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	
0.8287	0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	
0.8616	1.31	1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05
1	0.9218	0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221
1.5268									
	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	

0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	
0.8049	0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467
1.14	1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08
0.9008	0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	
1.5154									
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	
0.7922	0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	
0.9809	1.08	1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04
1.1	0.8937	0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754
1.5003									
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	
0.7558	1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442

0.939	1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	
0.736	1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	
1.0912	0.801	1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03
1.21	0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	
1.2689	1.4245								
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	
0.7317	1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976
0.78	0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	
0.7243	1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033
0.74	0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									

	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8	0.89	1.07	1.34	0.5567	0.7297	0.876	1.1028
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.2	0.881	1.17	0.954	1.2	0.956
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	
0.6719	1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	
1.0904	0.549	0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913
1.21	0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135
1.382									
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8	2.05	0.848	1.15	0.9	1.16	0.9
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	
0.656	0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	
1.0727	0.514	0.6	1.76	2.01	0.838	1.15	0.885	1.15	0.888
1.19	0.7408	1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	
1.1152	1.3697								
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	
0.6385	0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	
1.0506	0.491	0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868
1.17	0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	
1.0851	1.3164								
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									

	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	
0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	
0.6102	0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	
1.0298	0.459	0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84
1.13	0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	
1.0311	1.2234								
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	
0.6	0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228
0.447	0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12
0.6762	0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	
1.1977									
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	
0.5885	0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	
1.0115	0.434	0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821
1.1	0.6669	0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894
1.1722									
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	
0.5433	0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946
0.374	0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	
0.531	0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	

0.9257	0.369	0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741
0.981	0.6178	0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	
0.8157	0.9903								
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	
0.5253	0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	
0.9159	0.37	0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733
0.961	0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	
0.7954	0.9668								
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	
0.513	0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	
0.8968	0.376	0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717
0.921	0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	
0.7537	0.9185								
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	
0.4714	0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809
0.38	0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8
0.5492									
0.7307	0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682	
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65

0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639
0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548

0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538
0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.405	0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335
0.2	0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	
0.39	0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	
0.3396	0.353	0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496
0.298	0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	
0.3304	0.206								
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492

0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.26
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	
0.1778									
	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	
0.4661	0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	
0.1609	0.379	-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508
0.141	0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	
0.3924	0.0552								
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52

0.1 0.5047 0.1111 0.477 0.0975 0.4633 0.0449 0.5068 0.0943 0.4217
0.0145
0.557 -0.0636 0.484 0.042 -0.544 0.0788 0.787 -0.068
0.5014 0.078 0.69 0.26 0.541 0.135 0.4746 0.022 0.5576 0.1
0.389 -0.22 0.677 0.125 0.523 0.0924 0.49 0.0651 0.524
0.0855 0.5134 0.0989 0.4863 0.0886 0.4706 0.0185 0.5133 0.0815
0.4313 0.0019
0.562 -0.0878 0.494 0.0317 -0.579 0.0592 0.803 -0.0767
0.5094 0.0618 0.695 0.24 0.547 0.12 0.4857 0.0113 0.5644
0.0841 0.392 -0.24 0.682 0.101 0.531 0.0723 0.499 0.0515 0.527
0.0707 0.5217 0.0869 0.4957 0.0776 0.4782 0.0016 0.5207 0.0701
0.4411 -0.0102
0.568 -0.112 0.504 0.0229 -0.612 0.0413 0.819 -0.0864
0.5169 0.0463 0.699 0.22 0.553 0.106 0.497 0.0014 0.5711
0.0667 0.394 -0.26 0.687 0.0778 0.539 0.0505 0.508 0.0384 0.531
0.0562 0.5295 0.0753 0.505 0.0626 0.4863 -0.0078 0.5286 0.0589 0.451
-0.0219
0.574 -0.136 0.514 0.0151 -0.642 0.0251 0.835 -0.0974
0.5239 0.0322 0.704 0.2 0.558 0.0938 0.5084 -0.0073 0.5784 0.0499
0.396 -0.28 0.691 0.0542 0.547 0.0301 0.517 0.0256 0.535
0.0424 0.5371 0.0644 0.5141 0.0386 0.4948 -0.0144 0.5368 0.0468 0.461
-0.0336
0.579 -0.16 0.525 0.00764 -0.67 0.0103 0.85 -0.11
0.5306 0.0184 0.708 0.18 0.564 0.082 0.5199 -0.0152 0.5862
0.0388 0.399 -0.3 0.696 0.03 0.555 0.0141 0.526 0.0132 0.54
0.03 0.5446 0.0544 0.5232 0.0087 0.5036 -0.0209 0.5449 0.0326
0.4711 -0.0457
0.585 -0.183 0.537 -9.26E-05 -0.695 -0.00323 0.864 -
0.124 0.5372 0.0048 0.713 0.16 0.569 0.0704 0.5314 -0.0224 0.5943
0.0285 0.4 -0.32 0.7 0.00505 0.563 0.00484 0.534 0.0011 0.546
0.0193 0.5527 0.0448 0.5323 -0.0229 0.5126 -0.0299 0.5531 0.0126
0.4814 -0.058
0.591 -0.205 0.548 -0.00858 -0.72 -0.0158 0.877 -0.14
0.5436 -0.0085 0.717 0.139 0.575 0.0589 0.5431 -0.0294 0.6024 0.013
0.402 -0.34 0.705 -0.0206 0.572 0.000822 0.543 -0.0107 0.552
0.00964 0.5612 0.0356 0.5413 -0.0519 0.522 -0.0483 0.5614 -0.0051
0.4917 -0.0703
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0.0062 0.404 -0.36 0.709 -0.0468 0.581 -5.50E-07 0.551 -0.0222
0.558 0.000399 0.5705 0.0264 0.5504 -0.0741 0.5313 -0.0738 0.5694 -
0.0172 0.502 -0.0824
0.602 -0.248 0.572 -0.0273 -0.765 -0.039 0.9 -0.174
0.5558 -0.0342 0.725 0.0992 0.589 0.0379 0.5669 -0.0439 0.6184 -
0.0278 0.405 -0.38 0.713 -0.0733 0.59 0.000268 0.559 -0.0334
0.564 -0.00923 0.5807 0.0172 0.5594 -0.0903 0.5391 -0.0852 0.5774 -
0.0276 0.5123 -0.0942
0.608 -0.27 0.583 -0.037 -0.787 -0.0501 0.91 -0.19
0.5617 -0.0465 0.729 0.08 0.595 0.0283 0.5789 -0.0521 0.6265 -
0.0501 0.406 -0.4 0.717 -0.1 0.6 -0.000458 0.568 -0.0444 0.57
-0.02 0.59 0.0088 0.5683 -0.104 0.5465 -0.0942 0.5853 -0.0365
0.5226 -0.1057
0.613 -0.292 0.594 -0.0466 -0.808 -0.0611 0.918 -0.205
0.5674 -0.0583 0.732 0.0616 0.602 0.019 0.5911 -0.0613 0.6345 -
0.0718 0.407 -0.42 0.721 -0.127 0.611 -0.00338 0.576 -0.0552

0.575 -0.0324 0.5985 0.0009 0.5768 -0.1155 0.5534 -0.1014 0.5931 -
0.0445 0.5328 -0.1168
0.618 -0.314 0.604 -0.0559 -0.829 -0.0724 0.926 -0.22
0.573 -0.0698 0.735 0.0438 0.608 0.00985 0.6037 -0.0713 0.6425 -
0.0915 0.407 -0.44 0.724 -0.153 0.621 -0.00826 0.584 -0.066
0.579 -0.0462 0.6068 -0.0065 0.5853 -0.1269 0.5598 -0.1074 0.6009 -
0.052 0.543 -0.1276
0.623 -0.336 0.614 -0.0646 -0.85 -0.0842 0.932 -0.236
0.5784 -0.0808 0.738 0.0262 0.616 0.00106 0.6166 -0.0819 0.6505 -
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0.5818 -0.9351
-0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
-0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
0.5825 -0.9119
-0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79
-0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
0.583 -0.8882
-0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
-0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8

```

-0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
0.8643
      -0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811
-0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
0.5825 -0.8403
      -0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822
-0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
0.5814 -0.81
      -0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
-0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
0.5794 -0.7783
      -0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
      -0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
      -0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
      -0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
      -0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
      -0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
      -0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134 -
0.5433 -0.5068];

```

```

FH = data_im(:, (nqC-1)*2+1);
FB = data_im(:, (nqC-1)*2+2);

```

```

DX = 1;
I = fix(X/DX);
R = (X-I*DX)/DX;
if I == 0
    R = R-1;
end
I = I+1;
if I < 2
    I = 2;
end
if J == 1
    Z = FH(I)+0.5*R*(FH(I+1)-FH(I-1)+R*(FH(I+1)+FH(I-1)-2*FH(I)));
elseif J == 2
    Z = FB(I)+0.5*R*(FB(I+1)-FB(I-1)+R*(FB(I+1)+FB(I-1)-2*FB(I)));
end
end
end

```

PUMP.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHAE = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHAE == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHAE,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0
            TH1 = TH1+2*pi;
        end
    end
    M = fix(TH/DTH)+1;
    if M == NPC
        M = NPC-1;
    end
    A1 = FH(M)*M-FH(M+1)*(M-1);
    A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
    A3 = FB(M)*M-FB(M+1)*(M-1);
    A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
    ALPSQ = ALPHAE*ALPHAE;
    VESQ = VE*VE;
    ALPV = ALPSQ+VESQ;
    F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
end

```



```

F2 = ALPHA-E-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+E+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = PARAB(TH,2,nq);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
    end
end
if JJ > 30
    break
end
end
end

```

PUMPV2.m

```

%% SUBROUTINE PUMP
KK = 0;
JJ = 0;

%% COMPUTATION OF PUMP DISCHARGE
VE = V+DV;
ALPHA = ALPHA + DALPHA;
while 1 == 1
    JJ = JJ+1;
    if VE == 0 && ALPHA == 0
        TH = 0;
        TH1 = 0;
    else
        TH = atan2(ALPHA,VE);
        TH1 = TH;
        TH = rad2deg(TH);
        if TH < 0
            TH = TH+360;
        end
        if TH1 < 0

```

```

        TH1 = TH1+2*pi;
    end
end
M = fix(TH/DTH)+1;
if M == NPC
    M = NPC-1;
end
A1 = FH(M)*M-FH(M+1)*(M-1);
A2 = (FH(M+1)-FH(M))/(deg2rad(DTH));
A3 = FB(M)*M-FB(M+1)*(M-1);
A4 = (FB(M+1)-FB(M))/(deg2rad(DTH));
ALPSQ = ALPHA*ALPHA;
VESQ = VE*VE;
ALPV = ALPSQ+VESQ;
F1 = C5*A1*ALPV+C5*A2*ALPV*TH1-QR*VE*NPP+CN;
F2 = ALPHA-C6*A3*ALPV-C6*A4*ALPV*TH1-ALPHA-C6*BETA;
F1AL = C5*(2*A1*ALPHA+A2*VE+2*A2*ALPHA*TH1);
F1V = C5*(2*A1*VE-A2*ALPHA+2*A2*VE*TH1)-QR*NPP;
F2AL = 1-C6*(2*A3*ALPHA+A4*VE+2*A4*ALPHA*TH1);
F2V = C6*(-2*A3*VE+A4*ALPHA-2*A4*VE*TH1);
DENOM = F1AL*F2V-F1V*F2AL;
DALPHA = (F2*F1V-F1*F2V)/DENOM;
DV = (F1*F2AL-F2*F1AL)/DENOM;
ALPHA = ALPHA + DALPHA;
VE = VE+DV;
if abs(DV) <= 0.001 && abs(DALPHA) <= 0.001
    TH = atan2(ALPHA,VE);
    TH = rad2deg(TH);
    if TH < 0
        TH = TH+360;
    end
    BETA = jedWm(nq,deg2rad(TH),varijanta);
    MB = fix(TH/DTH)+1;
    BETA = BETA*(ALPHA*ALPHA+V*V);
    if MB == M
        DALPHA = ALPHA - ALPHA;
        DV = VE - V;
        ALPHA = ALPHA;
        V = VE;
        break
    else
        end
    end
if JJ > 30
    break
end
end
end

```

data-model.m

```

data = [-0.44    -0.61    -0.42    -0.5557 -1.228  -0.437  -0.37   -0.42   -
0.5459 -0.3554 -0.44    -0.34    -0.4525 -0.3989 -0.4654 -0.4593 -0.5024 -
0.3917 -0.44    -0.61    -0.44    -0.61    -0.4839 -0.6075 -0.8494 -0.6336 -0.96
-0.58    -0.5526 -0.4188 -0.4342 -0.469  -0.4478 -0.4845 -0.403  -0.4461 -
0.5537 -0.5108

```

-0.422 -0.588 -0.4054 -0.532 -1.222 -0.409 -0.364 -0.392 -
 0.5227 -0.344 -0.422 -0.324 -0.4363 -0.3844 -0.451 -0.4464 -0.4815 -
 0.3791 -0.422 -0.588 -0.422 -0.588 -0.4645 -0.5839 -0.818 -0.6258 -0.925
 -0.54 -0.5386 -0.3987 -0.4163 -0.4575 -0.4313 -0.4705 -0.3845 -0.4286 -
 0.5354 -0.4984
 -0.403 -0.565 -0.3893 -0.507 -1.213 -0.379 -0.355 -0.362 -
 0.4996 -0.3289 -0.403 -0.307 -0.4195 -0.3684 -0.4365 -0.4314 -0.4607 -
 0.3618 -0.403 -0.565 -0.403 -0.565 -0.444 -0.5597 -0.7856 -0.6146 -0.889
 -0.502 -0.5239 -0.3786 -0.3985 -0.4452 -0.4148 -0.4564 -0.3659 -0.4063 -
 0.5201 -0.4852
 -0.383 -0.541 -0.3721 -0.4812 -1.203 -0.349 -0.345 -0.332 -
 0.4772 -0.3146 -0.383 -0.289 -0.4023 -0.3462 -0.4221 -0.4049 -0.4398 -
 0.3391 -0.383 -0.541 -0.383 -0.541 -0.4227 -0.5348 -0.753 -0.5993 -0.853
 -0.467 -0.5086 -0.3586 -0.3807 -0.4316 -0.3983 -0.442 -0.3474 -0.3885 -
 0.5025 -0.4708
 -0.362 -0.516 -0.3537 -0.4545 -1.191 -0.318 -0.333 -0.301 -
 0.4558 -0.3006 -0.362 -0.27 -0.3845 -0.3195 -0.4076 -0.3704 -0.4189 -
 0.3132 -0.362 -0.516 -0.362 -0.516 -0.4003 -0.509 -0.7194 -0.5813 -0.816
 -0.433 -0.4925 -0.3368 -0.3629 -0.4165 -0.3815 -0.4275 -0.3288 -0.3757 -
 0.4855 -0.4544
 -0.34 -0.49 -0.3343 -0.4271 -1.178 -0.287 -0.32 -0.27 -
 0.4355 -0.2861 -0.34 -0.25 -0.3662 -0.2943 -0.3932 -0.3398 -0.398 -
 0.2873 -0.34 -0.49 -0.34 -0.49 -0.3771 -0.4824 -0.6864 -0.5609 -0.78
 -0.4 -0.4751 -0.3178 -0.345 -0.4004 -0.3643 -0.4126 -0.3103 -0.364 -
 0.4672 -0.4355
 -0.318 -0.464 -0.3146 -0.3997 -1.164 -0.256 -0.306 -0.239 -
 0.413 -0.2699 -0.318 -0.23 -0.3479 -0.2711 -0.3787 -0.3133 -0.3772 -
 0.2614 -0.318 -0.464 -0.318 -0.464 -0.354 -0.456 -0.6534 -0.5388 -0.744
 -0.369 -0.457 -0.3006 -0.3272 -0.3819 -0.3469 -0.3973 -0.2917 -0.3511 -
 0.4484 -0.4136
 -0.295 -0.438 -0.2936 -0.3722 -1.148 -0.225 -0.29 -0.208 -
 0.3933 -0.2511 -0.295 -0.21 -0.3292 -0.2492 -0.3643 -0.2894 -0.3563 -
 0.2355 -0.295 -0.438 -0.295 -0.438 -0.3298 -0.4296 -0.6194 -0.5167 -0.707
 -0.338 -0.4394 -0.2818 -0.3094 -0.3603 -0.3289 -0.3816 -0.2732 -0.3336 -
 0.4309 -0.3886
 -0.273 -0.411 -0.2733 -0.3444 -1.132 -0.195 -0.274 -0.178 -
 0.3733 -0.2299 -0.273 -0.189 -0.3088 -0.2276 -0.3455 -0.2672 -0.3354 -
 0.2103 -0.273 -0.411 -0.273 -0.411 -0.3066 -0.4024 -0.5864 -0.4913 -0.671
 -0.309 -0.4229 -0.257 -0.2916 -0.34 -0.3103 -0.3654 -0.2546 -0.3091 -
 0.4151 -0.3608
 -0.251 -0.385 -0.2527 -0.3172 -1.115 -0.165 -0.257 -0.148 -
 0.3544 -0.2064 -0.251 -0.169 -0.288 -0.207 -0.3259 -0.246 -0.3145 -
 0.1826 -0.251 -0.385 -0.251 -0.385 -0.2834 -0.3761 -0.5533 -0.4685 -0.635
 -0.279 -0.4035 -0.2326 -0.2737 -0.3204 -0.2911 -0.3485 -0.2361 -0.2804 -
 0.3941 -0.3351
 -0.23 -0.36 -0.2329 -0.2914 -1.098 -0.137 -0.24 -0.12 -
 0.3346 -0.1724 -0.23 -0.15 -0.2676 -0.1872 -0.3063 -0.2254 -0.2937 -
 0.1548 -0.23 -0.36 -0.23 -0.36 -0.2612 -0.3507 -0.5213 -0.4466 -0.6
 -0.25 -0.3853 -0.2042 -0.2559 -0.3004 -0.2716 -0.3308 -0.2215 -0.2538 -
 0.3738 -0.3187
 -0.21 -0.335 -0.2137 -0.2658 -1.081 -0.11 -0.223 -0.093 -
 0.315 -0.1331 -0.21 -0.131 -0.2478 -0.1672 -0.2867 -0.2044 -0.2728 -
 0.1324 -0.21 -0.335 -0.21 -0.335 -0.24 -0.3254 -0.4895 -0.4248 -0.565
 -0.221 -0.3635 -0.1753 -0.2381 -0.2791 -0.2538 -0.3121 -0.208 -0.2289 -
 0.3532 -0.3008

	-0.19	-0.311	-0.1943	-0.2412	-1.063	-0.0839	-0.205	-0.0669	-
0.2953	-0.0887	-0.19	-0.113	-0.228	-0.1468	-0.2671	-0.1816	-0.2519	-
0.1122	-0.19	-0.311	-0.19	-0.311	-0.2187	-0.3009	-0.4577	-0.4055	-0.53
-0.191	-0.342	-0.1465	-0.2203	-0.2552	-0.238	-0.2922	-0.1946	-0.205	-
0.3299	-0.2808								
	-0.17	-0.287	-0.1749	-0.2168	-1.045	-0.0584	-0.187	-0.0414	-
0.2755	-0.048	-0.17	-0.095	-0.2082	-0.126	-0.2475	-0.1578	-0.231	-0.091
-0.17	-0.287	-0.17	-0.287	-0.1975	-0.2764	-0.4267	-0.3862	-0.496	-
0.161	-0.3187	-0.1177	-0.2025	-0.2291	-0.2222	-0.2707	-0.1812	-0.1791	-
0.3077	-0.2581								
	-0.151	-0.263	-0.1561	-0.1923	-1.027	-0.0329	-0.169	-0.0159	-
0.255	-0.018	-0.151	-0.0774	-0.1891	-0.1043	-0.2283	-0.1319	-0.2102	-
0.0581	-0.151	-0.263	-0.151	-0.263	-0.1773	-0.2519	-0.3966	-0.3669	-0.463
-0.131	-0.2993	-0.0872	-0.188	-0.2014	-0.2064	-0.2472	-0.1676	-0.1473	-
0.2873	-0.2314								
	-0.13	-0.24	-0.1357	-0.1685	-1.008	-0.007	-0.15	0.01	-
0.2346	0.009	-0.13	-0.06	-0.1693	-0.0814	-0.2096	-0.1034	-0.1893	-
0.0279	-0.13	-0.24	-0.13	-0.24	-0.1553	-0.2282	-0.3662	-0.3502	-0.43
-0.1	-0.2786	-0.0555	-0.1743	-0.1617	-0.1907	-0.2211	-0.154	-0.1178	-
0.2698	-0.1989								
	-0.108	-0.217	-0.1146	-0.1445	-0.989	0.0196	-0.131	0.0366	-
0.2135	0.0391	-0.108	-0.0426	-0.1492	-0.0572	-0.1915	-0.0722	-0.1684	0.0005
-0.108	-0.217	-0.108	-0.217	-0.1325	-0.2045	-0.3363	-0.3338	-0.398	-
0.0686	-0.2582	-0.0269	-0.1598	-0.1182	-0.1749	-0.1924	-0.1404	-0.0915	-
0.2496	-0.1582								
	-0.0862	-0.193	-0.0936	-0.1197	-0.97	0.0465	-0.112	0.0635	-
0.1954	0.06	-0.0862	-0.0251	-0.1291	-0.0318	-0.1732	-0.0387	-0.1475	0.0245
-0.0862	-0.193	-0.0862	-0.193	-0.1098	-0.1798	-0.3065	-0.3157	-0.366	-
0.0371	-0.2372	-0.0017	-0.1445	-0.0806	-0.1591	-0.1611	-0.1266	-0.0677	-
0.2277	-0.1083								
	-0.0637	-0.169	-0.0721	-0.0949	-0.9511	0.073	-0.0931	0.09	-
0.1749	0.0764	-0.0637	-0.00726	-0.1083	-0.0055	-0.1541	-0.0036	-0.1266	
0.0422	-0.0637	-0.169	-0.0637	-0.169	-0.0865	-0.1553	-0.2765	-0.297	-
0.334	-0.00643	-0.2157	0.0212	-0.1286	-0.0487	-0.1393	-0.1277	-0.1127	-
0.0454	-0.2072	-0.0708							
	-0.0415	-0.145	-0.0513	-0.0704	-0.9337	0.099	-0.0757	0.116	-
0.1553	0.0914	-0.0415	0.011	-0.0872	0.0162	-0.1341	0.0216	-0.1058	0.0608
-0.0415	-0.145	-0.0415	-0.145	-0.0635	-0.1308	-0.2466	-0.2771	-0.302	
0.0228	-0.193	0.0426	-0.1121	-0.0197	-0.1187	-0.0886	-0.0987	-0.0237	-
0.1874	-0.0495								
	-0.02	-0.12	-0.0314	-0.0457	-0.918	0.123	-0.06	0.14	-
0.1346	0.1063	-0.02	0.03	-0.0661	0.0364	-0.1134	0.043	-0.0849	0.0797
-0.02	-0.12	-0.02	-0.12	-0.0411	-0.1056	-0.2168	-0.2538	-0.27	0.05
-0.1723	0.0629	-0.0965	0.0079	-0.0981	-0.0615	-0.0845	-0.003	-0.1677	-
0.0308									
	0.000468	-0.0943	-0.0129	-0.021	-0.9042	0.145	-0.0462	0.162	-
0.115	0.1223	0.000459	0.0497	-0.0453	0.057	-0.0922	0.0645	-0.064	
0.0975	0.000471	-0.0943	0.000459	-0.0944	-0.0197	-0.0801	-0.1873	-	
0.2275	-0.238	0.0746	-0.1549	0.0824	-0.0825	0.0328	-0.0774	-0.0445	-
0.0701	0.0175	-0.1491	-0.012						
	0.0202	-0.0681	0.005	0.0037	-0.891	0.166	-0.033	0.183	-
0.0936	0.1395	0.0202	0.0699	-0.0258	0.0778	-0.0731	0.086	-0.0431	0.1135
0.0202	-0.0682	0.0202	-0.0682	0.0012	-0.0542	-0.1571	-0.1983	-0.205	
0.0971	-0.1394	0.1014	-0.0684	0.0539	-0.0568	-0.0249	-0.0556	0.0383	-
0.1298	0.0086								

	0.0398	-0.0418	0.0231	0.0282	-0.8767	0.186	-0.0187	0.203	-
0.0725	0.1579	0.0397	0.0902	-0.0063	0.0988	-0.0536	0.1077	-0.0223	0.1285
0.0398	-0.0418	0.0397	-0.0419	0.0219	-0.0284	-0.1262	-0.1678	-0.171	0.118
-0.1221	0.12	-0.0542	0.0753	-0.0362	0.0003	-0.0408	0.0595	-0.1083	
0.0312									
	0.0595	-0.0157	0.042	0.0523	-0.85957	0.205	-0.00157	0.222	
-0.0519	0.177	0.0595	0.11	0.0138	0.1196	-0.0332	0.1294	-0.0014	
0.1489	0.0595	-0.0157	0.0595	-0.0158	0.0411	-0.0027	-0.0944	-0.1377	-
0.136	0.139	-0.1027	0.1384	-0.0396	0.0969	-0.0156	0.0292	-0.0258	0.0812
-0.0898	0.0559								
	0.08	0.01	0.06	0.0758	-0.838	0.223	0.02	0.24	-
0.0307	0.1943	0.08	0.13	0.0348	0.1405	-0.0116	0.1512	0.0183	0.1705
0.08	0.01	0.08	0.01	0.0524	0.0227	-0.0617	-0.1081	-0.1	0.16
-0.0809	0.1567	-0.0245	0.1188	0.005	0.057	-0.0105	0.1033	-0.0665	
0.0822									
	0.102	0.0349	0.07	0.0987	-0.8109	0.241	0.0471	0.258	-
0.0084	0.2096	0.102	0.149	0.0571	0.1609	0.011	0.1731	0.0424	0.1901
0.102	0.0349	0.102	0.0351	0.0597	0.0475	-0.0278	-0.0806	-0.0628	0.182
-0.0549	0.1751	-0.0091	0.1411	0.0263	0.0831	0.0051	0.1258	-0.0421	
0.1092									
	0.124	0.0592	0.078	0.1215	-0.7794	0.26	0.0786	0.277	
0.0164	0.2257	0.124	0.167	0.0798	0.1808	0.0344	0.195	0.0645	
0.2081	0.124	0.0592	0.124	0.0596	0.0635	0.0718	0.0065	-0.004	-
0.0253	0.204	-0.0276	0.1934	0.0067	0.1635	0.0477	0.1073	0.021	0.1484
-0.0198	0.1275								
	0.146	0.083	0.08	0.1436	-0.746	0.278	0.112	0.295	
0.0459	0.2433	0.146	0.185	0.1023	0.2012	0.0574	0.2178	0.0858	
0.2253	0.146	0.083	0.146	0.0835	0.07	0.0955	0.0403	0.105	
0.0117	0.226	-0.0069	0.2117	0.0222	0.1855	0.0692	0.13	0.0371	
0.1686	-0.0025	0.1464							
	0.168	0.107	0.089	0.1854	-0.711	0.296	0.147	0.313	0.075
0.2637	0.169	0.203	0.1218	0.2188	0.0734	0.235	0.1066	0.2408	0.168
0.107	0.169	0.107	0.0775	0.145	0.073	0.143	0.0471	0.249	
0.0125	0.2305	0.0409	0.207	0.09	0.1523	0.0537	0.1868	0.0108	
0.1665									
	0.19	0.13	0.113	0.2101	-0.678	0.313	0.18	0.33	
0.1039	0.289	0.19	0.22	0.141	0.2366	0.0907	0.2536	0.127	
0.2608	0.19	0.13	0.19	0.13	0.0828	0.213	0.1034	0.178	0.08
0.27	0.0341	0.2479	0.0635	0.2282	0.1104	0.1754	0.074	0.2046	
0.0314	0.1889								
	0.211	0.154	0.137	0.2547	-0.648	0.33	0.21	0.347	
0.1323	0.3158	0.21	0.238	0.1614	0.2555	0.1115	0.2734	0.1472	
0.2915	0.211	0.153	0.21	0.153	0.0999	0.227	0.119	0.256	0.11
0.29	0.0614	0.2643	0.0871	0.2492	0.1308	0.2008	0.095	0.224	
0.0562	0.2139								
	0.23	0.177	0.161	0.2987	-0.62	0.347	0.238	0.364	
0.1601	0.3386	0.23	0.255	0.1833	0.2764	0.1354	0.2984	0.169	
0.3392	0.23	0.177	0.23	0.176	0.126	0.253	0.134	0.276	0.137
0.309	0.0921	0.2834	0.1107	0.2724	0.1513	0.2295	0.117	0.248	
0.0837	0.2413								
	0.25	0.201	0.185	0.3147	-0.594	0.363	0.264	0.38	
0.1873	0.3591	0.25	0.273	0.2049	0.2964	0.1586	0.3205	0.1947	
0.3633	0.25	0.201	0.25	0.199	0.158	0.288	0.154	0.296	0.164
0.327	0.1586	0.3173	0.1332	0.2959	0.1717	0.2607	0.1392	0.2774	
0.1144	0.2703								

	0.27	0.225	0.209	0.3452	-0.571	0.378	0.287	0.395	0.215
0.3778	0.269	0.291	0.2254	0.3169	0.1806	0.3436	0.2176	0.3814	0.27
0.225	0.269	0.224	0.194	0.327	0.178	0.315	0.191	0.344	
0.1986	0.3428	0.1524	0.3165	0.1921	0.2864	0.1563	0.3095	0.1404	
0.2953									
	0.29	0.25	0.233	0.3741	-0.507	0.396	0.31	0.41	
0.2392	0.3966	0.29	0.31	0.2483	0.3382	0.2055	0.3671	0.2413	
0.3911	0.29	0.25	0.29	0.25	0.231	0.365	0.205	0.334	0.22
0.36	0.229	0.362	0.1751	0.336	0.2181	0.3076	0.1741	0.3388	
0.1685	0.3123								
	0.311	0.275	0.257	0.3998	-0.432	0.414	0.332	0.424	
0.2644	0.4147	0.312	0.329	0.2735	0.3617	0.234	0.3953	0.2575	
0.4013	0.311	0.275	0.312	0.278	0.266	0.396	0.234	0.353	0.251
0.375	0.2569	0.3796	0.1986	0.357	0.2472	0.3263	0.1937	0.3628	
0.1976	0.3343								
	0.333	0.3	0.281	0.4144	-0.359	0.433	0.353	0.438	0.2911
0.4321	0.334	0.349	0.2999	0.3809	0.2649	0.4136	0.2846	0.4118	0.333
0.301	0.334	0.306	0.296	0.417	0.264	0.372	0.285	0.389	
0.2836	0.3965	0.2221	0.3796	0.2747	0.3437	0.2233	0.3843	0.2256	
0.3524									
	0.356	0.326	0.305	0.437	-0.296	0.451	0.373	0.45	0.317
0.4491	0.357	0.369	0.3302	0.3969	0.3027	0.4256	0.3105	0.4226	0.355
0.327	0.357	0.333	0.323	0.43	0.295	0.39	0.318	0.402	
0.3108	0.4125	0.2456	0.4025	0.3023	0.3608	0.2886	0.409	0.253	
0.3725									
	0.378	0.353	0.323	0.449	-0.238	0.468	0.392	0.461	
0.3413	0.4689	0.379	0.389	0.3588	0.4122	0.3381	0.4361	0.3359	
0.4335	0.378	0.353	0.379	0.358	0.348	0.445	0.324	0.408	0.35
0.416	0.3381	0.4276	0.2691	0.4211	0.3298	0.3787	0.3185	0.4264	
0.2845	0.3877								
	0.4	0.38	0.347	0.46	-0.178	0.481	0.41	0.47	0.3653
0.4868	0.4	0.41	0.3862	0.428	0.3721	0.4465	0.3629	0.4444	0.4
0.4	0.38								0.38
	0.374	0.463	0.353	0.426	0.38	0.43	0.3652	0.442	
0.2944	0.4377	0.3574	0.3971	0.3487	0.4422	0.3175	0.405		
	0.421	0.408	0.374	0.469	-0.113	0.49	0.427	0.477	
0.3902	0.4958	0.419	0.431	0.368	0.452	0.3989	0.4613	0.3906	
0.4573	0.422	0.407	0.419	0.397	0.399	0.478	0.38	0.442	0.406
0.445	0.3923	0.4559	0.3201	0.454	0.3843	0.4142	0.3793	0.4562	
0.3521	0.4251								
	0.442	0.435	0.404	0.478	-0.0423	0.495	0.444	0.483	
0.4171	0.4976	0.438	0.452	0.388	0.462	0.423	0.477	0.4178	
0.4691	0.443	0.433	0.438	0.41	0.425	0.487	0.408	0.456	0.43
0.46	0.4189	0.4686	0.3973	0.4741	0.41	0.4356	0.4104	0.4687	
0.3928	0.4482								
	0.461	0.461	0.436	0.486	0.0249	0.496	0.462	0.488	
0.4454	0.4989	0.457	0.471	0.43	0.478	0.4479	0.4879	0.4452	
0.4798	0.463	0.458	0.457	0.419	0.451	0.491	0.437	0.47	0.453
0.474	0.4449	0.4795	0.4298	0.4793	0.4389	0.4608	0.442	0.4802	
0.4292	0.4675								
	0.481	0.483	0.468	0.493	0.0819	0.498	0.48	0.494	
0.4735	0.4997	0.477	0.487	0.471	0.491	0.474	0.4942	0.4726	
0.4901	0.482	0.48	0.477	0.425	0.476	0.495	0.468	0.485	0.476
0.488	0.4719	0.4899	0.4775	0.4886	0.475	0.4824	0.4719	0.4905	
0.4652	0.4846								

	0.5	0.5	0.5	0.5	0.13		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
0.5	0.5	0.5	0.5	0.5	0.429	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4993
0.5	0.5	0.5	0.5	0.5														
	0.519	0.512	0.53	0.507	0.172	0.504	0.522	0.508										
0.5246	0.479	0.526	0.509	0.526	0.508	0.5251	0.5081	0.5272										
0.5096	0.517	0.516	0.526	0.432	0.523	0.51	0.532	0.513	0.527									
0.51	0.5278	0.5097	0.5239	0.5091	0.533	0.514	0.5258	0.5092										
0.5295	0.515																	
	0.538	0.519	0.559	0.514	0.208	0.51	0.545	0.516										
0.5476	0.4474	0.554	0.514	0.553	0.515	0.5499	0.5164	0.5543										
0.5187	0.535	0.531	0.555	0.434	0.546	0.524	0.561	0.524	0.555									
0.519	0.554	0.5185	0.5524	0.5175	0.5589	0.531	0.5495	0.5186										
0.5534	0.5307																	
	0.558	0.523	0.586	0.52	0.241	0.518	0.568	0.525										
0.5688	0.4339	0.583	0.517	0.579	0.522	0.5759	0.5207	0.5813										
0.5275	0.553	0.545	0.586	0.435	0.568	0.542	0.587	0.535	0.584									
0.527	0.5784	0.5264	0.5832	0.5262	0.5763	0.5488	0.5712	0.5289										
0.5781	0.5457																	
	0.578	0.526	0.612	0.526	0.27	0.528	0.59	0.533										
0.5887	0.4229	0.612	0.518	0.606	0.528	0.6041	0.5024	0.6084	0.536									
0.575	0.561	0.618	0.437	0.588	0.561	0.608	0.545	0.613	0.533									
0.6011	0.5336	0.6137	0.5363	0.5972	0.565	0.5917	0.5397	0.6041										
0.5595																		
	0.6	0.53	0.636	0.532	0.298	0.539	0.61	0.54	0.608									
0.4145	0.64	0.52	0.631	0.533	0.6372	0.4618	0.6345	0.5426	0.6									
0.58	0.65	0.44	0.608	0.581	0.628	0.555	0.64	0.54	0.622									
0.5405	0.6424	0.5483	0.6211	0.5798	0.6114	0.5506	0.6283	0.5733										
	0.623	0.536	0.659	0.537	0.324	0.551	0.628	0.545										
0.6272	0.4098	0.665	0.523	0.656	0.537	0.6701	0.4214	0.6596										
0.5465	0.63	0.604	0.682	0.445	0.627	0.6	0.646	0.563	0.664									
0.547	0.6424	0.5471	0.6694	0.5605	0.6474	0.5931	0.6308	0.5611										
0.6513	0.5872																	
	0.647	0.544	0.681	0.542	0.349	0.563	0.644	0.549										
0.6468	0.4094	0.689	0.526	0.68	0.54	0.7001	0.3908	0.6834										
0.5496	0.664	0.633	0.713	0.451	0.646	0.618	0.665	0.571	0.686									
0.553	0.6627	0.5536	0.6947	0.5726	0.6754	0.605	0.6499	0.5722										
0.6734	0.6011																	
	0.671	0.552	0.702	0.547	0.373	0.575	0.66	0.552										
0.6667	0.4116	0.712	0.53	0.702	0.543	0.7275	0.3687	0.7054										
0.5541	0.699	0.664	0.743	0.457	0.663	0.634	0.685	0.577	0.706									
0.559	0.6833	0.5584	0.7185	0.5853	0.7084	0.6149	0.6686	0.5836	0.695									
0.6148																		
	0.696	0.561	0.722	0.551	0.398	0.586	0.678	0.556										
0.6867	0.4157	0.735	0.535	0.722	0.546	0.7505	0.3674	0.7263										
0.5606	0.735	0.697	0.772	0.464	0.681	0.65	0.708	0.581	0.724									
0.565	0.7044	0.5618	0.7411	0.5983	0.7443	0.6236	0.6869	0.5946										
0.7164	0.6283																	
	0.72	0.57	0.742	0.554	0.423	0.597	0.7	0.56	0.7066									
0.421	0.76	0.54	0.737	0.551	0.7733	0.3684	0.7465	0.5686	0.77									
0.73	0.8	0.47	0.698	0.664	0.73	0.584	0.74	0.57	0.7249									
0.5628	0.7626	0.6111	0.7723	0.6339	0.7049	0.6045	0.7374	0.6415										
	0.744	0.577	0.76	0.557	0.446	0.606	0.726	0.565										
0.7263	0.4272	0.787	0.545	0.75	0.556	0.7961	0.3703	0.7662										
0.5777	0.802	0.763	0.827	0.475	0.714	0.676	0.736	0.59	0.755									

0.574	0.7448	0.5632	0.7833	0.6234	0.7978	0.6453	0.7225	0.6125	
0.7582	0.6543								
	0.766	0.584	0.777	0.559	0.467	0.614	0.755	0.572	
0.7457	0.4336	0.817	0.55	0.764	0.56	0.8189	0.3728	0.7853	
0.5873	0.832	0.794	0.853	0.48	0.73	0.688	0.749	0.596	0.768
0.577	0.7641	0.563	0.8034	0.6349	0.8215	0.6575	0.7399	0.6187	
0.7785	0.6671								
	0.788	0.59	0.794	0.56	0.485	0.619	0.785	0.578	
0.7645	0.44	0.848	0.556	0.78	0.563	0.8414	0.3759	0.804	
0.5971	0.858	0.824	0.879	0.484	0.747	0.699	0.774	0.602	0.782
0.579	0.7827	0.5623	0.8231	0.6453	0.8438	0.67	0.7571	0.6248	
0.7985	0.6797								
	0.81	0.595	0.811	0.561	0.5	0.622	0.814	0.585	0.7829
0.447	0.879	0.563	0.798	0.564	0.8637	0.3795	0.8223	0.6064	0.881
0.853	0.904	0.487	0.763	0.71	0.794	0.606	0.795	0.58	
0.8007	0.5615	0.8426	0.6541	0.865	0.6827	0.7743	0.6307	0.8184	
0.6917									
	0.83	0.6	0.827	0.56	0.511	0.623	0.84	0.59	0.801
0.4551	0.91	0.57	0.82	0.563	0.8854	0.3835	0.8402	0.6148	0.9
0.88	0.93	0.49	0.779	0.719	0.812	0.61	0.81	0.58	
0.8181	0.5605	0.862	0.6615	0.8855	0.6951	0.7912	0.6362	0.8384	
0.7024									
	0.85	0.605	0.842	0.559	0.518	0.621	0.862	0.594	
0.8188	0.4641	0.941	0.579	0.844	0.56	0.9065	0.3878	0.858	
0.6218	0.916	0.905	0.956	0.493	0.795	0.727	0.831	0.615	0.826
0.579	0.8351	0.5592	0.8816	0.6687	0.9055	0.707	0.8079	0.6412	
0.8587	0.7119								
	0.868	0.61	0.857	0.557	0.522	0.618	0.882	0.597	
0.8363	0.4738	0.971	0.588	0.866	0.557	0.9269	0.3923	0.8756	0.627
0.929	0.929	0.983	0.495	0.812	0.732	0.852	0.617	0.843	0.577
0.8516	0.5575	0.9011	0.6758	0.9256	0.718	0.8243	0.6456	0.8793	
0.7209									
	0.886	0.614	0.872	0.553	0.526	0.614	0.9	0.598	0.8538
0.4842	1	0.599	0.886	0.554	0.9464	0.3968	0.8932	0.6299	0.942
0.953	1.01	0.498	0.828	0.736	0.873	0.615	0.861	0.575	
0.8678	0.5553	0.9206	0.6827	0.946	0.7278	0.8404	0.6492	0.8998	
0.7293									
	0.904	0.617	0.887	0.549	0.529	0.61	0.919	0.599	0.871
0.495	1.03	0.609	0.904	0.551	0.965	0.4013	0.9109	0.6296	0.955
0.976	1.03	0.499	0.844	0.737	0.895	0.627	0.88	0.573	
0.8839	0.5526	0.9399	0.6892	0.9671	0.7362	0.8559	0.652	0.9201	
0.7368									
	0.92	0.62	0.902	0.543	0.533	0.606	0.94	0.598	
0.8883	0.5061	1.06	0.62	0.922	0.548	0.9824	0.4058	0.9293	
0.6244	0.97	1	1.06	0.5	0.86	0.735	0.915	0.628	0.9
0.9	0.5492	0.9591	0.6952	0.9881	0.7446	0.871	0.6538	0.9399	0.7433
	0.936	0.622	0.917	0.537	0.538	0.603	0.965	0.596	
0.9054	0.5173	1.09	0.631	0.94	0.543	0.9985	0.41	0.9481	
0.6153	0.989	1.03	1.08	0.5	0.875	0.729	0.931	0.617	0.92
0.567	0.9162	0.5453	0.978	0.7005	1.0091	0.7531	0.8856	0.6546	
0.9592	0.7487								
	0.951	0.623	0.931	0.53	0.544	0.601	0.992	0.593	
0.9227	0.5286	1.12	0.641	0.957	0.538	1.0133	0.4139	0.9667	
0.6031	1.01	1.05	1.11	0.5	0.891	0.719	0.945	0.607	0.94

0.564	0.9327	0.5406	0.9966	0.705	1.0299	0.7614	0.8998	0.6549	
0.9784	0.7538								
	0.967	0.622	0.946	0.523	0.551	0.598	1.02	0.59	
0.9399	0.5397	1.15	0.651	0.973	0.533	1.0266	0.4174	0.9845	
0.5893	1.04	1.08	1.13	0.499	0.906	0.705	0.958	0.601	0.961
0.561	0.9488	0.5352	1.0149	0.7085	1.0505	0.7691	0.9139	0.6552	
0.9974	0.7584								
	0.983	0.622	0.96	0.516	0.557	0.596	1.05	0.585	
0.9574	0.5506	1.19	0.661	0.987	0.527	1.0382	0.4205	1.0011	
0.5748	1.07	1.11	1.15	0.499	0.921	0.687	0.971	0.598	0.981
0.556	0.9644	0.5291	1.0327	0.7108	1.0708	0.776	0.9277	0.6555	1.016
0.7625									
	1	0.62	0.975	0.508	0.564	0.593	1.08	0.58	0.975
0.5612	1.22	0.67	0.999	0.52	1.0481	0.4229	1.0159	0.5608	1.11
1.14	1.17	0.5	0.936	0.668	0.985	0.596	1	0.55	0.9793
0.5222	1.05	0.7119	1.0908	0.7817	0.9412	0.6558	1.0338	0.7661	
	1.02	0.618	0.989	0.5	0.569	0.59	1.11	0.574	0.9923
0.5721	1.25	0.679	1.01	0.513	1.056	0.4246	1.0284	0.5485	1.15
1.17	1.19	0.502	0.95	0.647	1	0.594	1.02	0.543	0.9925
0.5149	1.0668	0.7118	1.1104	0.786	0.9544	0.656	1.0508	0.7691	
	1.04	0.615	1	0.493	0.575	0.586	1.13	0.567	1.0109
0.5839	1.29	0.687	1.02	0.506	1.0619	0.4256	1.0385	0.5382	1.2
1.2	1.21	0.504	0.964	0.626	1.02	0.591	1.04	0.534	1.0043
0.5069	1.083	0.7113	1.1296	0.7885	0.9674	0.6562	1.0667	0.7717	
	1.06	0.611	1.02	0.486	0.579	0.582	1.16	0.559	
1.0309	0.5966	1.32	0.695	1.03	0.497	1.0659	0.4257	1.0482	
0.5277	1.25	1.24	1.23	0.506	0.976	0.606	1.04	0.588	1.05
0.526	1.0151	0.4986	1.0986	0.7103	1.1483	0.7893	0.9799	0.6563	1.082
0.7742									
	1.08	0.606	1.03	0.48	0.584	0.576	1.18	0.55	
1.0513	0.6096	1.35	0.702	1.04	0.489	1.0694	0.4257	1.0578	
0.5167	1.29	1.27	1.24	0.509	0.989	0.588	1.05	0.583	1.07
0.517	1.0251	0.4908	1.1137	0.7089	1.1661	0.7898	0.9921	0.6565	
1.0965	0.7764								
	1.1	0.6	1.05	0.475	0.587	0.569	1.2	0.54	1.0714
1.38	0.71	1.05	0.479	1.0729	0.4256	1.0671	0.5054	1.32	1.3
1.26	0.51	1	0.573	1.07	0.578	1.08	0.51	1.0342	0.483
1.1282	0.7072	1.1832	0.7902	1.0038	0.6566	1.1103	0.7779		
	1.12	0.593	1.06	0.47	0.591	0.561	1.22	0.528	
1.0904	0.635	1.4	0.718	1.06	0.469	1.0762	0.4254	1.0761	0.4938
1.34	1.33	1.28	0.51	1.01	0.563	1.08	0.573	1.09	0.504
1.0429	0.4759	1.1422	0.705	1.1999	0.7905	1.0151	0.6566	1.1234	
0.7785									
	1.14	0.585	1.08	0.467	0.594	0.552	1.24	0.515	
1.1074	0.6464	1.42	0.725	1.06	0.458	1.0795	0.4253	1.0849	0.482
1.35	1.36	1.29	0.51	1.02	0.556	1.09	0.567	1.1	0.499
1.0517	0.4698	1.1556	0.7026	1.2166	0.7908	1.0259	0.6566	1.1358	
0.7779									
	1.16	0.575	1.09	0.464	0.598	0.541	1.26	0.501	
1.1216	0.6561	1.44	0.733	1.07	0.446	1.0826	0.4251	1.0934	
0.4702	1.36	1.38	1.3	0.51	1.03	0.552	1.11	0.561	1.11
0.494	1.0603	0.4643	1.1685	0.6998	1.2336	0.791	1.0362	0.6552	
1.1478	0.7761								
	1.18	0.563	1.1	0.462	0.602	0.527	1.27	0.486	1.1321
0.6638	1.46	0.741	1.07	0.434	1.0856	0.4248	1.1016	0.4584	1.36

1.41	1.32	0.51	1.04	0.551	1.12	0.555	1.11	0.488	
1.0689	0.4595	1.1809	0.6966	1.2512	0.7911	1.0459	0.6501	1.1592	
0.7732									
	1.2	0.55	1.12	0.46	0.605	0.512	1.29	0.47	1.1382
0.6689	1.48	0.75	1.08	0.422	1.0885	0.4245	1.1095	0.4468	1.36
1.43	1.33	0.51	1.04	0.551	1.13	0.549	1.12	0.48	
1.0777	0.4556	1.1927	0.6932	1.2698	0.7912	1.0551	0.6422	1.17	
0.7695									
	1.22	0.535	1.13	0.459	0.609	0.496	1.3	0.454	1.1403
0.6717	1.5	0.759	1.08	0.41	1.0913	0.4242	1.117	0.4355	1.36
1.45	1.34	0.511	1.05	0.553	1.14	0.543	1.13	0.47	
1.0873	0.4529	1.204	0.6895	1.2899	0.7848	1.064	0.6324	1.1802	
0.7652									
	1.24	0.519	1.14	0.458	0.613	0.479	1.32	0.438	
1.1421	0.6742	1.52	0.768	1.09	0.397	1.0941	0.4238	1.1241	
0.4244	1.36	1.47	1.36	0.514	1.05	0.554	1.14	0.538	1.13
0.458	1.0965	0.4502	1.2148	0.683	1.3117	0.7538	1.0727	0.6217	
1.1895	0.7577								
	1.25	0.502	1.15	0.457	0.616	0.462	1.33	0.422	
1.1438	0.6767	1.54	0.777	1.09	0.384	1.0966	0.4234	1.1308	
0.4139	1.36	1.49	1.37	0.516	1.06	0.556	1.15	0.533	1.13
0.445	1.1042	0.4463	1.2253	0.6715	1.3344	0.7118	1.0812	0.6109	
1.1981	0.7453								
	1.27	0.485	1.16	0.455	0.619	0.445	1.34	0.406	
1.1454	0.679	1.56	0.784	1.09	0.373	1.0991	0.4229	1.1371	
0.4038	1.36	1.5	1.39	0.518	1.06	0.555	1.16	0.528	1.14
0.432	1.1113	0.4395	1.2356	0.6564	1.3569	0.6762	1.0897	0.6003	
1.2064	0.7291								
	1.28	0.47	1.17	0.453	0.621	0.43	1.35	0.39	
1.1469	0.6813	1.58	0.79	1.09	0.362	1.1015	0.4224	1.1429	
0.3945	1.36	1.52	1.4	0.52	1.07	0.553	1.17	0.524	1.14
0.42	1.1174	0.4303	1.246	0.6391	1.3783	0.6599	1.0979	0.5861	1.215
0.7107									
	1.29	0.456	1.18	0.45	0.622	0.415	1.36	0.375	
1.1484	0.6834	1.59	0.794	1.09	0.352	1.1038	0.4219	1.1483	
0.3858	1.36	1.54	1.41	0.521	1.07	0.549	1.18	0.521	1.14
0.41	1.1213	0.4202	1.2567	0.6211	1.399	0.6485	1.1058	0.5695	
1.2241	0.6876								
	1.3	0.443	1.18	0.447	0.623	0.402	1.36	0.36	1.1497
0.6854	1.6	0.797	1.1	0.344	1.1059	0.4213	1.1532	0.378	1.36
1.43	0.52	1.08	0.541	1.18	0.519	1.14	0.401	1.1231	1.55
0.4073	1.2678	0.6037	1.4194	0.6395	1.1136	0.5528	1.2334	0.6545	
	1.3	0.43	1.19	0.443	0.623	0.391	1.37	0.346	1.1509
0.6873	1.61	0.798	1.1	0.338	1.1079	0.4207	1.1575	0.3712	1.36
1.57	1.44	0.52	1.08	0.53	1.19	0.518	1.14	0.394	
1.1243	0.3923	1.2795	0.5885	1.4398	0.6343	1.1214	0.538	1.2436	
0.6321									
	1.31	0.416	1.19	0.438	0.623	0.381	1.38	0.333	
1.1521	0.6891	1.62	0.799	1.1	0.333	1.1099	0.42	1.1614	0.3654
1.37	1.59	1.44	0.52	1.08	0.516	1.2	0.518	1.14	0.387
1.1258	0.381	1.292	0.5735	1.4604	0.6342	1.1295	0.5276	1.2552	
0.6217									
	1.31	0.4	1.19	0.433	0.622	0.373	1.38	0.32	1.1532
0.6907	1.62	0.8	1.1	0.33	1.1117	0.4193	1.1646	0.3608	1.37
									1.6

1.45	0.52	1.09	0.5	1.2	0.519	1.14	0.38	1.1296	0.3765
1.3045	0.5574	1.481	0.6401	1.1379	0.5236	1.2687	0.6172		
	1.31	0.381	1.19	0.428	0.621	0.366	1.38	0.308	
1.1541	0.6923	1.62	0.801	1.1	0.328	1.1133	0.4185	1.1673	0.3574
1.37	1.61	1.45	0.521	1.09	0.483	1.21	0.521	1.14	0.373
1.1358	0.374	1.3164	0.5435	1.5017	0.6499	1.1478	0.5265	1.2857	
0.6252									
	1.31	0.36	1.19	0.422	0.62	0.362	1.39	0.296	
1.1551	0.6937	1.62	0.803	1.1	0.328	1.1149	0.4178	1.1693	0.3554
1.38	1.62	1.45	0.523	1.09	0.465	1.22	0.525	1.14	0.367
1.14	0.3705	1.3267	0.5349	1.5231	0.6609	1.1589	0.534	1.3052	0.643
	1.3	0.338	1.19	0.416	0.619	0.359	1.39	0.284	1.1559
0.6951	1.62	0.806	1.1	0.328	1.1164	0.4169	1.1708	0.3548	1.38
1.63	1.45	0.525	1.09	0.447	1.23	0.53	1.14	0.36	1.139
0.3583	1.3348	0.5325	1.5457	0.672	1.1699	0.544	1.3242	0.6614	
	1.3	0.318	1.19	0.41	0.617	0.358	1.4	0.272	1.1566
0.6963	1.62	0.808	1.1	0.33	1.1177	0.4161	1.1717	0.3556	1.39
1.64	1.45	0.528	1.1	0.43	1.24	0.535	1.14	0.355	1.1348
0.3331	1.341	0.5309	1.5694	0.6853	1.1795	0.5544	1.3419	0.6804	
	1.29	0.3	1.19	0.403	0.616	0.358	1.4	0.26	1.1573
0.6974	1.62	0.81	1.1	0.332	1.1189	0.4151	1.1724	0.3576	1.4
1.45	0.53	1.1	0.414	1.24	0.541	1.14	0.35	1.13	0.3128
1.3461	0.5296	1.5932	0.7005	1.1863	0.5631	1.3609	0.702		
	1.28	0.285	1.18	0.397	0.614	0.36	1.4	0.248	1.1579
0.6984	1.62	0.812	1.1	0.334	1.12	0.4142	1.1729	0.3602	1.41
1.66	1.45	0.532	1.1	0.399	1.25	0.548	1.14	0.346	1.1262
0.3072	1.3509	0.5287	1.6165	0.7179	1.19	0.5691	1.3827	0.7266	
	1.28	0.274	1.18	0.39	0.613	0.362	1.4	0.236	1.1584
0.6993	1.62	0.814	1.1	0.337	1.121	0.4132	1.1736	0.3633	1.43
1.67	1.45	0.534	1.1	0.386	1.26	0.555	1.14	0.343	1.1224
0.3036	1.3565	0.5282	1.6398	0.7383	1.1927	0.5742	1.4058	0.7534	
	1.27	0.264	1.17	0.384	0.611	0.366	1.41	0.226	
1.1588	0.7	1.61	0.816	1.1	0.338	1.1218	0.4122	1.1746	0.3664
1.68	1.45	0.536	1.1	0.376	1.27	0.562	1.14	0.341	1.1188
0.3012	1.3635	0.5292	1.6628	0.7594	1.1949	0.5789	1.4289	0.7807	
	1.26	0.257	1.17	0.378	0.608	0.37	1.41	0.217	
1.1592	0.7007	1.61	0.818	1.1	0.34	1.1225	0.4111	1.1766	0.3698
1.46	1.69	1.44	0.538	1.1	0.368	1.27	0.569	1.14	0.34
1.1154	0.3006	1.3719	0.5377	1.6859	0.7796	1.1968	0.5833	1.4535	
0.8102									
	1.26	0.25	1.16	0.372	0.606	0.374	1.41	0.21	
1.1595	0.7012	1.6	0.82	1.1	0.343	1.1231	0.41	1.1796	0.3739
1.7	1.44	0.54	1.1	0.362	1.28	0.576	1.14	0.34	1.1119
0.3018	1.3807	0.5504	1.709	0.7998	1.1985	0.5877	1.482	0.8441	
	1.26	0.244	1.16	0.366	0.603	0.379	1.41	0.206	
1.1598	0.7017	1.59	0.822	1.1	0.346	1.1236	0.4088	1.1815	0.3779
1.48	1.71	1.44	0.542	1.1	0.358	1.28	0.583	1.14	0.34
1.1084	0.3044	1.3888	0.5621	1.7309	0.8198	1.2004	0.5925	1.5135	
0.8811									
	1.26	0.238	1.15	0.361	0.6	0.384	1.41	0.204	1.1599
0.702	1.59	0.824	1.1	0.349	1.124	0.4076	1.1827	0.3816	1.5
1.43	0.544	1.1	0.358	1.29	0.589	1.14	0.341	1.1059	0.3076
1.3953	0.5716	1.7507	0.8391	1.2026	0.5979	1.548	0.9205		
	1.26	0.233	1.14	0.356	0.597	0.388	1.41	0.205	1.16
0.7022	1.58	0.827	1.11	0.354	1.1242	0.4064	1.1834	0.3852	1.51

1.72	1.43	0.547	1.1	0.36	1.29	0.595	1.13	0.343	1.1048
0.3113	1.4004	0.5807	1.769	0.8579	1.2056	0.6042	1.5851	0.962	
	1.26	0.231	1.14	0.352	0.593	0.392	1.42	0.207	
1.1601	0.7022	1.57	0.829	1.11	0.359	1.1243	0.4051	1.1832	
0.3887	1.53	1.72	1.42	0.552	1.1	0.365	1.29	0.601	1.13
0.346	1.104	0.3162	1.4046	0.5898	1.7869	0.8772	1.209	0.6113	
1.6192	1								
	1.26	0.23	1.13	0.348	0.589	0.396	1.42	0.21	
1.1596	0.7022	1.56	0.83	1.11	0.366	1.1241	0.4032	1.182	
0.3921	1.54	1.72	1.42	0.56	1.1	0.374	1.3	0.606	1.13
1.1035	0.3221	1.4081	0.599	1.8049	0.8982	1.2123	0.6187	1.6487	0.35
1.0326									
	1.26	0.232	1.13	0.345	0.585	0.399	1.42	0.214	
1.1576	0.702	1.55	0.831	1.11	0.373	1.1234	0.3997	1.1804	
0.3955	1.56	1.72	1.42	0.57	1.1	0.385	1.3	0.612	1.13
1.1033	0.3283	1.4115	0.6088	1.823	0.9209	1.2147	0.6258	1.6796	0.355
1.0663									
	1.26	0.236	1.12	0.343	0.58	0.402	1.43	0.219	
1.1543	0.7018	1.54	0.831	1.11	0.38	1.1221	0.395	1.1783	
0.3988	1.57	1.71	1.42	0.583	1.1	0.399	1.3	0.617	1.13
1.1038	0.3354	1.4149	0.6194	1.8402	0.9438	1.2156	0.6321	1.7133	0.361
1.1025									
	1.25	0.243	1.11	0.341	0.575	0.404	1.43	0.225	
1.1498	0.7014	1.53	0.831	1.11	0.386	1.1203	0.3899	1.1755	
0.4022	1.59	1.71	1.41	0.598	1.1	0.413	1.3	0.622	1.12
1.1046	0.3431	1.4189	0.6311	1.856	0.9661	1.2148	0.6377	1.7462	0.367
1.1381									
	1.25	0.251	1.11	0.341	0.569	0.405	1.44	0.232	
1.1442	0.701	1.52	0.831	1.11	0.392	1.1183	0.385	1.1724	
0.4054	1.6	1.71	1.41	0.614	1.1	0.426	1.3	0.627	1.12
1.1051	0.3506	1.4235	0.6452	1.8712	0.9885	1.213	0.6429	1.7767	0.374
1.1719									
	1.24	0.26	1.1	0.341	0.563	0.405	1.44	0.24	1.1378
0.7005	1.51	0.83	1.11	0.398	1.116	0.381	1.1686	0.4086	1.62
1.7	1.41	0.63	1.1	0.435	1.3	0.632	1.12	0.38	1.1046
0.3575									
1.4283	0.6612	1.8849	1.0099	1.2103	0.6479	1.8009	1.2002		
	1.23	0.27	1.1	0.342	0.556	0.405	1.44	0.249	1.1307
0.7	1.5	0.829	1.11	0.404	1.1136	0.3786	1.1645	0.4118	1.64
1.69									
1.41	0.646	1.1	0.442	1.3	0.636	1.12	0.386	1.103	0.3642
1.4326	0.6776	1.8966	1.0292	1.2073	0.6528	1.8212	1.2253		
	1.23	0.281	1.1	0.344	0.548	0.403	1.45	0.26	1.1231
0.6995	1.49	0.827	1.1	0.409	1.1111	0.3782	1.1603	0.4151	1.65
1.69	1.4	0.663	1.1	0.447	1.3	0.64	1.12	0.391	1.1006
0.3705									
1.4361	0.6933	1.9086	1.0473	1.2039	0.658	1.8378	1.2472		
	1.22	0.293	1.09	0.348	0.54	0.401	1.45	0.27	1.115
0.699	1.48	0.825	1.1	0.415	1.1078	0.3785	1.1557	0.4184	1.66
1.68	1.4	0.679	1.09	0.45	1.29	0.644	1.12	0.397	1.0979
0.3762	1.4382	0.7068	1.9182	1.0639	1.1991	0.6634	1.85	1.2651	
	1.21	0.306	1.09	0.352	0.531	0.398	1.45	0.28	
1.1068	0.6986	1.47	0.823	1.1	0.421	1.1038	0.3792	1.1509	0.4218
1.68	1.68	1.39	0.695	1.09	0.453	1.29	0.647	1.11	0.403
1.0938	0.3813	1.4385	0.7178	1.9215	1.0787	1.193	0.6689	1.8564	
1.2789									
	1.2	0.32	1.09	0.357	0.522	0.395	1.45	0.29	1.0985
0.6982	1.46	0.82	1.09	0.427	1.0991	0.3802	1.146	0.4254	1.69

1.67	1.39	0.71	1.08	0.456	1.28	0.65	1.11	0.41	
1.0888	0.3862	1.4372	0.7274	1.9213	1.0939	1.186	0.6741	1.8592	
1.2904									
	1.19	0.335	1.08	0.363	0.513	0.392	1.45	0.298	
1.0903	0.6978	1.45	0.817	1.09	0.435	1.094	0.3814	1.141	
0.4294	1.7	1.66	1.39	0.725	1.07	0.461	1.27	0.651	1.11
0.418	1.0836	0.3915	1.435	0.7362	1.9206	1.1088	1.1783	0.679	
1.8597	1.295								
	1.18	0.35	1.08	0.37	0.503	0.389	1.45	0.306	
1.0824	0.6976	1.43	0.813	1.09	0.443	1.0886	0.3828	1.1361	
0.4337	1.71	1.65	1.39	0.74	1.07	0.468	1.26	0.651	1.1
0.428	1.0779	0.3971	1.4323	0.7448	1.9196	1.1198	1.1702	0.6833	
1.8544	1.2961								
	1.18	0.366	1.08	0.378	0.493	0.388	1.44	0.314	1.075
0.6975	1.42	0.809	1.08	0.451	1.0831	0.3843	1.1312	0.4385	1.72
1.64	1.4	0.756	1.06	0.476	1.25	0.65	1.09	0.438	1.0719
0.403	1.4297	0.7538	1.9182	1.1233	1.16	0.6867	1.8449	1.2968	
	1.17	0.383	1.07	0.386	0.484	0.388	1.44	0.321	
1.0678	0.6976	1.41	0.805	1.08	0.461	1.0777	0.3858	1.1263	
0.4438	1.73	1.63	1.4	0.772	1.06	0.485	1.24	0.649	1.09
0.449	1.0658	0.4097	1.4279	0.7637	1.9103	1.1229	1.1482	0.6895	
1.8342	1.2969								
	1.16	0.4	1.07	0.396	0.475	0.39	1.44	0.33	1.0604
0.6983	1.39	0.8	1.07	0.472	1.0725	0.3874	1.1214	0.4498	1.74
1.62	1.4	0.79	1.05	0.496	1.23	0.648	1.08	0.46	1.0598
0.4179	1.4267	0.776	1.8947	1.1221	1.1357	0.6922	1.8206	1.2929	
	1.15	0.418	1.06	0.407	0.466	0.394	1.44	0.34	
1.0526	0.6994	1.37	0.795	1.07	0.483	1.0673	0.3893	1.1166	
0.4565	1.75	1.61	1.4	0.809	1.05	0.507	1.21	0.647	1.07
0.471	1.0538	0.4273	1.4255	0.7895	1.8746	1.1211	1.1236	0.6953	
1.8041	1.2857								
	1.15	0.435	1.06	0.418	0.457	0.401	1.44	0.35	
1.0446	0.7009	1.36	0.79	1.06	0.496	1.0622	0.3915	1.1119	
0.4639	1.76	1.61	1.4	0.83	1.04	0.52	1.2	0.649	1.07
1.0479	0.437	1.4231	0.8023	1.8533	1.1203	1.113	0.6992	1.7865	1.278
	1.14	0.452	1.05	0.43	0.447	0.409	1.44	0.36	
1.0365	0.7028	1.34	0.784	1.06	0.509	1.0569	0.3941	1.1073	
0.4722	1.77	1.6	1.4	0.852	1.04	0.533	1.19	0.652	1.06
1.0421	0.4466	1.4185	0.8122	1.8339	1.1197	1.1049	0.7043	1.7651	0.495
1.2671									
	1.13	0.467	1.04	0.442	0.437	0.418	1.44	0.371	
1.0284	0.7049	1.32	0.778	1.06	0.523	1.0515	0.397	1.1029	
0.4814	1.78	1.59	1.39	0.876	1.03	0.547	1.18	0.659	1.06
0.507	1.0363	0.4565	1.4108	0.8176	1.8193	1.1203	1.0983	0.7133	1.751
1.2628									
	1.12	0.48	1.04	0.455	0.426	0.429	1.44	0.38	
1.0204	0.7073	1.3	0.77	1.05	0.538	1.0457	0.4002	1.0989	0.4914
1.79	1.58	1.39	0.9	1.02	0.561	1.18	0.668	1.05	0.52
1.0307	0.4667	1.3996	0.8207	1.8074	1.125	1.0923	0.7257	1.744	
1.2665									
	1.11	0.49	1.03	0.467	0.413	0.439	1.44	0.388	
1.0125	0.7098	1.28	0.761	1.05	0.555	1.0396	0.4038	1.095	
0.5021	1.79	1.57	1.39	0.925	1.02	0.575	1.17	0.681	1.04
0.534	1.0252	0.4773	1.3861	0.8227	1.796	1.1313	1.0872	0.7401	
1.7406	1.2722								

	1.1	0.5	1.02	0.48	0.398	0.45	1.45	0.395	1.0048	
0.7124	1.25	0.751	1.05	0.572	1.033	0.4077	1.0904	0.5123	1.79	
1.55	1.39	0.952	1.01	0.59	1.17	0.695	1.04	0.548		
1.0198	0.4883	1.3714	0.8245	1.783	1.1359	1.0829	0.7547	1.7385		
1.2809										
	1.1	0.512	1.01	0.492	0.381	0.461	1.45	0.401	0.9975	
0.7163	1.22	0.74	1.05	0.591	1.0259	0.4119	1.0849	0.5221	1.79	
1.53	1.39	0.98	1.01	0.605	1.17	0.71	1.04	0.564		
1.0151	0.5003	1.3565	0.8264	1.7662	1.1356	1.0796	0.7684	1.7374		
1.2913										
	1.1	0.528	0.999	0.504	0.362	0.471	1.46	0.406	0.9903	
0.7212	1.2	0.73	1.05	0.611	1.018	0.4171	1.0796	0.5324	1.78	
1.52	1.39	1.01	1	0.62	1.17	0.726	1.03	0.581	1.0112	
0.5138	1.3427	0.8292	1.7443	1.1309	1.0771	0.7827	1.7375	1.3025		
	1.11	0.55	0.988	0.515	0.343	0.482	1.47	0.41		
0.9832	0.7267	1.17	0.72	1.05	0.632	1.0092	0.4236	1.074		
0.5432	1.77	1.5	1.39	1.04	0.999	0.635	1.16	0.743	1.03	
0.6	1.0077	0.5284	1.3309	0.8336	1.7194	1.1237	1.0749	0.7974	1.7378	
1.315										
	1.13	0.581	0.977	0.526	0.324	0.492	1.47	0.414		
0.9758	0.7324	1.14	0.711	1.05	0.654	0.9998	0.431	1.07		
0.5555	1.76	1.48	1.39	1.07	0.996	0.651	1.16	0.76	1.03	
0.621	1.0042	0.5434	1.3216	0.8426	1.6938	1.116	1.0724	0.8123		
1.7379	1.3281									
	1.17	0.619	0.965	0.536	0.307	0.502	1.48	0.417	0.968	
0.7378	1.12	0.704	1.05	0.676	0.9897	0.4391	1.0679	0.5705	1.74	
1.47	1.39	1.11	0.992	0.667	1.16	0.777	1.03	0.642		
1.0007	0.5588	1.3138	0.8549	1.67	1.1099	1.0693	0.8269	1.7379		
1.3419										
	1.21	0.662	0.954	0.547	0.292	0.512	1.48	0.421		
0.9595	0.7426	1.1	0.699	1.05	0.7	0.9792	0.4477	1.0661	0.5864	1.72
1.46	1.4	1.14	0.989	0.685	1.16	0.793	1.03	0.665	0.9973	
0.5746	1.3067	0.8679	1.6464	1.1053	1.0655	0.8414	1.7377	1.3562		
	1.26	0.709	0.944	0.558	0.28	0.522	1.48	0.425		
0.9499	0.7467	1.08	0.698	1.05	0.724	0.9682	0.4566	1.0644		
0.6025	1.71	1.44	1.4	1.18	0.985	0.703	1.15	0.81	1.04	
0.688	0.9941	0.591	1.2995	0.8796	1.6218	1.1009	1.0615	0.8561		
1.7375	1.3703									
	1.3	0.758	0.935	0.57	0.269	0.532	1.48	0.43	0.9396	
0.7506	1.06	0.7	1.06	0.748	0.957	0.4654	1.062	0.618	1.69	
1.43	1.41	1.22	0.981	0.723	1.15	0.827	1.04	0.71		
0.9911	0.6078	1.2914	0.8911	1.6021	1.0978	1.0577	0.8712	1.7369		
1.3837										
	1.35	0.807	0.929	0.584	0.261	0.543	1.48	0.436		
0.9291	0.7546	1.05	0.707	1.06	0.772	0.9456	0.4739	1.0587		
0.6328	1.67	1.42	1.42	1.26	0.976	0.744	1.15	0.843	1.04	
0.732	0.9879	0.6244	1.2823	0.9026	1.5931	1.098	1.0541	0.887		
1.7349	1.397									
	1.4	0.855	0.925	0.599	0.252	0.554	1.47	0.442	0.9193	
0.7592	1.04	0.717	1.06	0.797	0.9333	0.4824	1.0553	0.6477	1.66	
1.41	1.43	1.3	0.972	0.765	1.14	0.858	1.05	0.752	0.9842	
0.6406	1.2721	0.9133	1.5895	1.1103	1.0505	0.9034	1.7315	1.4101		
	1.44	0.899	0.925	0.618	0.245	0.566	1.46	0.448		
0.9106	0.7649	1.03	0.73	1.06	0.821	0.9199	0.491	1.0519	0.663	

1.64	1.39	1.44	1.34	0.967	0.784	1.14	0.873	1.05	0.772
0.9803	0.6566	1.2606	0.9223	1.5861	1.1253	1.0471	0.9202	1.7271	1.423
	1.47	0.938	0.928	0.639	0.237	0.578	1.46	0.454	
0.9035	0.773	1.03	0.744	1.07	0.846	0.9061	0.5	1.0491	0.6792
1.62	1.38	1.46	1.38	0.962	0.802	1.13	0.888	1.06	0.791
0.9762	0.6724	1.248	0.9299	1.5817	1.1378	1.044	0.9371	1.7221	
1.4354									
	1.49	0.97	0.933	0.662	0.232	0.591	1.45	0.46	
0.8974	0.7843	1.03	0.76	1.07	0.87	0.8922	0.5093	1.0461	
0.6954	1.6	1.37	1.48	1.42	0.957	0.817	1.13	0.903	1.06
0.81	0.972	0.688	1.235	0.9369	1.5767	1.15	1.0414	0.954	
1.7169	1.4472								
	1.5	0.994	0.938	0.685	0.23	0.605	1.44	0.465	0.8915
0.7966	1.03	0.776	1.07	0.894	0.879	0.5191	1.043	0.7115	1.58
1.36	1.5	1.46	0.951	0.829	1.13	0.918	1.06	0.828	0.9676
0.7034	1.2221	0.9442	1.5708	1.1618	1.0388	0.971	1.7116	1.4585	
	1.5	1.01	0.94	0.705	0.231	0.619	1.44	0.469	0.8851
0.8076	1.04	0.792	1.08	0.918	0.8667	0.5296	1.0399	0.728	1.55
1.35	1.53	1.5	0.946	0.838	1.12	0.933	1.06	0.846	0.9629
0.7183	1.2097	0.9522	1.5638	1.1724	1.0367	0.9882	1.7051	1.4696	
	1.49	1.03	0.937	0.721	0.237	0.635	1.43	0.473	0.877
0.8156	1.04	0.808	1.08	0.942	0.8549	0.5416	1.0366	0.7445	1.52
1.34	1.57	1.54	0.941	0.845	1.12	0.948	1.06	0.863	
0.9579	0.7329	1.198	0.9606	1.5554	1.1798	1.0357	1.0052	1.6976	
1.4801									
	1.48	1.04	0.928	0.734	0.246	0.652	1.43	0.476	
0.8668	0.8219	1.05	0.824	1.08	0.964	0.8435	0.5542	1.0331	
0.7611	1.49	1.33	1.61	1.59	0.936	0.852	1.11	0.965	1.06
0.881	0.9528	0.7474	1.1867	0.9696	1.5456	1.1854	1.035	1.0218	
1.6893	1.4896								
	1.47	1.05	0.917	0.745	0.258	0.67	1.42	0.48	
0.8562	0.8277	1.06	0.84	1.08	0.987	0.8324	0.5664	1.0293	
0.7775	1.46	1.32	1.67	1.64	0.931	0.859	1.11	0.981	1.06
0.9	0.9477	0.7616	1.1754	0.9795	1.5365	1.1908	1.0344	1.0384	1.6804
1.4977									
	1.46	1.06	0.905	0.755	0.273	0.689	1.41	0.484	0.847
0.8343	1.07	0.856	1.09	1.01	0.8215	0.577	1.0253	0.7938	1.43
1.31	1.74	1.7	0.926	0.867	1.11	0.998	1.06	0.92	0.9425
0.7757	1.164	0.9909	1.5279	1.1959	1.0341	1.0557	1.6708	1.5054	
	1.46	1.08	0.894	0.767	0.29	0.709	1.41	0.488	
0.8408	0.8432	1.08	0.872	1.09	1.03	0.8108	0.5862	1.0211	
0.8098	1.4	1.3	1.82	1.77	0.921	0.878	1.1	1.01	1.06
0.9372	0.7896	1.1526	1.0029	1.5202	1.2021	1.0341	1.0742	1.6603	1.513
	1.46	1.1	0.886	0.783	0.309	0.73	1.4	0.492	0.8364
0.8557	1.08	0.886	1.09	1.05	0.8002	0.5945	1.0178	0.827	1.37
1.3	1.91	1.85	0.917	0.89	1.1	1.03	1.05	0.96	0.932
0.8033	1.1411	1.0142	1.5134	1.2096	1.0352	1.0942	1.6487	1.5197	
	1.45	1.11	0.881	0.8	0.331	0.752	1.39	0.496	0.8327
0.8697	1.08	0.899	1.09	1.07	0.7899	0.6024	1.0148	0.8443	1.34
1.29	1.99	1.92	0.913	0.905	1.1	1.05	1.05	0.981	0.9268
0.817	1.1295	1.0251	1.5069	1.2179	1.0375	1.1154	1.636	1.5246	
	1.45	1.12	0.877	0.819	0.355	0.774	1.38	0.5	0.8287
0.8829	1.08	0.91	1.09	1.09	0.7802	0.6104	1.0119	0.8616	1.31
1.28	2.07	1.99	0.909	0.92	1.09	1.06	1.05	1	0.9218
0.8307	1.118	1.0355	1.5006	1.227	1.0403	1.1375	1.6221	1.5268	

	1.44	1.13	0.874	0.838	0.38	0.797	1.37	0.503	
0.8246	0.8949	1.07	0.918	1.09	1.11	0.7711	0.6187	1.0092	
0.8792	1.28	1.27	2.13	2.05	0.906	0.937	1.09	1.08	1.05
1.02	0.917	0.8446	1.1064	1.045	1.4943	1.236	1.0432	1.1603	
1.6066	1.5264								
	1.44	1.13	0.871	0.856	0.404	0.82	1.36	0.507	
0.8204	0.9066	1.06	0.925	1.1	1.13	0.7624	0.6272	1.0061	0.8961
1.24	1.26	2.19	2.11	0.903	0.953	1.08	1.09	1.05	1.04
0.9127	0.8589	1.095	1.0538	1.4881	1.2449	1.0468	1.1848	1.589	
1.5249									
	1.43	1.13	0.867	0.872	0.428	0.843	1.35	0.51	
0.8159	0.9178	1.04	0.93	1.1	1.15	0.7538	0.6355	1.0038	0.9131
1.21	1.26	2.23	2.15	0.9	0.969	1.08	1.1	1.04	1.05
0.9086	0.8733	1.0836	1.062	1.4822	1.2538	1.0512	1.2103	1.5695	
1.5225									
	1.41	1.13	0.86	0.884	0.451	0.865	1.34	0.515	
0.8107	0.9286	1.02	0.935	1.1	1.17	0.7459	0.6442	1.0022	0.9302
1.17	1.25	2.27	2.19	0.898	0.984	1.07	1.11	1.04	1.07
0.9046	0.8876	1.0721	1.0698	1.4764	1.2626	1.0557	1.2353	1.5485	
1.5192									
	1.4	1.13	0.85	0.891	0.475	0.886	1.33	0.52	0.8049
0.9388	1	0.94	1.11	1.19	0.7391	0.6534	1.0012	0.9467	1.14
1.24	2.3	2.23	0.896	0.998	1.07	1.12	1.04	1.08	0.9008
0.902	1.0609	1.0773	1.4704	1.2709	1.06	1.2589	1.5262	1.5154	
	1.38	1.13	0.836	0.893	0.498	0.905	1.32	0.527	
0.7987	0.9493	0.981	0.946	1.11	1.21	0.7338	0.6636	1.0015	
0.9643	1.11	1.23	2.33	2.26	0.895	1.01	1.06	1.13	1.04
1.09	0.8971	0.9163	1.0505	1.0824	1.4644	1.2791	1.0645	1.2818	
1.5028	1.5108								
	1.37	1.13	0.821	0.893	0.521	0.922	1.3	0.535	0.7922
0.9605	0.964	0.952	1.11	1.23	0.7299	0.6759	1.0012	0.9809	1.08
1.23	2.35	2.28	0.895	1.03	1.05	1.14	1.04	1.1	0.8937
0.9306	1.0408	1.0863	1.4585	1.2872	1.0688	1.3031	1.4754	1.5003	
	1.35	1.14	0.806	0.895	0.54	0.938	1.29	0.543	
0.7853	0.9723	0.948	0.957	1.11	1.24	0.7269	0.6896	1.0001	0.996
1.06	1.22	2.37	2.31	0.896	1.04	1.05	1.15	1.03	1.12
0.8903	0.9446	1.0299	1.0885	1.4549	1.2973	1.0724	1.3217	1.4449	
1.4848									
	1.33	1.14	0.794	0.901	0.552	0.952	1.28	0.552	
0.7782	0.9838	0.934	0.96	1.11	1.26	0.7238	0.7033	0.9981	
1.0098	1.03	1.2	2.38	2.32	0.898	1.06	1.04	1.16	1.03
1.13	0.8868	0.9582	1.0164	1.0885	1.4525	1.3088	1.0758	1.3388	
1.4137	1.4675								
	1.32	1.14	0.788	0.917	0.559	0.965	1.26	0.56	
0.7708	0.9939	0.92	0.96	1.12	1.27	0.72	0.7156	0.9951	
1.0224	1	1.19	2.39	2.34	0.902	1.08	1.03	1.17	1.03
1.14	0.8834	0.9714	1.003	1.0883	1.4506	1.3201	1.0784	1.3535	
1.3843	1.4518								
	1.31	1.14	0.787	0.94	0.572	0.976	1.24	0.567	
0.7627	1.0028	0.908	0.956	1.12	1.29	0.7148	0.7265	0.991	
1.0338	0.97	1.17	2.39	2.35	0.906	1.09	1.03	1.17	1.03
1.15	0.8796	0.9836	0.9937	1.09	1.4487	1.3304	1.0798	1.3652	
1.3592	1.4408								
	1.3	1.14	0.786	0.963	0.602	0.986	1.23	0.574	0.7558
1.0119	0.896	0.948	1.12	1.3	0.708	0.7381	0.986	1.0442	0.939

1.15	2.39	2.37	0.91	1.11	1.02	1.18	1.03	1.17	
0.8757	0.9952	0.989	1.1022	1.4467	1.3395	1.0808	1.375	1.3383	
1.4337									
	1.28	1.13	0.782	0.98	0.663	0.994	1.21	0.58	
0.7517	1.0231	0.886	0.939	1.12	1.31	0.7	0.7482	0.9808	1.0546
0.908	1.12	2.38	2.37	0.915	1.13	1.02	1.19	1.03	1.18
0.8715	1.0059	0.9856	1.1149	1.4449	1.3482	1.0811	1.3823	1.3199	
1.4283									
	1.27	1.13	0.772	0.988	0.75	1	1.2	0.585	0.7488
1.0359	0.878	0.929	1.11	1.32	0.6912	0.7544	0.9749	1.0646	0.878
1.1	2.37	2.38	0.919	1.15	1.02	1.2	1.03	1.19	0.8673
1.0161	0.9811	1.1276	1.443	1.3563	1.0806	1.388	1.3045	1.4261	
	1.26	1.12	0.76	0.991	0.847	1.01	1.19	0.59	
0.7456	1.0452	0.87	0.92	1.11	1.33	0.682	0.7556	0.9682	
1.0742	0.85	1.07	2.35	2.38	0.922	1.16	1.02	1.21	1.03
1.2	0.8627	1.0251	0.9751	1.1351	1.4409	1.364	1.0794	1.3916	1.2914
1.4253									
	1.25	1.11	0.746	0.989	0.935	1.01	1.18	0.594	
0.7411	1.0506	0.863	0.913	1.11	1.33	0.6715	0.7558	0.9611	
1.0833	0.824	1.04	2.33	2.38	0.923	1.17	1.01	1.21	1.03
1.21	0.8573	1.032	0.9679	1.1384	1.4384	1.3714	1.0777	1.3925	
1.2798	1.4248								
	1.23	1.11	0.731	0.985	0.996	1.02	1.18	0.597	0.736
1.0545	0.858	0.908	1.11	1.34	0.6599	0.756	0.953	1.0912	0.801
1.02	2.31	2.37	0.922	1.17	1.01	1.22	1.03	1.21	
0.8512	1.0379	0.9603	1.1411	1.4357	1.3789	1.0752	1.3929	1.2689	
1.4245									
	1.21	1.1	0.717	0.981	1.03	1.02	1.18	0.599	0.7317
1.0554	0.852	0.904	1.1	1.34	0.6478	0.7561	0.9441	1.0976	0.78
0.988	2.28	2.36	0.92	1.18	1.01	1.22	1.03	1.22	
0.8446	1.0419	0.9524	1.1441	1.433	1.3868	1.0722	1.3929	1.258	1.424
	1.2	1.09	0.706	0.979	1.04	1.03	1.18	0.6	0.728
1.0554	0.846	0.902	1.1	1.35	0.6354	0.7561	0.9344	1.102	0.759
0.959	2.26	2.34	0.917	1.18	1.01	1.22	1.02	1.22	
0.8374	1.0447	0.9428	1.145	1.4298	1.3945	1.0687	1.3907	1.2463	
1.4233									
	1.18	1.08	0.697	0.98	1.05	1.03	1.18	0.6	0.7243
1.0554	0.84	0.9	1.09	1.35	0.6229	0.7556	0.9236	1.1033	0.74
0.93	2.23	2.33	0.913	1.18	1.01	1.22	1.02	1.22	
0.8299	1.0465	0.9316	1.1414	1.4259	1.4016	1.0647	1.387	1.233	1.421
	1.16	1.07	0.691	0.982	1.06	1.03	1.17	0.598	
0.7201	1.0538	0.833	0.898	1.09	1.35	0.6098	0.7526	0.9113	
1.1026	0.721	0.9	2.2	2.31	0.908	1.18	1	1.22	1.01
0.8222	1.0466	0.9218	1.1394	1.4211	1.4075	1.0603	1.3831	1.218	1.22
1.4151									
	1.15	1.06	0.687	0.984	1.07	1.03	1.16	0.595	
0.7156	1.0488	0.825	0.897	1.08	1.35	0.5962	0.7476	0.8992	
1.1017	0.702	0.868	2.18	2.3	0.903	1.17	0.993	1.22	1
0.8144	1.0463	0.9144	1.1395	1.4154	1.4124	1.0555	1.3782	1.2023	1.22
1.4071									
	1.14	1.05	0.681	0.984	1.09	1.03	1.15	0.589	
0.7107	1.0433	0.816	0.895	1.08	1.35	0.5826	0.7415	0.8896	1.102
0.682	0.836	2.15	2.28	0.898	1.17	0.985	1.22	0.995	1.22
0.8064	1.0457	0.9054	1.1388	1.4087	1.4157	1.0502	1.3727	1.1871	
1.3985									

	1.13	1.05	0.672	0.98	1.11	1.03	1.12	0.581	
0.7052	1.0371	0.808	0.893	1.07	1.34	0.5694	0.7354	0.882	
1.1026	0.662	0.803	2.11	2.26	0.892	1.17	0.976	1.21	0.983
1.22	0.7978	1.0434	0.8928	1.1307	1.4004	1.4175	1.0447	1.3668	
1.1733	1.3912								
	1.12	1.04	0.657	0.971	1.12	1.02	1.09	0.57	
0.6993	1.0304	0.8089	1.07	1.34	0.5567	0.7297	0.876	1.1028	
0.64	0.77	2.07	2.23	0.887	1.17	0.965	1.21	0.97	1.22
0.789	1.0395	0.8789	1.1214	1.3906	1.4173	1.0387	1.3605	1.1622	
1.3869									
	1.11	1.04	0.638	0.958	1.13	1.02	1.05	0.556	
0.6931	1.0237	0.792	0.887	1.06	1.34	0.5439	0.7234	0.87	
1.1018	0.617	0.736	2.02	2.20881	1.17	0.954	1.2	0.956	1.22
0.7806	1.0357	0.8654	1.112	1.3785	1.4159	1.0323	1.3538	1.154	
1.3851									
	1.11	1.03	0.618	0.945	1.13	1.02	0.998	0.539	
0.6864	1.0168	0.786	0.883	1.05	1.34	0.5313	0.7166	0.8641	
1.1004	0.593	0.704	1.96	2.16	0.874	1.17	0.941	1.19	0.942
1.22	0.7724	1.0315	0.8521	1.1024	1.3631	1.4105	1.0256	1.3469	
1.1475	1.3841								
	1.11	1.03	0.604	0.936	1.13	1.02	0.946	0.52	
0.6793	1.0097	0.78	0.879	1.05	1.33	0.519	0.7095	0.8569	
1.0962	0.57	0.673	1.91	2.13	0.866	1.17	0.928	1.18	0.927
1.21	0.7644	1.0271	0.8392	1.0927	1.3456	1.403	1.0185	1.3395	
1.1416	1.3832								
	1.11	1.03	0.596	0.934	1.13	1.02	0.896	0.5	0.6719
1.0023	0.774	0.874	1.04	1.33	0.5075	0.7025	0.8489	1.0904	0.549
0.644	1.85	2.09	0.858	1.16	0.915	1.17	0.913	1.21	
0.7568	1.0226	0.8266	1.0817	1.3275	1.3949	1.011	1.3318	1.135	1.382
	1.11	1.03	0.595	0.934	1.13	1.01	0.85	0.48	
0.6641	0.9943	0.77	0.87	1.03	1.32	0.4969	0.6957	0.8398	
1.0825	0.53	0.62	1.8205	0.848	1.15	0.9	1.16	0.9	1.2
0.7493	1.0178	0.8142	1.0701	1.3098	1.387	1.0031	1.3238	1.1265	1.38
	1.11	1.03	0.594	0.932	1.14	1.01	0.813	0.46	0.656
0.9851	0.767	0.866	1.03	1.32	0.4871	0.6892	0.83	1.0727	0.514
0.6176	2.01	0.838	1.15	0.885	1.15	0.888	1.19	0.7408	
1.0124	0.8012	1.0599	1.2908	1.3776	0.9949	1.3154	1.1152	1.3697	
	1.11	1.02	0.587	0.923	1.14	1.01	0.782	0.44	
0.6475	0.975	0.764	0.863	1.02	1.31	0.4777	0.6828	0.8194	
1.0612	0.502	0.584	1.72	1.98	0.828	1.14	0.87	1.13	0.878
1.18	0.731	1.0062	0.7877	1.0486	1.2698	1.3652	0.9863	1.3065	
1.1012	1.3469								
	1.11	1.01	0.578	0.91	1.14	1	0.756	0.422	0.6385
0.9642	0.762	0.861	1.01	1.31	0.4687	0.6765	0.8095	1.0506	0.491
0.571	1.68	1.95	0.817	1.13	0.854	1.12	0.868	1.17	
0.7205	0.9994	0.7738	1.035	1.2457	1.3484	0.9773	1.2972	1.0851	
1.3164									
	1.1	1.01	0.567	0.896	1.13	0.996	0.733	0.405	0.629
0.9527	0.761	0.86	1.01	1.3	0.4601	0.6702	0.8008	1.0419	0.48
0.56	1.65	1.91	0.807	1.12	0.838	1.11	0.859	1.15	
0.7091	0.9914	0.7605	1.0206	1.2177	1.326	0.9679	1.2873	1.0677	
1.2827									
	1.1	1	0.558	0.884	1.13	0.989	0.71	0.39	0.6196
0.9409	0.76	0.86	1	1.29	0.4519	0.6639	0.7932	1.0358	0.47
0.55	1.62	1.88	0.799	1.11	0.823	1.09	0.85	1.14	

0.6974	0.9825	0.7475	1.0056	1.1858	1.2989	0.9581	1.2769	1.0495	
1.2504									
	1.1	0.994	0.551	0.874	1.12	0.981	0.686	0.378	0.6102
0.9289	0.759	0.862	0.996	1.29	0.4441	0.6574	0.785	1.0298	0.459
0.54	1.59	1.85	0.792	1.11	0.807	1.08	0.84	1.13	
0.6866	0.9731	0.734	0.9905	1.1518	1.2688	0.948	1.2658	1.0311	
1.2234									
	1.09	0.989	0.544	0.863	1.11	0.971	0.661	0.367	0.6
0.9159	0.759	0.866	0.989	1.28	0.4367	0.6509	0.7765	1.0228	0.447
0.53	1.55	1.81	0.785	1.1	0.791	1.06	0.831	1.12	0.6762
0.9632	0.7203	0.9759	1.1184	1.239	0.9374	1.2541	1.011	1.1977	
	1.09	0.983	0.535	0.846	1.1	0.959	0.636	0.358	0.5885
0.9011	0.758	0.872	0.981	1.27	0.4296	0.6441	0.766	1.0115	0.434
0.52	1.52	1.78	0.778	1.09	0.775	1.05	0.821	1.1	0.6669
0.9533	0.7078	0.9623	1.0853	1.2092	0.9265	1.2416	0.9894	1.1722	
	1.08	0.977	0.523	0.823	1.08	0.947	0.612	0.349	
0.5778	0.8881	0.758	0.88	0.973	1.26	0.4232	0.6372	0.7552	
0.9994	0.422	0.51	1.48	1.74	0.769	1.08	0.759	1.04	0.81
1.09	0.6585	0.9433	0.6977	0.9509	1.0495	1.1759	0.9151	1.2284	
0.9671	1.1472								
	1.07	0.97	0.514	0.806	1.07	0.933	0.59	0.34	
0.5679	0.8768	0.758	0.89	0.964	1.25	0.4174	0.6301	0.7446	
0.9872	0.41	0.5	1.44	1.7	0.759	1.07	0.744	1.02	0.8
0.651	0.9334	0.6885	0.9394	1.0119	1.1402	0.9034	1.2143	0.9449	1.123
	1.06	0.962	0.511	0.797	1.05	0.919	0.571	0.33	
0.5601	0.87	0.758	0.901	0.955	1.24	0.4117	0.6227	0.7359	0.977
0.399	0.489	1.4	1.66	0.75	1.06	0.729	1.01	0.79	1.07
0.6446	0.9241	0.6781	0.9271	0.9795	1.1098	0.8912	1.1993	0.9233	1.1
	1.05	0.952	0.51	0.792	1.04	0.906	0.554	0.32	
0.5549	0.8672	0.758	0.913	0.943	1.22	0.4057	0.6148	0.7279	
0.9665	0.389	0.479	1.36	1.61	0.74	1.04	0.715	0.994	0.779
1.05	0.6389	0.9151	0.666	0.9124	0.949	1.081	0.8787	1.1834	
0.9014	1.0781								
	1.04	0.942	0.511	0.787	1.04	0.893	0.538	0.31	
0.5496	0.864	0.759	0.925	0.931	1.21	0.3989	0.6061	0.7204	
0.9563	0.38	0.468	1.32	1.57	0.73	1.03	0.702	0.98	0.769
1.04	0.6338	0.9059	0.6554	0.9001	0.9179	1.0512	0.866	1.1666	
0.8795	1.0568								
	1.03	0.931	0.511	0.782	1.03	0.881	0.524	0.3	0.5433
0.8579	0.759	0.934	0.917	1.19	0.393	0.5971	0.713	0.946	0.374
0.459	1.28	1.52	0.719	1.01	0.689	0.968	0.759	1.02	
0.6292	0.8969	0.6454	0.8895	0.8899	1.0242	0.8531	1.1489	0.8578	
1.0354									
	1.02	0.92	0.51	0.777	1.03	0.869	0.51	0.29	
0.5367	0.8499	0.759	0.94	0.902	1.17	0.3881	0.5884	0.7059	
0.9358	0.37	0.45	1.23	1.47	0.709	0.993	0.677	0.955	0.75
1	0.6241	0.8869	0.6325	0.8726	0.8638	0.999	0.8401	1.1304	0.8365
1.0133									
	1.01	0.909	0.506	0.772	1.03	0.858	0.496	0.281	0.531
0.8402	0.759	0.942	0.886	1.15	0.3837	0.5795	0.6991	0.9257	0.369
0.443	1.18	1.42	0.7	0.976	0.666	0.944	0.741	0.981	0.6178
0.875	0.6212	0.858	0.8381	0.9738	0.8271	1.111	0.8157	0.9903	
	1	0.899	0.501	0.765	1.02	0.846	0.482	0.273	0.5253
0.8291	0.76	0.94	0.87	1.13	0.3795	0.5703	0.6925	0.9159	0.37
0.436	1.13	1.37	0.692	0.961	0.656	0.933	0.733	0.961	

0.6107	0.8615	0.6101	0.8434	0.8126	0.9483	0.8141	1.0907	0.7954	
0.9668									
	0.997	0.887	0.494	0.758	1.01	0.833	0.47	0.266	
0.5193	0.8155	0.76	0.935	0.852	1.11	0.3755	0.5608	0.6865	
0.9066	0.373	0.431	1.08	1.32	0.684	0.947	0.647	0.923	0.725
0.941	0.6027	0.8466	0.5963	0.8254	0.7869	0.922	0.8013	1.0695	
0.7749	0.9429								
	0.989	0.875	0.487	0.749	0.996	0.82	0.459	0.258	0.513
0.8005	0.76	0.928	0.835	1.09	0.3717	0.5511	0.6804	0.8968	0.376
0.425	1.04	1.27	0.676	0.934	0.639	0.912	0.717	0.921	
0.5939	0.8301	0.5823	0.8062	0.7617	0.8958	0.7886	1.0476	0.7537	
0.9185									
	0.98	0.86	0.482	0.738	0.986	0.807	0.45	0.25	
0.5064	0.7844	0.76	0.92	0.818	1.06	0.3681	0.5414	0.6742	
0.8855	0.38	0.42	1	1.22	0.669	0.919	0.631	0.899	0.71
0.9	0.5853	0.8134	0.5705	0.7896	0.737	0.8692	0.776	1.025	0.732
0.8934									
	0.968	0.843	0.479	0.724	0.973	0.792	0.444	0.241	
0.4998	0.7679	0.76	0.912	0.801	1.04	0.3646	0.5313	0.6673	
0.8721	0.383	0.414	0.971	1.17	0.66	0.901	0.624	0.882	0.703
0.88	0.5769	0.7963	0.558	0.772	0.7131	0.8427	0.7636	1.0019	
0.7102	0.8681								
	0.955	0.824	0.478	0.709	0.957	0.777	0.441	0.233	
0.4933	0.7512	0.76	0.903	0.785	1.02	0.3611	0.5208	0.6599	
0.8572	0.385	0.408	0.949	1.12	0.648	0.879	0.613	0.86	0.695
0.859	0.5696	0.7799	0.5431	0.7517	0.6898	0.8155	0.7513	0.9785	
0.6889	0.843								
	0.939	0.804	0.476	0.692	0.937	0.761	0.439	0.224	
0.4865	0.7336	0.759	0.893	0.771	0.992	0.3574	0.5098	0.6524	
0.8414	0.385	0.4	0.932	1.08	0.636	0.856	0.597	0.834	0.687
0.839	0.5636	0.7644	0.5291	0.7314	0.6657	0.7867	0.739	0.955	0.668
0.8179									
	0.92	0.782	0.471	0.674	0.917	0.745	0.439	0.216	
0.4791	0.7149	0.759	0.882	0.758	0.969	0.3536	0.4981	0.6449	
0.8251	0.384	0.391	0.916	1.03	0.626	0.837	0.578	0.806	0.679
0.82	0.5569	0.7482	0.517	0.7137	0.6459	0.7627	0.7268	0.9317	
0.6473	0.7929								
	0.9	0.76	0.463	0.655	0.897	0.729	0.44	0.21	0.4714
0.695	0.758	0.87	0.746	0.947	0.3492	0.4854	0.6379	0.809	0.38
0.38	0.9	1	0.617	0.818	0.566	0.785	0.67	0.8	0.5492
0.5035	0.6925	0.6298	0.7433	0.7146	0.9086	0.6277	0.7682		0.7307
	0.877	0.737	0.454	0.633	0.876	0.712	0.441	0.205	
0.4632	0.674	0.757	0.856	0.735	0.924	0.3438	0.4708	0.6306	
0.7924	0.373	0.367	0.882	0.973	0.606	0.797	0.56	0.769	0.66
0.78	0.5402	0.7119	0.4908	0.6721	0.614	0.724	0.7023	0.8858	
0.6099	0.7441								
	0.853	0.714	0.446	0.609	0.85	0.696	0.442	0.202	
0.4547	0.6532	0.755	0.842	0.725	0.901	0.3384	0.4553	0.6229	
0.7751	0.365	0.351	0.861	0.952	0.596	0.775	0.552	0.749	0.65
0.761	0.5288	0.691	0.4783	0.6511	0.5983	0.7047	0.6901	0.8628	
0.5935	0.7206								
	0.829	0.69	0.44	0.585	0.817	0.679	0.444	0.198	
0.4463	0.6332	0.754	0.827	0.716	0.878	0.3341	0.44	0.6145	
0.7554	0.356	0.335	0.84	0.934	0.586	0.753	0.542	0.726	0.639

0.741	0.5171	0.6698	0.4654	0.6289	0.5831	0.6847	0.6777	0.8394	
0.5778	0.6973								
	0.804	0.665	0.435	0.561	0.781	0.661	0.447	0.195	
0.4386	0.6157	0.752	0.813	0.706	0.854	0.3317	0.426	0.6058	
0.7338	0.347	0.318	0.819	0.917	0.577	0.732	0.53	0.7	0.629
0.721	0.5053	0.6482	0.4534	0.6085	0.5684	0.6634	0.6653	0.8154	
0.5624	0.6745								
	0.78	0.64	0.43	0.539	0.742	0.644	0.45	0.19	
0.4301	0.5967	0.75	0.8	0.696	0.829	0.33	0.4126	0.5973	0.7117
0.34	0.3	0.8	0.9	0.568	0.712	0.518	0.674	0.62	0.7
0.6291	0.4424	0.585	0.5544	0.6426	0.6527	0.7905	0.5473	0.6522	
	0.758	0.614	0.426	0.517	0.702	0.627	0.454	0.184	
0.4204	0.5752	0.747	0.789	0.686	0.804	0.329	0.3997	0.5897	
0.6905	0.335	0.283	0.783	0.88	0.559	0.691	0.508	0.654	0.612
0.679	0.4907	0.612	0.4384	0.5695	0.5408	0.622	0.6401	0.7647	
0.5331	0.6296								
	0.737	0.587	0.422	0.497	0.66	0.609	0.459	0.176	
0.4141	0.556	0.744	0.78	0.674	0.779	0.3291	0.3874	0.5827	
0.6704	0.332	0.266	0.768	0.857	0.549	0.67	0.502	0.637	0.604
0.657	0.4868	0.5952	0.4327	0.5489	0.5273	0.6004	0.6273	0.7379	
0.5205	0.606								
	0.717	0.561	0.418	0.478	0.615	0.591	0.465	0.168	
0.4106	0.5379	0.741	0.77	0.661	0.753	0.3299	0.3758	0.5756	
0.6498	0.33	0.252	0.754	0.833	0.536	0.645	0.484	0.602	0.597
0.634	0.4837	0.5778	0.4266	0.5275	0.515	0.5783	0.6143	0.71	
0.5091	0.5818								
	0.698	0.535	0.413	0.46	0.568	0.573	0.472	0.159	
0.4104	0.5203	0.736	0.761	0.647	0.727	0.3305	0.3637	0.5684	
0.6285	0.33	0.239	0.742	0.807	0.523	0.619	0.468	0.571	0.589
0.612	0.4796	0.5556	0.4216	0.5085	0.5036	0.5553	0.6013	0.6812	
0.4977	0.5568								
	0.68	0.51	0.408	0.443	0.523	0.555	0.48	0.15	
0.4102	0.5024	0.73	0.75	0.631	0.701	0.33	0.3501	0.5609	
0.6067	0.33	0.23	0.73	0.78	0.511	0.593	0.465	0.558	0.58
0.59	0.4747	0.531	0.4171	0.4897	0.4925	0.5319	0.5885	0.6523	
0.4856	0.5304								
	0.662	0.487	0.403	0.425	0.481	0.537	0.488	0.142	
0.4091	0.4815	0.723	0.737	0.616	0.675	0.3291	0.3359	0.5536	0.585
0.331	0.224	0.719	0.753	0.503	0.572	0.461	0.539	0.57	0.568
0.4698	0.5069	0.412	0.4697	0.4827	0.5108	0.5763	0.6244	0.4732	
0.5026									
	0.645	0.464	0.399	0.405	0.441	0.519	0.498	0.133	
0.4069	0.4594	0.715	0.722	0.604	0.651	0.329	0.3232	0.5471	
0.5647	0.331	0.22	0.708	0.727	0.496	0.552	0.457	0.517	0.559
0.547	0.468	0.4925	0.4066	0.4497	0.4753	0.4904	0.565	0.5982	
0.4601	0.4744								
	0.629	0.443	0.395	0.383	0.402	0.501	0.508	0.126	
0.4047	0.441	0.706	0.706	0.596	0.627	0.3293	0.3122	0.5418	
0.5458	0.333	0.216	0.698	0.701	0.489	0.529	0.452	0.493	0.548
0.525	0.4661	0.4788	0.4016	0.4309	0.4702	0.4689	0.5547	0.5743	
0.4458	0.4461								
	0.614	0.421	0.392	0.365	0.361	0.482	0.518	0.118	
0.4022	0.4241	0.698	0.689	0.59	0.603	0.3296	0.3002	0.5372	
0.5277	0.334	0.21	0.688	0.675	0.482	0.506	0.445	0.469	0.538

0.503	0.4631	0.4631	0.3962	0.4096	0.4645	0.4473	0.5456	0.5525	
0.4303	0.4168								
	0.6	0.4	0.39	0.35	0.319	0.463	0.53	0.11	0.3988
0.69	0.67	0.583	0.578	0.3294	0.2833	0.5331	0.5096	0.335	0.405
0.68	0.65	0.478	0.486	0.439	0.447	0.53	0.48	0.4589	0.2
0.4442	0.3906	0.3878	0.459	0.4281	0.5379	0.5317	0.4144	0.3879	
	0.587	0.378	0.388	0.336	0.277	0.445	0.542	0.102	
0.3949	0.3848	0.683	0.651	0.573	0.552	0.3292	0.2645	0.5287	
0.4907	0.337	0.185	0.673	0.626	0.475	0.466	0.433	0.426	0.524
0.456	0.4537	0.4221	0.3854	0.367	0.4536	0.4098	0.5315	0.5105	
0.3991	0.3607								
	0.576	0.356	0.385	0.319	0.235	0.426	0.555	0.0939	
0.3925	0.3665	0.677	0.631	0.563	0.526	0.3304	0.251	0.5244	
0.4709	0.339	0.167	0.666	0.602	0.47	0.443	0.426	0.404	0.52
0.432	0.4487	0.4003	0.3805	0.3464	0.4479	0.3908	0.5263	0.4874	
0.3853	0.3367								
	0.567	0.334	0.383	0.304	0.192	0.408	0.568	0.0858	
0.3907	0.3493	0.672	0.611	0.556	0.502	0.3333	0.2392	0.5208	0.451
0.341	0.145	0.661	0.579	0.465	0.418	0.419	0.382	0.516	0.407
0.4445	0.3803	0.3756	0.3264	0.4412	0.3698	0.5218	0.4623	0.3723	
0.3158									
	0.558	0.312	0.383	0.291	0.15	0.39	0.579	0.0778	
0.3888	0.3324	0.668	0.591	0.551	0.479	0.3365	0.2269	0.5175	
0.4305	0.343	0.123	0.656	0.555	0.461	0.395	0.415	0.363	0.513
0.383	0.4408	0.3618	0.3706	0.3075	0.435	0.3499	0.517	0.4363	
0.3603	0.2958								
	0.551	0.29	0.385	0.281	0.108	0.373	0.59	0.07	
0.3867	0.3158	0.664	0.57	0.545	0.456	0.3406	0.2144	0.5145	
0.4092	0.346	0.1	0.652	0.53	0.459	0.374	0.413	0.344	0.51
0.36	0.4366	0.3438	0.3667	0.2891	0.4289	0.3301	0.5113	0.4107	
0.3496	0.2741								
	0.545	0.268	0.387	0.269	0.0674	0.356	0.599	0.0624	
0.3845	0.2966	0.662	0.549	0.538	0.433	0.3451	0.2025	0.5116	
0.3872	0.348	0.0785	0.65	0.504	0.456	0.355	0.411	0.325	0.506
0.338	0.4318	0.3264	0.3662	0.2676	0.4226	0.31	0.5039	0.3861	0.34
0.2508									
	0.54	0.246	0.39	0.254	0.0277	0.339	0.607	0.0548	
0.3841	0.2784	0.66	0.529	0.532	0.411	0.3502	0.1917	0.5086	
0.3641	0.351	0.0582	0.648	0.478	0.452	0.334	0.407	0.304	0.501
0.318	0.4267	0.3094	0.3682	0.2478	0.4159	0.289	0.4955	0.3624	
0.3342	0.228								
	0.536	0.224	0.394	0.237	-0.0121	0.323	0.614	0.0471	0.39
0.2674	0.659	0.509	0.525	0.389	0.3559	0.1805	0.5052	0.3396	0.353
0.0386	0.646	0.452	0.448	0.312	0.405	0.282	0.496	0.298	
0.4221	0.2924	0.3722	0.2319	0.4096	0.2677	0.4876	0.3395	0.3304	0.206
	0.533	0.202	0.399	0.216	-0.0531	0.307	0.622	0.0389	
0.3986	0.256	0.659	0.489	0.518	0.366	0.362	0.1666	0.5022	
0.3137	0.356	0.0193	0.646	0.425	0.447	0.29	0.403	0.259	0.492
0.279	0.4217	0.2755	0.379	0.2205	0.4042	0.2468	0.4813	0.3173	
0.3304	0.1899								
	0.531	0.18	0.404	0.194	-0.0957	0.292	0.63	0.03	
0.4057	0.2334	0.659	0.47	0.511	0.344	0.3689	0.1524	0.501	
0.2883	0.359	0	0.646	0.4	0.449	0.267	0.404	0.237	0.49
0.4254	0.2587	0.3876	0.2107	0.3998	0.224	0.4775	0.2951	0.3331	0.26
0.1778									

	0.53	0.158	0.41	0.172	-0.138	0.277	0.64	0.0203	
0.4124	0.2032	0.66	0.452	0.504	0.322	0.3767	0.1442	0.5023	
0.2665	0.362	-0.0196	0.646	0.376	0.454	0.244	0.408	0.219	0.489
0.241	0.4336	0.2419	0.397	0.2001	0.3986	0.192	0.4765	0.2724	
0.3364	0.1592								
	0.53	0.136	0.417	0.155	-0.179	0.261	0.651	0.0102	
0.4202	0.185	0.661	0.434	0.503	0.301	0.3859	0.1397	0.5052	
0.2464	0.364	-0.0395	0.648	0.352	0.461	0.223	0.414	0.202	0.491
0.222	0.442	0.2245	0.4061	0.1875	0.4007	0.1807	0.4769	0.2489	
0.3408	0.1289								
	0.531	0.114	0.424	0.144	-0.218	0.245	0.663	-0.000198	
0.4287	0.17	0.663	0.416	0.507	0.281	0.3955	0.1361	0.5093	
0.2278	0.367	-0.0596	0.65	0.328	0.468	0.204	0.421	0.187	0.493
0.204	0.4496	0.2069	0.4148	0.1737	0.4076	0.1747	0.4781	0.2262	
0.3495	0.1039								
	0.532	0.0918	0.431	0.136	-0.256	0.228	0.676	-0.0104	
0.4377	0.1574	0.665	0.398	0.513	0.26	0.4047	0.1303	0.5142	
0.2103	0.37	-0.0798	0.652	0.304	0.474	0.188	0.429	0.171	0.496
0.186	0.4565	0.1898	0.4234	0.1594	0.4172	0.1704	0.481	0.2041	
0.3615	0.0869								
	0.534	0.07	0.438	0.128	-0.296	0.209	0.69	-0.02	
0.4471	0.1466	0.668	0.38	0.52	0.241	0.4124	0.1153	0.5195	
0.1935	0.373	-0.1	0.655	0.28	0.48	0.174	0.437	0.155	0.5
0.17	0.4632	0.1736	0.4319	0.1456	0.4272	0.1651	0.4844	0.1839	
0.3725	0.0779								
	0.537	0.0484	0.444	0.116	-0.337	0.189	0.705	-0.0288	
0.4566	0.1367	0.671	0.361	0.525	0.221	0.4193	0.0782	0.525	0.177
0.376	-0.12	0.658	0.255	0.486	0.161	0.446	0.139	0.504	0.155
0.4703	0.1587	0.4405	0.1329	0.4353	0.1558	0.4885	0.1657	0.3829	
0.0682									
	0.54	0.0268	0.45	0.1	-0.38	0.168	0.721	-0.037	0.4661
0.1272	0.674	0.341	0.528	0.203	0.4295	0.0642	0.531	0.1609	0.379
-0.14	0.661	0.228	0.493	0.149	0.454	0.124	0.508	0.141	
0.4781	0.1456	0.4493	0.1221	0.4425	0.1362	0.4928	0.1477	0.3924	
0.0552									
	0.544	0.00507	0.457	0.0836	-0.423	0.145	0.737	-0.0447	
0.4755	0.1172	0.678	0.321	0.531	0.185	0.4411	0.0545	0.5372	
0.1453	0.382	-0.16	0.665	0.202	0.5	0.137	0.463	0.109	0.512
0.127	0.4868	0.1339	0.4584	0.1132	0.4494	0.1083	0.4969	0.1284	
0.4021	0.0416								
	0.548	-0.0171	0.465	0.0682	-0.465	0.122	0.753	-0.0523	
0.4846	0.1061	0.682	0.3	0.533	0.167	0.4526	0.0445	0.5439	0.1301
0.384	-0.18	0.669	0.176	0.507	0.124	0.472	0.0937	0.516	0.114
0.4958	0.1225	0.4676	0.1054	0.4563	0.0763	0.5013	0.1097	0.412	
0.0278									
	0.552	-0.04	0.474	0.0542	-0.505	0.0999	0.77	-0.06	
0.4932	0.0932	0.686	0.28	0.537	0.151	0.4636	0.0332	0.5508	
0.1152	0.387	-0.2	0.673	0.15	0.515	0.109	0.481	0.0792	0.52
0.1	0.5047	0.1111	0.477	0.0975	0.4633	0.0449	0.5068	0.0943	0.4217
0.0145									
	0.557	-0.0636	0.484	0.042	-0.544	0.0788	0.787	-0.068	
0.5014	0.078	0.69	0.26	0.541	0.135	0.4746	0.022	0.5576	0.1
0.389	-0.22	0.677	0.125	0.523	0.0924	0.49	0.0651	0.524	
0.0855	0.5134	0.0989	0.4863	0.0886	0.4706	0.0185	0.5133	0.0815	
0.4313	0.0019								

	0.562	-0.0878	0.494	0.0317	-0.579	0.0592	0.803	-0.0767		
0.5094	0.0618	0.695	0.24	0.547	0.12	0.4857	0.0113	0.5644		
0.0841	0.392	-0.24	0.682	0.101	0.531	0.0723	0.499	0.0515	0.527	
0.0707	0.5217	0.0869	0.4957	0.0776	0.4782	0.0016	0.5207	0.0701		
0.4411	-0.0102									
	0.568	-0.112	0.504	0.0229	-0.612	0.0413	0.819	-0.0864		
0.5169	0.0463	0.699	0.22	0.553	0.106	0.497	0.0014	0.5711		
0.0667	0.394	-0.26	0.687	0.0778	0.539	0.0505	0.508	0.0384	0.531	
0.0562	0.5295	0.0753	0.505	0.0626	0.4863	-0.0078	0.5286	0.0589	0.451	
-0.0219										
	0.574	-0.136	0.514	0.0151	-0.642	0.0251	0.835	-0.0974		
0.5239	0.0322	0.704	0.2	0.558	0.0938	0.5084	-0.0073	0.5784	0.0499	
0.396	-0.28	0.691	0.0542	0.547	0.0301	0.517	0.0256	0.535		
0.0424	0.5371	0.0644	0.5141	0.0386	0.4948	-0.0144	0.5368	0.0468	0.461	
-0.0336										
	0.579	-0.16	0.525	0.00764	-0.67	0.0103	0.85	-0.11		
0.5306	0.0184	0.708	0.18	0.564	0.082	0.5199	-0.0152	0.5862		
0.0388	0.399	-0.3	0.696	0.03	0.555	0.0141	0.526	0.0132	0.54	
0.03	0.5446	0.0544	0.5232	0.0087	0.5036	-0.0209	0.5449	0.0326		
0.4711	-0.0457									
	0.585	-0.183	0.537	-9.26E-05	-0.695	-0.00323	0.864	-		
0.124	0.5372	0.0048	0.713	0.16	0.569	0.0704	0.5314	-0.0224	0.5943	
0.0285	0.4	-0.32	0.7	0.00505	0.563	0.00484	0.534	0.0011	0.546	
0.0193	0.5527	0.0448	0.5323	-0.0229	0.5126	-0.0299	0.5531	0.0126		
0.4814	-0.058									
	0.591	-0.205	0.548	-0.00858	-0.72	-0.0158	0.877	-0.14		
0.5436	-0.0085	0.717	0.139	0.575	0.0589	0.5431	-0.0294	0.6024	0.013	
0.402	-0.34	0.705	-0.0206	0.572	0.000822	0.543	-0.0107	0.552		
0.00964	0.5612	0.0356	0.5413	-0.0519	0.522	-0.0483	0.5614	-0.0051		
0.4917	-0.0703									
	0.597	-0.227	0.56	-0.0177	-0.743	-0.0276	0.889	-0.157		
0.5498	-0.0215	0.721	0.119	0.582	0.0479	0.5549	-0.0364	0.6104	-	
0.0062	0.404	-0.36	0.709	-0.0468	0.581	-5.50E-07	0.551	-0.0222		
0.558	0.000399	0.5705	0.0264	0.5504	-0.0741	0.5313	-0.0738	0.5694	-	
0.0172	0.502	-0.0824								
	0.602	-0.248	0.572	-0.0273	-0.765	-0.039	0.9	-0.174	0.5558	-
0.0342	0.725	0.0992	0.589	0.0379	0.5669	-0.0439	0.6184	-0.0278	0.405	
-0.38	0.713	-0.0733	0.59	0.000268	0.559	-0.0334	0.564	-0.00923		
0.5807	0.0172	0.5594	-0.0903	0.5391	-0.0852	0.5774	-0.0276	0.5123	-	
0.0942										
	0.608	-0.27	0.583	-0.037	-0.787	-0.0501	0.91	-0.19		
0.5617	-0.0465	0.729	0.08	0.595	0.0283	0.5789	-0.0521	0.6265	-	
0.0501	0.406	-0.4	0.717	-0.1	0.6	-0.000458	0.568	-0.0444	0.57	
-0.02	0.59	0.0088	0.5683	-0.104	0.5465	-0.0942	0.5853	-0.0365		
0.5226	-0.1057									
	0.613	-0.292	0.594	-0.0466	-0.808	-0.0611	0.918	-0.205		
0.5674	-0.0583	0.732	0.0616	0.602	0.019	0.5911	-0.0613	0.6345	-	
0.0718	0.407	-0.42	0.721	-0.127	0.611	-0.00338	0.576	-0.0552		
0.575	-0.0324	0.5985	0.0009	0.5768	-0.1155	0.5534	-0.1014	0.5931	-	
0.0445	0.5328	-0.1168								
	0.618	-0.314	0.604	-0.0559	-0.829	-0.0724	0.926	-0.22	0.573	
-0.0698	0.735	0.0438	0.608	0.00985	0.6037	-0.0713	0.6425	-0.0915	0.407	
-0.44	0.724	-0.153	0.621	-0.00826	0.584	-0.066	0.579	-0.0462		
0.6068	-0.0065	0.5853	-0.1269	0.5598	-0.1074	0.6009	-0.052	0.543	-	
0.1276										

	0.623	-0.336	0.614	-0.0646	-0.85	-0.0842	0.932	-0.236	
0.5784	-0.0808	0.738	0.0262	0.616	0.00106	0.6166	-0.0819	0.6505	-
0.1077	0.408	-0.46	0.727	-0.179	0.631	-0.0147	0.592	-0.0767	0.583
-0.0608	0.6146	-0.0135	0.5939	-0.1406	0.5656	-0.1128	0.6085	-0.0596	
0.5528	-0.1378								
	0.627	-0.358	0.623	-0.0726	-0.871	-0.0967	0.936	-0.252	
0.5837	-0.0913	0.741	0.00834	0.624	-0.00717	0.6295	-0.0935	0.6586	-
0.1189	0.408	-0.48	0.73	-0.205	0.642	-0.0224	0.6	-0.0875	0.587
0.0756	0.6236	-0.0208	0.6025	-0.1542	0.571	-0.118	0.6161	-0.0675	0.5613
-0.1451									
	0.631	-0.38	0.631	-0.0796	-0.892	-0.11	0.94	-0.27	
0.5888	-0.1013	0.743	-0.01	0.634	-0.0151	0.6425	-0.1062	0.6667	-
0.1255	0.408	-0.5	0.732	-0.23	0.652	-0.0311	0.608	-0.0984	0.59
-0.09	0.6363	-0.0289	0.6108	-0.1674	0.5762	-0.1228	0.6236	-0.0764	
0.5686	-0.1503								
	0.635	-0.402	0.639	-0.0859	-0.913	-0.125	0.943	-0.29	0.594
-0.1108	0.744	-0.0291	0.643	-0.0231	0.6552	-0.1202	0.6753	-0.1343	0.407
-0.52	0.734	-0.254	0.661	-0.041	0.616	-0.109	0.593	-0.104	
0.6503	-0.038	0.6187	-0.1795	0.5811	-0.1267	0.631	-0.0865	0.5757	-
0.1555									
	0.637	-0.424	0.646	-0.0918	-0.935	-0.141	0.944	-0.312	
0.5994	-0.1198	0.745	-0.0489	0.652	-0.0313	0.6676	-0.1358	0.6844	-
0.145	0.406	-0.54	0.735	-0.278	0.671	-0.0522	0.625	-0.121	0.596
-0.116	0.6628	-0.0494	0.6259	-0.1897	0.5854	-0.1306	0.6384	-0.0976	
0.5839	-0.1624								
	0.64	-0.446	0.653	-0.0976	-0.958	-0.158	0.944	-0.334	
0.6048	-0.1285	0.745	-0.0691	0.66	-0.0399	0.6806	-0.1573	0.6942	-
0.1565	0.405	-0.56	0.735	-0.301	0.681	-0.0647	0.633	-0.132	0.598
-0.128	0.6743	-0.0624	0.6325	-0.1994	0.589	-0.1348	0.6458	-0.1092	
0.5929	-0.171								
	0.641	-0.468	0.659	-0.104	-0.982	-0.178	0.943	-0.357	
0.6101	-0.1369	0.745	-0.0896	0.669	-0.0485	0.6934	-0.1823	0.7047	-
0.1707	0.404	-0.58	0.735	-0.325	0.692	-0.0784	0.642	-0.144	0.599
-0.14	0.6837	-0.0758	0.639	-0.2098	0.5915	-0.1401	0.6531	-0.121	
0.6023	-0.1807								
	0.642	-0.49	0.665	-0.11	-1.01	-0.199	0.94	-0.38	
0.6153	-0.145	0.744	-0.11	0.677	-0.0577	0.7043	-0.2049	0.7153	-
0.1868	0.402	-0.6	0.735	-0.35	0.701	-0.0917	0.651	-0.157	0.6
0.15	0.6919	-0.0896	0.6457	-0.2219	0.5939	-0.1468	0.6601	-0.1328	0.6116
-0.191									
	0.642	-0.512	0.671	-0.117	-1.04	-0.221	0.936	-0.402	
0.6202	-0.1529	0.743	-0.13	0.685	-0.0679	0.7121	-0.2209	0.726	-
0.2033	0.4	-0.62	0.733	-0.376	0.71	-0.103	0.66	-0.17	0.6
0.7001	-0.1022	0.6525	-0.2361	0.5959	-0.1543	0.6667	-0.1442	0.6206	-
0.2018									
	0.642	-0.534	0.676	-0.125	-1.07	-0.246	0.931	-0.423	
0.6248	-0.1606	0.74	-0.15	0.692	-0.0794	0.7195	-0.2348	0.7362	-
0.2193	0.397	-0.64	0.731	-0.402	0.718	-0.113	0.667	-0.183	0.598
-0.169	0.7084	-0.1139	0.6588	-0.2502	0.5974	-0.1619	0.6727	-0.1547	
0.6299	-0.2134								
	0.64	-0.556	0.681	-0.135	-1.1	-0.272	0.924	-0.445	
0.6289	-0.1683	0.737	-0.17	0.698	-0.0917	0.7266	-0.2474	0.7463	-
0.2342	0.394	-0.66	0.728	-0.428	0.725	-0.121	0.673	-0.196	0.596
-0.179	0.7153	-0.1241	0.6646	-0.2672	0.5981	-0.1688	0.6779	-0.1634	
0.6393	-0.2258								

	0.638	-0.578	0.685	-0.145	-1.13	-0.299	0.917	-0.467		
0.6325	-0.1759	0.733	-0.19	0.705	-0.104	0.7331	-0.2589	0.7562	-	
0.2488	0.39	-0.68	0.724	-0.455	0.732	-0.129	0.677	-0.21	0.594	
-0.189	0.7204	-0.1321	0.6695	-0.2772	0.5979	-0.1742	0.6829	-0.1718		
0.6482	-0.2387									
	0.634	-0.6	0.69	-0.157	-1.16	-0.327	0.91	-0.49		
0.6354	-0.1836	0.729	-0.21	0.712	-0.116	0.7387	-0.2694	0.7656	-	
0.263	0.386	-0.7	0.719	-0.48	0.74	-0.138	0.681	-0.223	0.59	
-0.2	0.725	-0.1395	0.6732	-0.2834	0.5969	-0.1785	0.6881	-0.1818	0.656	
-0.252										
	0.63	-0.622	0.694	-0.171	-1.19	-0.355	0.902	-0.515		
0.6376	-0.1913	0.723	-0.23	0.72	-0.127	0.7431	-0.2792	0.7741	-	
0.2769	0.382	-0.72	0.713	-0.504	0.748	-0.148	0.686	-0.235	0.586	
-0.212	0.7305	-0.1492	0.6759	-0.2891	0.5952	-0.183	0.6943	-0.1952		
0.6624	-0.2654									
	0.624	-0.644	0.698	-0.185	-1.22	-0.382	0.894	-0.541		
0.6391	-0.1986	0.716	-0.25	0.727	-0.137	0.7462	-0.2883	0.782	-	
0.2906	0.377	-0.74	0.707	-0.528	0.757	-0.16	0.691	-0.247	0.581	
-0.225	0.737	-0.1617	0.6774	-0.2955	0.5929	-0.1893	0.7027	-0.2179		
0.6681	-0.2794									
	0.617	-0.666	0.702	-0.199	-1.25	-0.409	0.884	-0.568		
0.6406	-0.2047	0.709	-0.27	0.734	-0.148	0.7477	-0.2968	0.7896	-	
0.3041	0.372	-0.76	0.699	-0.552	0.766	-0.174	0.697	-0.259	0.575	
-0.239	0.7438	-0.173	0.6777	-0.3011	0.5868	-0.201	0.7122	-0.2507		
0.6733	-0.294									
	0.609	-0.688	0.706	-0.212	-1.28	-0.434	0.873	-0.594		
0.6419	-0.2105	0.7	-0.29	0.741	-0.16	0.7477	-0.3047	0.7964	-0.3171	
0.366	-0.78	0.69	-0.576	0.774	-0.188	0.701	-0.271	0.568	-	
0.254	0.751	-0.1801	0.677	-0.3071	0.5773	-0.2172	0.7214	-0.2903	0.6774	
-0.3087										
	0.6	-0.71	0.709	-0.224	-1.3	-0.458	0.86	-0.62	0.6429	-
0.2168	0.69	-0.31	0.746	-0.173	0.7477	-0.3113	0.8021	-0.3297	0.36	
-0.8	0.68	-0.6	0.782	-0.204	0.705	-0.284	0.56	-0.27		
0.7584	-0.1866	0.6752	-0.3146	0.5566	-0.2521	0.7284	-0.332	0.6797	-	
0.3232										
	0.589	-0.732	0.711	-0.235	-1.33	-0.481	0.844	-0.645		
0.6437	-0.2247	0.679	-0.33	0.751	-0.187	0.7477	-0.3168	0.8063	-	
0.3414	0.353	-0.82	0.669	-0.626	0.789	-0.222	0.708	-0.297	0.551	
-0.286	0.7664	-0.1992	0.6723	-0.3248	0.5099	-0.2823	0.7305	-0.3587		
0.6807	-0.3364									
	0.578	-0.754	0.713	-0.243	-1.35	-0.502	0.827	-0.668	0.644	
-0.2351	0.667	-0.351	0.753	-0.203	0.7476	-0.3217	0.809	-0.352	0.346	
-0.84	0.657	-0.652	0.794	-0.241	0.711	-0.311	0.54	-0.303		
0.7756	-0.2324	0.6684	-0.3469	0.4711	-0.3634	0.7285	-0.3987	0.6813	-	
0.3506										
	0.566	-0.776	0.714	-0.249	-1.38	-0.522	0.808	-0.69		
0.6437	-0.2546	0.655	-0.371	0.754	-0.221	0.7476	-0.3261	0.8101	-	
0.3598	0.338	-0.86	0.645	-0.678	0.798	-0.261	0.712	-0.327	0.528	
-0.321	0.7794	-0.2579	0.6636	-0.3793	0.4407	-0.5359	0.724	-0.4434		
0.6802	-0.3704									
	0.553	-0.798	0.715	-0.257	-1.4	-0.542	0.789	-0.711		
0.6425	-0.2925	0.643	-0.391	0.753	-0.24	0.7475	-0.3306	0.8099	-	
0.3642	0.329	-0.88	0.632	-0.704	0.8	-0.283	0.712	-0.344	0.515	-
0.34	0.7813	-0.2778	0.6584	-0.3979	0.4158	-0.5722	0.7186	-0.4758	0.6763	
-0.3958										

	0.54	-0.82	0.714	-0.272	-1.42	-0.56	0.77	-0.73	
0.6405	-0.3401	0.63	-0.41	0.75	-0.261	0.7475	-0.3354	0.8092	-
0.3728	0.32	-0.9	0.62	-0.73	0.8	-0.306	0.708	-0.363	0.5
0.7812	-0.2978	0.6527	-0.4118	0.394	-0.6061	0.7109	-0.4977	0.6713	-
0.4209									
	0.527	-0.842	0.714	-0.297	-1.44	-0.578	0.752	-0.748	
0.6381	-0.3877	0.618	-0.428	0.744	-0.283	0.7474	-0.3408	0.8065	-
0.4036	0.31	-0.92	0.608	-0.754	0.797	-0.33	0.701	-0.385	0.484
-0.382	0.7782	-0.3179	0.6468	-0.4229	0.3741	-0.6402	0.7024	-0.517	
0.6645	-0.4443								
	0.515	-0.864	0.711	-0.336	-1.46	-0.595	0.735	-0.765	
0.6354	-0.4259	0.606	-0.446	0.736	-0.307	0.7474	-0.3472	0.8026	-
0.4192	0.3	-0.94	0.596	-0.778	0.792	-0.356	0.691	-0.408	0.467
0.405	0.774	-0.3381	0.6403	-0.4314	0.3555	-0.6746	0.6928	-0.5354	0.6556
-0.4682									
	0.503	-0.886	0.698	-0.376	-1.48	-0.611	0.718	-0.781	
0.6326	-0.4489	0.594	-0.464	0.726	-0.333	0.7473	-0.3549	0.7971	-
0.4227	0.289	-0.96	0.585	-0.802	0.784	-0.381	0.68	-0.431	0.448
-0.429	0.7676	-0.3586	0.6329	-0.4416	0.3376	-0.7098	0.6812	-0.5621	
0.6451	-0.4949								
	0.491	-0.908	0.711	-0.454	-1.51	-0.626	0.704	-0.796	
0.6292	-0.4653	0.582	-0.482	0.713	-0.36	0.7473	-0.3643	0.7904	-
0.4295	0.279	-0.98	0.573	-0.826	0.775	-0.407	0.668	-0.454	0.429
-0.454	0.7595	-0.3817	0.6241	-0.4578	0.3204	-0.7461	0.6666	-0.5946	
0.6315	-0.5262								
	0.48	-0.93	0.759	-0.569	-1.54	-0.642	0.69	-0.81	
0.6247	-0.4803	0.57	-0.5	0.698	-0.388	0.7473	-0.3757	0.7818	-
0.4414	0.27	-1	0.56	-0.85	0.763	-0.432	0.656	-0.476	0.41
0.48	0.7491	-0.408	0.6134	-0.5041	0.3035	-0.7836	0.6471	-0.6331	0.6149
-0.5593									
	0.47	-0.952	0.815	-0.6741	-1.56	-0.656	0.678	-0.823	
0.6191	-0.4987	0.558	-0.519	0.683	-0.418	0.7475	-0.3934	0.7713	-
0.4597	0.262	-1.02	0.546	-0.876	0.749	-0.457	0.644	-0.499	0.39
-0.507	0.7371	-0.4363	0.6001	-0.5657	0.2869	-0.8211	0.6241	-0.7217	
0.5947	-0.5912								
	0.46	-0.973	0.849	-0.7524	-1.58	-0.67	0.667	-0.835	
0.6095	-0.5266	0.546	-0.539	0.666	-0.449	0.7478	-0.4255	0.7591	-
0.4837	0.254	-1.04	0.532	-0.902	0.733	-0.48	0.629	-0.522	0.369
-0.534	0.7238	-0.4666	0.5824	-0.6269	0.2705	-0.8571	0.5996	-0.7734	
0.5721	-0.6229								
	0.45	-0.995	0.832	-0.8441	-1.6	-0.684	0.657	-0.846	
0.5959	-0.5538	0.534	-0.559	0.646	-0.482	0.7467	-0.5173	0.7455	-
0.5109	0.246	-1.06	0.518	-0.928	0.715	-0.502	0.612	-0.547	0.346
-0.562	0.7096	-0.4983	0.5557	-0.6745	0.2543	-0.8906	0.5755	-0.8178	
0.5473	-0.6593								
	0.44	-1.02	0.734	-0.9147	-1.609	-0.698	0.648	-0.854	
0.5803	-0.5793	0.522	-0.58	0.621	-0.518	0.7418	-0.5611	0.7308	-
0.5392	0.239	-1.08	0.504	-0.954	0.693	-0.524	0.591	-0.574	0.32
-0.591	0.6945	-0.5304	0.5185	-0.7063	0.2382	-0.9227	0.5501	-0.8568	
0.5188	-0.7058								
	0.43	-1.04	0.528	-0.9885	-1.617	-0.711	0.64	-0.86	
0.5633	-0.6047	0.51	-0.6	0.586	-0.559	0.7347	-0.5872	0.714	-
0.5691	0.23	-1.1	0.49	-0.98	0.668	-0.548	0.565	-0.605	0.29
-0.62	0.6782	-0.5621	0.4583	-0.7402	0.2221	-0.9956	0.5144	-0.893	
0.4898	-0.7648								

	0.419	-1.06	0.4799	-1.0037	-1.625	-0.723	0.632	-0.863	
0.5456	-0.6314	0.498	-0.62	0.537	-0.608	0.7273	-0.609	0.6954	-
0.6012	0.22	-1.12	0.477	-1	0.638	-0.577	0.533	-0.64	0.255
0.65	0.6602	-0.5935	0.4086	-0.8521	0.206	-1.1358	0.4032	-0.9251	0.4629
-0.7985									
	0.407	-1.09	0.469	-1.0257	-1.633	-0.736	0.624	-0.865	
0.5264	-0.6598	0.485	-0.64	0.5107	-0.6242	0.719	-0.637	0.6756	-
0.6349	0.21	-1.14	0.465	-1.03	0.604	-0.608	0.5	-0.675	0.216
0.681	0.6399	-0.6244	0.3828	-0.8904	0.1899	-1.1735	0.351	-0.957	0.4316
-0.8451									
	0.395	-1.11	0.4576	-1.0402	-1.643	-0.749	0.614	-0.866	
0.5054	-0.6889	0.473	-0.66	0.4916	-0.6423	0.7094	-0.7192	0.6544	-
0.6699	0.2	-1.16	0.453	-1.05	0.572	-0.638	0.483	-0.69	0.175
0.711	0.6169	-0.6553	0.3522	-0.9255	0.1635	-1.2043	0.3022	-0.9918	0.3965
-0.8947									
	0.382	-1.14	0.4452	-1.0619	-1.654	-0.762	0.603	-0.867	
0.4828	-0.7182	0.461	-0.68	0.4761	-0.6614	0.6959	-0.7334	0.6318	-
0.7056	0.19	-1.18	0.442	-1.08	0.544	-0.665	0.465	-0.706	0.132
-0.741	0.5908	-0.6851	0.3174	-0.9709	0.1315	-1.2339	0.2586	-1.0335	
0.3626	-0.9316								
	0.37	-1.16	0.4329	-1.0771	-1.667	-0.776	0.59	-0.87	
0.4579	-0.7477	0.45	-0.7	0.4629	-0.681	0.6815	-0.7405	0.6087	-
0.7335	0.18	-1.2	0.43	-1.1	0.515	-0.695	0.451	-0.716	0.09
-0.77	0.5586	-0.7167	0.2675	-1.0176	0.0865	-1.2631	0.2197	-1.0875	
0.3284	-0.9703								
	0.358	-1.18	0.4198	-1.0928	-1.683	-0.79	0.574	-0.875	
0.4299	-0.7777	0.44	-0.72	0.4513	-0.7008	0.6692	-0.7479	0.5845	-
0.7636	0.172	-1.22	0.418	-1.13	0.482	-0.731	0.438	-0.723	0.0491
-0.798	0.5172	-0.751	0.2447	-1.0675	0.043	-1.291	0.1826	-1.1402	0.295
-1.0081									
	0.346	-1.21	0.406	-1.1162	-1.701	-0.806	0.556	-0.882	
0.3845	-0.8366	0.43	-0.741	0.4405	-0.7212	0.6583	-0.7536	0.5452	-
0.9226	0.164	-1.24	0.406	-1.15	0.446	-0.771	0.423	-0.731	
0.00932	-0.824	0.4762	-0.7837	0.2002	-1.11	0.0088	-1.3173	0.141	-
1.1795	0.2536	-1.0475							
	0.334	-1.23	0.392	-1.1325	-1.72	-0.828	0.537	-0.889	
0.3358	-0.9151	0.42	-0.761	0.4301	-0.7414	0.6476	-0.7593	0.5047	-
0.9752	0.156	-1.26	0.394	-1.18	0.41	-0.811	0.399	-0.745	-
0.0301	-0.85	0.442	-0.8116	0.1687	-1.1376	-0.031	-1.3418	0.1002	-1.212
0.2113	-1.0869								
	0.322	-1.25	0.378	-1.1488	-1.739	-0.86	0.518	-0.896	0.279
-0.9706	0.41	-0.781	0.4199	-0.7615	0.636	-0.7672	0.4615	-1.0201	0.148
-1.28	0.382	-1.2	0.373	-0.847	0.3	-0.76	-0.0696	-0.875	0.3677
0.8567	0.1201	-1.1615	-0.0661	-1.3657	0.064	-1.248	0.1685	-1.1264	
	0.31	-1.27	0.3643	-1.1642	-1.757	-0.906	0.5	-0.9	0.2089
1.012	0.4	-0.8	0.4098	-0.781	0.6237	-0.7785	0.4129	-1.0646	0.14
1.3	0.37	-1.23	0.336	-0.877	0.2	-0.8411	-0.11	-0.9	0.2943
0.9026	0.0685	-1.2048	-0.1067	-1.39	0.035	-1.3306	0.1399	-1.1668	
	0.298	-1.29	0.3512	-1.1791	-1.773	-0.975	0.484	-0.902	
0.0658	-1.0447	0.389	-0.818	0.3993	-0.7997	0.6097	-0.7991	0.3545	-
1.1128	0.13	-1.32	0.358	-1.25	0.3114	-0.9101	0.1	-0.9622	-0.151
0.925	0.2225	-0.9503	0.024	-1.245	-0.1456	-1.4161	0.01	-1.379	0.1148
-1.2164									
	0.285	-1.31	0.3373	-1.1936	-1.789	-0.976	0.468	-0.903	0.011
-1.0724	0.377	-0.836	0.388	-0.8181	0.5905	-0.843	0.2881	-1.1692	0.12

-1.34	0.347	-1.28	0.2976	-0.9716	0.025	-1.064	-0.193	-0.95		
0.1529	-1.0012	-0.0048	-1.2817	-0.1804	-1.4447	-0.0117	-1.4121	0.0784	-	
1.2562										
	0.273	-1.34	0.3245	-1.2162	-1.804	-0.98	0.453	-0.907	-	
0.0906	-1.0973	0.365	-0.854	0.3763	-0.8363	0.5628	-0.862	0.2229	-	
1.2223	0.11	-1.36	0.335	-1.3	0.2829	-1.0067	-0.113	-1.187	-0.234	
-0.975	0.0868	-1.0577	-0.0422	-1.3205	-0.2152	-1.471	-0.0337	-1.4352		
0.0295	-1.2866									
	0.261	-1.36	0.3116	-1.2328	-1.819	-0.988	0.438	-0.915	-	
0.1347	-1.1206	0.352	-0.872	0.364	-0.8544	0.5288	-0.8828	0.1546	-	
1.2552	0.0995	-1.38	0.323	-1.33	0.2683	-1.0741	-0.147	-1.3451	-0.274	
-0.998	0.0273	-1.1249	-0.0829	-1.3493	-0.2547	-1.4914	-0.058	-1.4524	-	
0.0152	-1.3104									
	0.25	-1.38	0.2986	-1.2513	-1.837	-1.003	0.42	-0.93	-	
0.1584	-1.1431	0.34	-0.89	0.3174	-0.8724	0.2942	-0.90545	0.0925	-	
1.277	0.09	-1.4	0.31	-1.35	0.2532	-1.1325	-0.1781	-1.568	-0.31	
-1.02	-0.0248	-1.2081	-0.1116	-1.367	-0.2849	-1.5066	-0.0856	-1.4656	-	
0.0504	-1.3297									
	0.24	-1.4	0.2858	-1.2725	-1.857	-1.027	0.4	-0.954	-0.1895	-
1.1653	0.328	-0.909	0.2626	-0.8909	0.1954	-0.9385	0.045	-1.2937	0.0815	
-1.42	0.296	-1.37	0.2375	-1.2311	-0.2071	-1.6298	-0.343	-1.04	-	
0.0701	-1.3003	-0.1576	-1.3985	-0.3046	-1.5179	-0.114	-1.4762	-0.0921	-	
1.3459										
	0.23	-1.42	0.2723	-1.2956	-1.879	-1.058	0.378	-0.985	-	
0.2289	-1.1877	0.316	-0.928	0.2241	-0.9097	0.1297	-1.1649	-0.0019	-	
1.3077	0.0737	-1.44	0.282	-1.4	0.2221	-1.3254	-0.2329	-1.6677	-0.372	
-1.06	-0.1099	-1.3631	-0.2022	-1.4207	-0.3205	-1.5268	-0.1398	-1.4848	-	
0.1599	-1.36									
	0.22	-1.44	0.2589	-1.3199	-1.901	-1.093	0.356	-1.02	-	
0.2604	-1.2107	0.304	-0.948	0.193	-0.9291	0.079	-1.2716	-0.048	-	
1.3201	0.0661	-1.46	0.268	-1.43	0.207	-1.4241	-0.2564	-1.7056	-0.398	
-1.08	-0.1458	-1.4067	-0.2349	-1.4353	-0.3344	-1.5338	-0.1645	-1.492	-	
0.1987	-1.3725									
	0.21	-1.47	0.2452	-1.3528	-1.924	-1.133	0.333	-1.06	-	
0.2846	-1.235	0.292	-0.969	0.1662	-0.9493	0.037	-1.3351	-0.093	-	
1.3315	0.0584	-1.48	0.254	-1.45	0.1923	-1.482	-0.2767	-1.7256	-0.42	
-1.1	-0.1791	-1.4381	-0.2643	-1.4457	-0.3474	-1.5396	-0.1916	-1.4981	-	
0.2339	-1.3837									
	0.2	-1.49	0.2315	-1.3756	-1.947	-1.163	0.31	-1.09	-0.3037	-
1.2616	0.28	-0.99	0.1417	-0.9699	-0.0004	-1.3784	-0.1366	-1.3421	0.05	
-1.5	0.24	-1.48	0.1777	-1.513	-0.2954	-1.7634	-0.44	-1.12	-	
0.2107	-1.4634	-0.2921	-1.4538	-0.3605	-1.5443	-0.2085	-1.5033	-0.2651	-1.394	
	0.189	-1.51	0.2176	-1.3985	-1.968	-1.193	0.289	-1.12	-	
0.3205	-1.2921	0.268	-1.01	0.1185	-0.9902	-0.035	-1.4117	-0.1782	-	
1.3522	0.0406	-1.52	0.227	-1.51	0.1644	-1.5439	-0.3115	-1.8013	-0.457	
-1.14	-0.2412	-1.4857	-0.3176	-1.4603	-0.3779	-1.5481	-0.2243	-1.5076	-	
0.2892	-1.4035									
	0.177	-1.54	0.203	-1.4285	-1.989	-1.223	0.268	-1.15	-	
0.3445	-1.327	0.256	-1.03	0.0963	-1.0104	-0.0678	-1.4389	-0.2167	-	
1.3619	0.0306	-1.54	0.215	-1.53	0.1521	-1.563	-0.3259	-1.8134	-0.472	
-1.17	-0.2707	-1.5064	-0.3404	-1.4657	-0.3954	-1.5511	-0.2449	-1.5112	-	
0.3082	-1.4122									
	0.165	-1.56	0.1887	-1.4485	-2.009	-1.243	0.248	-1.17	-	
0.3702	-1.3682	0.244	-1.05	0.0744	-1.0305	-0.0997	-1.4621	-0.2515	-	
1.3708	0.0202	-1.56	0.203	-1.56	0.14	-1.5939	-0.3387	-1.8513	-0.485	

-1.19	-0.2998	-1.5261	-0.36	-1.4699	-0.4131	-1.5532	-0.2752	-1.514	-
0.3256	-1.4199								
	0.152	-1.58	0.174	-1.4656	-2.028	-1.253	0.229	-1.18	-
0.3907	-1.4102	0.232	-1.07	0.0529	-1.0505	-0.1311	-1.4822	-0.2828	-
1.3783	0.00984	-1.58	0.192	-1.58	0.129	-1.613	-0.3497	-1.8634	-0.496
-1.22	-0.3275	-1.5466	-0.3754	-1.4733	-0.431	-1.5546	-0.2993	-1.5162	-
0.3476	-1.4265								
	0.14	-1.6	0.16	-1.4828	-2.047	-1.263	0.21	-1.19	-
0.4085	-1.4346	0.22	-1.09	0.0294	-1.0705	-0.1663	-1.4999	-0.311	-
1.3842	0	-1.6	0.18	-1.6	0.1173	-1.632	-0.3593	-1.8756	-0.505
1.25	-0.3524	-1.5622	-0.3992	-1.4758	-0.4489	-1.5552	-0.3253	-1.5178	-
0.3763	-1.4321								
	0.128	-1.62	0.146	-1.4999	-2.066	-1.273	0.191	-1.2	-
0.4425	-1.4481	0.208	-1.1	0.0058	-1.0854	-0.2018	-1.5161	-0.337	-
1.3885	-0.00905	-1.61	0.168	-1.62	0.1056	-1.6511	-0.369	-1.8877	-
0.514	-1.28	-0.3758	-1.5725	-0.4217	-1.4776	-0.4664	-1.5549	-0.3494	-
1.5186	-0.3994	-1.4363							
	0.116	-1.63	0.132	-1.5099	-2.085	-1.283	0.172	-1.21	-
0.4594	-1.4562	0.196	-1.11	-0.0177	-1.0979	-0.2372	-1.5354	-0.3617	-
1.3912	-0.0174	-1.63	0.156	-1.63	0.094	-1.6593	-0.377	-1.8819	-0.521
-1.31	-0.3969	-1.5769	-0.4352	-1.4786	-0.483	-1.5536	-0.3691	-1.5189	-
0.4176	-1.4393								
	0.104	-1.64	0.1183	-1.517	-2.103	-1.283	0.154	-1.21	-
0.476	-1.4611	0.184	-1.12	-0.0674	-1.1091	-0.3255	-1.5618	-0.3857	-
1.3927	-0.0252	-1.63	0.144	-1.64	0.0825	-1.6675	-0.3851	-1.8762	-0.528
-1.34	-0.4155	-1.578	-0.4459	-1.4791	-0.4986	-1.5513	-0.3849	-1.5183	-
0.4329	-1.4409								
	0.0918	-1.64	0.1044	-1.5142	-2.121	-1.273	0.136	-1.2	-
0.5036	-1.4641	0.172	-1.12	-0.0959	-1.1146	-0.371	-1.5708	-0.4071	-
1.3932	-0.0327	-1.64	0.132	-1.64	0.071	-1.6647	-0.3924	-1.8526	-0.534
-1.37	-0.432	-1.5771	-0.4681	-1.4791	-0.5129	-1.5476	-0.398	-1.517	-
0.4462	-1.44								
	0.08	-1.64	0.0914	-1.5113	-2.137	-1.263	0.12	-1.19	-
0.5267	-1.4656	0.16	-1.13	-0.1163	-1.1224	-0.4	-1.5713	-0.4265	-
1.3927	-0.04	-1.64	0.12	-1.65	0.0596	-1.6729	-0.3996	-1.8468	-0.54
-1.4	-0.4465	-1.5745	-0.4889	-1.4784	-0.5259	-1.5425	-0.4099	-1.5148	-
0.4584	-1.4355								
	0.0682	-1.64	0.0787	-1.5085	-2.152	-1.253	0.105	-1.18	-
0.5519	-1.4657	0.148	-1.12	-0.133	-1.1212	-0.4216	-1.5678	-0.4433	-
1.3913	-0.0473	-1.64	0.108	-1.64	0.0481	-1.6592	-0.4069	-1.8053	-0.546
-1.43	-0.4596	-1.5699	-0.5015	-1.4771	-0.5381	-1.5359	-0.4215	-1.5114	-0.47
-1.4309									
	0.0563	-1.64	0.0665	-1.5056	-2.1652	-1.243	0.0918	-1.17	-
0.5683	-1.4643	0.136	-1.12	-0.1477	-1.1206	-0.4391	-1.562	-0.4574	-
1.3892	-0.0548	-1.64	0.0957	-1.64	0.0364	-1.6556	-0.4142	-1.7738	-0.552
-1.47	-0.4717	-1.5626	-0.5125	-1.4749	-0.5499	-1.5279	-0.4336	-1.5067	-
0.4818	-1.4262								
	0.0444	-1.63	0.0541	-1.4928	-2.1786	-1.223	0.0784	-1.15	-
0.5794	-1.4604	0.124	-1.11	-0.1609	-1.1152	-0.4536	-1.5543	-0.4696	-
1.3861	-0.0626	-1.63	0.0836	-1.63	0.0249	-1.6419	-0.4215	-1.7324	-0.558
-1.5	-0.4831	-1.5512	-0.5234	-1.4716	-0.5614	-1.5188	-0.446	-1.5002	-
0.4945	-1.4212								
	0.0323	-1.62	0.0416	-1.4799	-2.1922	-1.203	0.0648	-1.13	-
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-0.0171 -1.53 -0.0129 -1.3813 -2.25936 -1.083 -0.00236 -1.01
-0.6082 -1.1648 0.0639 -1.04 -0.2144 -1.057 -0.5003 -1.4891 -0.5153 -
1.3539 -0.111 -1.53 0.0251 -1.53 -0.0309 -1.5337 -0.4568 -1.5615 -0.587
-1.57 -0.5318 -1.3062 -0.5864 -1.4073 -0.6138 -1.4575 -0.4914 -1.4408 -
0.5528 -1.3862
-0.0289 -1.51 -0.0267 -1.361 -2.2782 -1.062 -0.0212 -0.989 -
0.6082 -1.14 0.0519 -1.02 -0.2234 -1.0383 -0.5061 -1.463 -0.5218 -
1.3403 -0.121 -1.51 0.0129 -1.51 -0.0426 -1.5155 -0.4641 -1.5572 -0.593
-1.57 -0.5399 -1.2518 -0.5915 -1.3845 -0.6198 -1.4279 -0.4957 -1.4225 -
0.562 -1.3758
-0.04 -1.48 -0.04 -1.3342 -2.297 -1.043 -0.04 -0.97 -
0.6102 -1.1193 0.04 -1 -0.232 -1.0189 -0.5113 -1.4117 -0.5273 -1.3189 -
0.13 -1.48 0 -1.48 -0.0549 -1.4864 -0.4724 -1.5351 -0.6 -1.55 -
0.5472 -1.1884 -0.5949 -1.3614 -0.6236 -1.3286 -0.499 -1.4044 -0.5702 -
1.3637
-0.0503 -1.45 -0.0526 -1.3096 -2.3154 -1.032 -0.0584 -0.959 -
0.6132 -1.0986 0.0281 -0.98 -0.2402 -0.9992 -0.5157 -1.3368 -0.5318 -
1.2773 -0.138 -1.45 -0.0137 -1.45 -0.0681 -1.4573 -0.4816 -1.513 -0.608
-1.53 -0.5539 -1.1481 -0.5966 -1.3375 -0.6253 -1.3039 -0.5018 -1.3865 -
0.5774 -1.3499
-0.0602 -1.43 -0.0648 -1.2936 -2.3334 -1.026 -0.0764 -0.953 -
0.6153 -1.0779 0.0162 -0.959 -0.2481 -0.9788 -0.5195 -1.2846 -0.5355 -
1.2158 -0.146 -1.43 -0.0278 -1.43 -0.0816 -1.4364 -0.4909 -1.4851 -0.616
-1.5 -0.5597 -1.1209 -0.5969 -1.3124 -0.6256 -1.2889 -0.5042 -1.369 -
0.5839 -1.334
-0.0698 -1.4 -0.0768 -1.2716 -2.3513 -1.024 -0.0943 -0.951 -
0.6151 -1.0572 0.00429 -0.939 -0.2557 -0.9586 -0.5228 -1.2388 -0.5387 -
1.1794 -0.154 -1.4 -0.0422 -1.4 -0.0955 -1.4064 -0.5003 -1.4551 -0.624
-1.47 -0.5648 -1.1008 -0.5963 -1.2856 -0.6249 -1.275 -0.5059 -1.352 -
0.5897 -1.3159
-0.0796 -1.38 -0.0889 -1.2573 -2.369 -1.024 -0.112 -0.951 -
0.6133 -1.0365 -0.00777 -0.919 -0.2632 -0.9385 -0.5255 -1.203 -0.5416 -
1.1518 -0.161 -1.38 -0.0564 -1.38 -0.1091 -1.3846 -0.5096 -1.4194 -0.632
-1.43 -0.5694 -1.0852 -0.5952 -1.2577 -0.6235 -1.2592 -0.5062 -1.3355 -
0.5949 -1.2955
-0.09 -1.35 -0.1014 -1.2356 -2.387 -1.023 -0.13 -0.95 -
0.6124 -1.0158 -0.02 -0.9 -0.2705 -0.919 -0.5277 -1.1771 -0.5443 -
1.1273 -0.17 -1.35 -0.07 -1.35 -0.1222 -1.3546 -0.5188 -1.3894 -0.64

-1.4 -0.5733 -1.0723 -0.5941 -1.2268 -0.6217 -1.2429 -0.5065 -1.3197 -
 0.5994 -1.2731
 -0.101 -1.33 -0.1144 -1.2205 -2.405 -1.02 -0.148 -0.947 -
 0.6136 -0.9952 -0.0324 -0.881 -0.2776 -0.8997 -0.5295 -1.1508 -0.5468 -
 1.1049 -0.18 -1.33 -0.0828 -1.33 -0.1345 -1.3337 -0.527 -1.3615 -0.647
 -1.37 -0.5768 -1.0612 -0.593 -1.1988 -0.6198 -1.2257 -0.5068 -1.3044 -
 0.6031 -1.2491
 -0.113 -1.3 -0.1282 -1.1973 -2.423 -1.014 -0.166 -0.941 -
 0.6151 -0.9746 -0.0449 -0.863 -0.2846 -0.8811 -0.5307 -1.1239 -0.549 -
 1.0635 -0.19 -1.3 -0.095 -1.3 -0.1461 -1.3037 -0.5343 -1.3315 -0.653
 -1.34 -0.5798 -1.0511 -0.592 -1.1758 -0.618 -1.2069 -0.5071 -1.2898 -
 0.6056 -1.2262
 -0.125 -1.28 -0.1419 -1.1811 -2.441 -1.007 -0.184 -0.934 -
 0.6173 -0.9541 -0.0571 -0.845 -0.2911 -0.8628 -0.5315 -1.0961 -0.5508 -
 1.0271 -0.2 -1.28 -0.107 -1.28 -0.1575 -1.2827 -0.5416 -1.3036 -0.659
 -1.31 -0.5824 -1.0416 -0.5909 -1.1561 -0.6164 -1.1864 -0.5073 -1.2756 -
 0.6066 -1.2088
 -0.138 -1.25 -0.1563 -1.1576 -2.459 -1 -0.202 -0.927 -0.6207 -
 0.9336 -0.0689 -0.827 -0.2973 -0.8447 -0.5318 -1.0668 -0.5521 -0.9958 -0.21
 -1.25 -0.118 -1.25 -0.1681 -1.2527 -0.5487 -1.2736 -0.665 -1.28 -
 0.5846 -1.0325 -0.5896 -1.1376 -0.6153 -1.165 -0.5074 -1.2616 -0.6058 -
 1.1913
 -0.15 -1.23 -0.17 -1.1414 -2.477 -0.993 -0.22 -0.92 -
 0.6249 -0.9131 -0.08 -0.81 -0.3027 -0.8271 -0.5315 -1.0364 -0.553 -
 0.9692 -0.22 -1.23 -0.13 -1.23 -0.1794 -1.2318 -0.5552 -1.2457 -0.67
 -1.25 -0.5864 -1.0237 -0.5881 -1.1192 -0.6145 -1.1436 -0.5075 -1.2477 -
 0.6029 -1.1737
 -0.162 -1.21 -0.1834 -1.1254 -2.494 -0.987 -0.237 -0.914 -
 0.6274 -0.8927 -0.0904 -0.793 -0.3076 -0.8098 -0.5307 -1.007 -0.5533 -
 0.9464 -0.228 -1.21 -0.142 -1.21 -0.1908 -1.2109 -0.5616 -1.2179 -0.675
 -1.22 -0.5878 -1.0149 -0.5863 -1.0996 -0.6134 -1.123 -0.5075 -1.2336 -
 0.5984 -1.1559
 -0.174 -1.18 -0.1969 -1.1022 -2.511 -0.981 -0.254 -0.908 -
 0.6264 -0.8724 -0.1 -0.775 -0.3118 -0.7922 -0.5294 -0.9803 -0.5528 -
 0.9258 -0.236 -1.18 -0.154 -1.18 -0.2022 -1.1809 -0.5681 -1.1879 -0.68
 -1.19 -0.5889 -1.0059 -0.5839 -1.0773 -0.6117 -1.1029 -0.5073 -1.2192 -
 0.5931 -1.138
 -0.186 -1.16 -0.21 -1.0859 -2.527 -0.974 -0.27 -0.901 -
 0.6231 -0.8521 -0.11 -0.757 -0.3159 -0.7744 -0.5274 -0.957 -0.5517 -
 0.9064 -0.244 -1.16 -0.166 -1.16 -0.2136 -1.16 -0.5754 -1.16 -0.686
 -1.16 -0.5897 -0.9967 -0.581 -1.0522 -0.609 -1.0794 -0.5071 -1.2042 -
 0.588 -1.1198
 -0.198 -1.13 -0.2229 -1.0619 -2.542 -0.965 -0.285 -0.892 -
 0.6188 -0.8319 -0.12 -0.739 -0.3198 -0.7565 -0.525 -0.9368 -0.5497 -
 0.8875 -0.252 -1.13 -0.178 -1.13 -0.2251 -1.13 -0.5827 -1.13 -0.692
 -1.13 -0.5902 -0.9869 -0.5774 -1.0242 -0.6049 -1.0524 -0.5068 -1.1885 -
 0.5839 -1.1014
 -0.21 -1.11 -0.2357 -1.0442 -2.557 -0.953 -0.3 -0.88 -
 0.6147 -0.8117 -0.13 -0.72 -0.3235 -0.738 -0.5223 -0.9194 -0.547 -
 0.8687 -0.26 -1.11 -0.19 -1.11 -0.2367 -1.1109 -0.5915 -1.1179 -0.7
 -1.1 -0.5903 -0.9762 -0.5732 -0.9953 -0.5999 -1.0267 -0.5063 -1.1715 -
 0.5812 -1.0825
 -0.222 -1.08 -0.2483 -1.0182 -2.571 -0.937 -0.314 -0.864 -
 0.6119 -0.7915 -0.141 -0.7 -0.3277 -0.7187 -0.5194 -0.9037 -0.5441 -
 0.8493 -0.269 -1.08 -0.202 -1.08 -0.2484 -1.0809 -0.6012 -1.0879 -0.709

-1.07 -0.5902 -0.9643 -0.5687 -0.9655 -0.5941 -1.0028 -0.5056 -1.1528 -
 0.5796 -1.0632
 -0.235 -1.06 -0.2616 -0.9982 -2.585 -0.917 -0.328 -0.844 -
 0.6103 -0.7714 -0.153 -0.68 -0.3323 -0.6991 -0.5165 -0.8893 -0.5412 -
 0.8289 -0.28 -1.06 -0.213 -1.06 -0.2592 -1.0618 -0.6106 -1.0757 -0.718
 -1.04 -0.5898 -0.9503 -0.5639 -0.9338 -0.5882 -0.9809 -0.5048 -1.1321 -
 0.5789 -1.0435
 -0.247 -1.03 -0.2736 -0.9708 -2.597 -0.896 -0.34 -0.823 -
 0.6095 -0.7514 -0.165 -0.66 -0.337 -0.6793 -0.5136 -0.8757 -0.5388 -
 0.8075 -0.29 -1.03 -0.225 -1.03 -0.2711 -1.0318 -0.6218 -1.0457 -0.729
 -1.01 -0.5892 -0.9335 -0.5596 -0.8991 -0.5824 -0.96 -0.5038 -1.1093 -
 0.5789 -1.023
 -0.259 -1.01 -0.2853 -0.9502 -2.608 -0.874 -0.351 -0.801 -
 0.6091 -0.7313 -0.178 -0.64 -0.3423 -0.6594 -0.511 -0.8628 -0.5372 -
 0.7868 -0.3 -1.01 -0.237 -1.01 -0.283 -1.0127 -0.6322 -1.0336 -0.739
 -0.98 -0.5884 -0.9134 -0.5557 -0.8604 -0.5773 -0.9379 -0.5026 -1.0845 -
 0.5794 -1.002
 -0.27 -0.98 -0.2957 -0.9228 -2.617 -0.853 -0.36 -0.78 -
 0.6088 -0.7113 -0.19 -0.62 -0.3472 -0.6394 -0.5087 -0.8502 -0.5367 -0.766
 -0.31 -0.98 -0.25 -0.98 -0.2958 -0.9827 -0.6437 -1.0036 -0.75 -0.95
 -0.5874 -0.8895 -0.5516 -0.8225 -0.573 -0.9105 -0.5012 -1.0582 -0.5801 -
 0.9803
 -0.28 -0.955 -0.3049 -0.8992 -2.624 -0.833 -0.367 -0.76 -
 0.6081 -0.6913 -0.202 -0.601 -0.3524 -0.6199 -0.5068 -0.838 -0.5373 -
 0.7454 -0.319 -0.955 -0.264 -0.955 -0.3094 -0.9583 -0.6545 -0.9833 -0.76
 -0.919 -0.5862 -0.8623 -0.5472 -0.7902 -0.5699 -0.879 -0.4996 -1.0312 -
 0.581 -0.958
 -0.29 -0.931 -0.3134 -0.877 -2.629 -0.815 -0.372 -0.742 -
 0.6066 -0.6713 -0.214 -0.583 -0.3578 -0.6012 -0.5054 -0.8258 -0.5387 -
 0.7248 -0.326 -0.931 -0.278 -0.931 -0.323 -0.9349 -0.6654 -0.9649 -0.77
 -0.888 -0.5848 -0.8296 -0.5425 -0.7636 -0.5675 -0.8507 -0.4977 -1.0073 -
 0.5818 -0.9351
 -0.3 -0.907 -0.3217 -0.8547 -2.633 -0.797 -0.376 -0.724 -
 0.6044 -0.6513 -0.226 -0.565 -0.3634 -0.5829 -0.5045 -0.8062 -0.5399 -
 0.7044 -0.334 -0.907 -0.292 -0.907 -0.3367 -0.9115 -0.6762 -0.9456 -0.78
 -0.858 -0.5833 -0.7929 -0.5372 -0.7398 -0.5655 -0.8265 -0.4955 -0.983 -
 0.5825 -0.9119
 -0.31 -0.883 -0.3294 -0.8327 -2.635 -0.78 -0.378 -0.707 -
 0.6017 -0.6314 -0.238 -0.547 -0.3693 -0.5647 -0.5042 -0.785 -0.5401 -
 0.6841 -0.342 -0.883 -0.306 -0.883 -0.3503 -0.888 -0.6871 -0.9263 -0.79
 -0.828 -0.5815 -0.7553 -0.5312 -0.7185 -0.5636 -0.8065 -0.493 -0.9581 -
 0.583 -0.8882
 -0.32 -0.86 -0.3372 -0.8114 -2.637 -0.763 -0.38 -0.69 -
 0.5989 -0.6078 -0.25 -0.53 -0.3755 -0.5471 -0.5044 -0.7638 -0.5402 -0.664
 -0.35 -0.86 -0.32 -0.86 -0.3639 -0.8655 -0.6979 -0.9072 -0.8 -0.8
 -0.5796 -0.7158 -0.5242 -0.7004 -0.5614 -0.7895 -0.4903 -0.9319 -0.583 -
 0.8643
 -0.331 -0.836 -0.3453 -0.7894 -2.638 -0.746 -0.381 -0.673 -
 0.5962 -0.5807 -0.262 -0.512 -0.382 -0.5293 -0.5052 -0.7424 -0.5403 -
 0.6435 -0.359 -0.836 -0.333 -0.836 -0.3768 -0.8418 -0.7093 -0.8856 -0.811
 -0.773 -0.5773 -0.6734 -0.5165 -0.6814 -0.5584 -0.7732 -0.4872 -0.9038 -
 0.5825 -0.8403
 -0.343 -0.813 -0.3539 -0.7675 -2.638 -0.727 -0.381 -0.654 -
 0.5939 -0.5523 -0.274 -0.495 -0.3887 -0.5119 -0.5065 -0.7209 -0.5402 -
 0.6222 -0.369 -0.813 -0.345 -0.813 -0.3887 -0.819 -0.7206 -0.8642 -0.822

-0.748 -0.5746 -0.626 -0.5087 -0.6603 -0.5541 -0.7553 -0.4837 -0.8726 -
0.5814 -0.81
-0.355 -0.789 -0.3624 -0.745 -2.638 -0.708 -0.381 -0.635 -
0.5921 -0.5214 -0.286 -0.477 -0.3957 -0.4942 -0.5083 -0.6992 -0.5398 -
0.5991 -0.379 -0.789 -0.357 -0.789 -0.4007 -0.795 -0.7326 -0.8402 -0.834
-0.724 -0.5715 -0.5774 -0.5013 -0.6349 -0.5472 -0.7315 -0.4798 -0.8366 -
0.5794 -0.7783
-0.367 -0.765 -0.371 -0.7218 -2.638 -0.687 -0.381 -0.614 -
0.5883 -0.4855 -0.298 -0.459 -0.4029 -0.4764 -0.5107 -0.6775 -0.5393 -
0.5724 -0.39 -0.765 -0.369 -0.765 -0.4129 -0.7708 -0.7461 -0.8146 -0.848
-0.702 -0.5678 -0.5371 -0.4948 -0.6028 -0.5365 -0.6952 -0.4755 -0.7956 -
0.5765 -0.7458
-0.38 -0.74 -0.38 -0.6971 -2.637 -0.663 -0.38 -0.59 -
0.5842 -0.4372 -0.31 -0.44 -0.4103 -0.458 -0.5133 -0.6557 -0.5384 -0.54
-0.4 -0.74 -0.38 -0.74 -0.4241 -0.7455 -0.7595 -0.7872 -0.862 -0.68
-0.5634 -0.5062 -0.4895 -0.5703 -0.5229 -0.6503 -0.4708 -0.7459 -0.5727 -
0.7117
-0.393 -0.715 -0.389 -0.6718 -2.636 -0.637 -0.379 -0.564 -
0.5794 -0.3585 -0.322 -0.421 -0.4177 -0.4393 -0.5159 -0.6339 -0.5371 -
0.5018 -0.41 -0.715 -0.391 -0.715 -0.4356 -0.7201 -0.7744 -0.7591 -0.878
-0.659 -0.5583 -0.4819 -0.4855 -0.5447 -0.5094 -0.6161 -0.4657 -0.6772 -
0.5683 -0.6754
-0.405 -0.69 -0.397 -0.6454 -2.634 -0.607 -0.377 -0.534 -
0.5736 -0.3188 -0.334 -0.402 -0.4249 -0.4204 -0.5182 -0.612 -0.535 -
0.4527 -0.419 -0.69 -0.403 -0.69 -0.4481 -0.6947 -0.7912 -0.7302 -0.896
-0.639 -0.5524 -0.462 -0.4821 -0.525 -0.4989 -0.5905 -0.46 -0.6098 -
0.5636 -0.6363
-0.417 -0.664 -0.405 -0.6171 -2.632 -0.573 -0.375 -0.5 -
0.5675 -0.298 -0.346 -0.382 -0.4316 -0.4009 -0.5196 -0.5901 -0.5318 -
0.4246 -0.427 -0.664 -0.415 -0.664 -0.4608 -0.6681 -0.8087 -0.6994 -0.915
-0.619 -0.546 -0.4445 -0.4782 -0.5081 -0.4919 -0.5642 -0.4539 -0.5437 -
0.5572 -0.5948
-0.429 -0.637 -0.413 -0.5872 -2.63 -0.536 -0.373 -0.463 -
0.5626 -0.2839 -0.358 -0.361 -0.4375 -0.3807 -0.5191 -0.5682 -0.5271 -
0.4063 -0.434 -0.637 -0.427 -0.637 -0.4736 -0.6404 -0.8277 -0.6661 -0.936
-0.6 -0.539 -0.4285 -0.4722 -0.4928 -0.4872 -0.5168 -0.4471 -0.4783 -
0.5503 -0.5514
-0.44 -0.61 -0.42 -0.5557 -2.627 -0.493 -0.37 -0.42 -
0.5594 -0.2727 -0.37 -0.34 -0.4386 -0.3601 -0.5091 -0.5465 -0.5206 -
0.3918 -0.44 -0.61 -0.44 -0.61 -0.4876 -0.6127 -0.8494 -0.6336 -0.96
-0.58 -0.5317 -0.4134 -0.4614 -0.4783 -0.4837 -0.4907 -0.4398 -0.4134
-0.5433 -0.5068];

Prilozi

Prilog – P25 Kod numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnim-turbinama 1 i 2 RHE Bajina Bašta

Prilog za poglavlje 10. Uticaj specifične brzine pumpe-turbine na hidraulične prelazne procese

U narednom dijelu teksta priložen je listing koda razvijenog numeričkog modela sa kojim je izvršen proračun prelaznih procesa na pumpnim turbinama 1 i 2 RHE Bajina Basta u programu Fortran:

Program HELEK

HELEK 1

```
C NOVI PROGRAM
```

```
C
```

```
    INCLUDE 'HELPAR'
```

```
    INCLUDE 'HELCOM'
```

```
C =====
```

```
C
```

```
    DIMENSION HSAVE(MAXMRE)
```

```
C
```

```
    OPEN(UNIT=8, STATUS='UNKNOWN',ACCESS='DIRECT',FORM='UNFORMATTED',
```

```
1 RECL=4*NBUFFER)
```

```
    KLM = 1
```

```
    LLRED = 0
```

```
    NSADRZ = 0
```

```
    KONTRA = 0
```

NTRANS = 0

CALL VGCITA(TPOC, TFIN)

MSTARO = MEDSTA

C

C ===== Provera DIMENZIJA =====

C

KONTBL(3,1) = NCVOR

KONTBL(3,2) = NCEVI

KONTBL(3,3) = NZATV

KONTBL(3,4) = NUQFT

KONTBL(3,5) = 0

KONTBL(3,6) = NHIDR

KONTBL(3,7) = NCLOK

KONTBL(3,8) = NMASIN

KONTBL(3,9) = NVODST

NERGRE = 0

DO 1 I=1,9

IF(KONTBL(2,I).GE.KONTBL(3,I)) GO TO 1

NERGRE = NERGRE + 1

WRITE(6,214) I, (KONTBL(M,I), M=1,3)

1 CONTINUE

IF(NERGRE.LE.0) GO TO 2

WRITE(6,215) NERGRE

STOP 'NERR'

2 CALL MREZA

```

DO 9 M=1,KOUNT
9 HSAVE(M) = HPOC(M)
C
C *** Pocetak SIMULACIJE .....
VREME = 0.0
TUPOZ = 0.0
CALL PECAT(LLRED)
10 VREME = VREME + DELTAT
TUPOZ = TUPOZ + DELTAT
MEDSTA = 0
IF((VREME.GE.TPOC).AND.(VREME.LE.TFIN)) MEDSTA = MSTARO
CALL OBRADA
DO 11 N=1,KOUNT
IF(HMAX(N).LT.HRES(N)) HMAX(N) = HRES(N)
IF(HMIN(N).GT.HRES(N)) HMIN(N) = HRES(N)
HPOC(N) = HRES(N)
11 QPOC(N) = QRES(N)
C *** Obavestava dokle je stigao .....
IF(TUPOZ.GE.PERIOD/10.0) THEN
WRITE(*,220) VREME
TUPOZ = 0.0
ENDIF
C *** Cuva rezultate za kasnije crtanje ....
KLM = KLM + 1
IF(KLM.GT.KPRORD) KLM = 1

```

```

IF(KLM.NE.1) GO TO 5
LLRED = LLRED+1
CALL PECAT(LLRED)
IF(LLRED.GE.MAXRED) GO TO 999
5 IF(VREME.LE.PERIOD) GO TO 10
C
C GOTOVA OBRADA
C
999 NNSS = LLRED + 1
WRITE(6,212) LLRED, NNSS, MEDSTA, KBRAVA
WRITE(6,217) VREME, PERIOD, DELTAT
WRITE(6,200) VREME, NNSS
CALL PECAT(-1)
LLL=1
DO 12 N=1,KOUNT
IF(N.EQ.INDI(LLL)) THEN
ALOKAL = ATALAS(I)
WRITE(6,201) LLL, ICVOR(LLL), JCVOR(LLL), N, ABSC(N), ALOKAL,
1 QRES(N), HRES(N), HMAX(N), HMIN(N)
LLL = LLL+1
ELSE
WRITE(6,202) N,ABSC(N),ALOKAL,QRES(N),HRES(N),HMAX(N),HMIN(N)
ENDIF
12 CONTINUE
WRITE(6,203)

```

```

IF(NMASIN.LE.0) GO TO 15

DO 14 N=1,NMASIN

WRITE(6,214) N

DO 14 M=1,4

14 WRITE(6,202) M, TURMAX(M,N), TURMIN(M,N)

15 IF(NZATV.LE.0) GO TO 20

DO 16 N=1,NZATV

16 WRITE(6,202) N, QZAMAX(N), QZAMIN(N)

C

C SMESTA OBVOJNICE NA FILE '4'

C

20 WRITE(4,211) (NASLOV(M), M=1,20)

WRITE(4,212) NCVOR, NCEVI, KOOUNT

WRITE(4,212) (KCVOR(M), M=1,NCVOR)

WRITE(4,212) (KVRSTA(M), M=1,NCVOR)

WRITE(4,213) VREME

LLL = 1

DO 21 M=1,KOOUNT

IF(M.NE.INDI(LLL)) GO TO 21

MMM = INDJ(LLL) - INDI(LLL) + 1

WRITE(4,212) ICVOR(LLL), JCVOR(LLL), MMM

LLL = LLL + 1

21 WRITE(4,213) ABSC(M), HSAVE(M), HRES(M), HMAX(M), HMIN(M)

CLOSE(UNIT=8)

STOP 'O.K.'

```

C

C

200 FORMAT(1H1,5X, 'ZAVRSENA ANALIZA-T=', F10.4, ' (S)' ///

1 6X, 'SACUVANO SLOGOVA:', I6///

2 9X, 'I', 5X, 'I', 5X, 'J', 5X, 'N', 6X, 'X', 9X, 'A', 7X,

3 'Q RES', 8X, 'H RES', 6X, 'H MAX', 6X, 'H MIN'/34X, 'M', 8X,

4 'M/S', 6X, 'M3/S', 11X, 'M', 10X, 'M', 10X, 'M'/

5 7X, 88(1H-))

201 FORMAT(I10,3I6,2F10.3,F12.5,3F11.3)

202 FORMAT(22X,I6,2F10.3,F12.5,3F11.3)

203 FORMAT(7X, 88(1H-))

211 FORMAT(20A4)

212 FORMAT(16I5)

213 FORMAT(8F10.3)

214 FORMAT(/I10, 2X, A4, 2I10)

215 FORMAT(1H1, 'VERZIJA PROGRAMA NE ODGOVARA, GRESAKA IMA:', I8)

217 FORMAT(4E20.10)

220 FORMAT(/' Vreme simulacije:', F10.3, ' (s)')

C

C =====

C

END

C =====

BLOCK DATA

C


```

C *** INICIRA VELICINE IZ COMMON PODRUCJA
C
  INCLUDE 'HELPAR'
  INCLUDE 'HELCOM'
C =====
C
  DATA ERROME/0.0050/, DQTAB/0.10/, GAMAW/1000.0/
  DATA GE/9.80665/, PI/3.14159265/
C
  DATA KONTBL/1, MAXCVR, 0, 2, MAXCEV, 0,
1      3, MAXZAT, 0, 4, MAXQFT, 0, 5, 0, 0,
2      6, MAXKAZ, 0, 7, MAXLOK, 0, 8, MAXMAS, 0,
3      9, MAXVOD, 0/
C
  END

```

HELEK 2

```

  SUBROUTINE VGCITA(TPOC, TFIN)
C
C PODPROGRAM ZA UCITAVANJE I L.K.
C
  INCLUDE 'HELPAR'
  INCLUDE 'HELCOM'
C =====
C

```

DIMENSION POM(5)

C

C CANE DEC1010

C

DIMENSION XN11TURL(15), QN11TURL(15)

C

CHARACTER*4 KSPOJ, KRACV, KREZE, KZATV, KQFT, KLOKA, KMASI,

1 KHIDR, KVODS, KSIFRA

C

C CANE DEC 2010

C

DATA KISPSVM/'ISVM'/

C

DATA KSPOJ/'SPOJ'/, KRACV/'RACV'/, KREZE/'REZE'/,

1 KZATV/'ZATV'/, KQFT/'Q=F('/, KLOKA/'LOKA'/,

2 KMASI/'MASI'/, KHIDR/'HIDR'/, KVODS/'VODO'/

C

C CANE nvembar 2010

OPEN (5, FILE = 'BAJBASTA_ULP5')

OPEN (6, FILE = 'BAJBASTA_OUT6')

OPEN (7, FILE = 'BAJBASTA_OUT7')

OPEN (4, FILE = 'BAJBASTA_OBVOJNICE')

OPEN (9, FILE = 'BAJBASTA_OUT 9')

OPEN (101, FILE = 'TURBOMASHINE_OUT101')

OPEN (102, FILE = 'TURBOMASHINE_OUT102')

C

C PAMTI RADNE KRIVE ZA CRTANJE

C

OPEN (51, FILE = 'N11Q11')

OPEN (52, FILE = 'N11M11')

OPEN (53, FILE = 'WHSUTER')

OPEN (54, FILE = 'WMSUTER')

OPEN (55, FILE = 'WHSUTER_EXCEL')

OPEN (56, FILE = 'WMSUTER_EXCEL')

C

300 FORMAT(20A4)

301 FORMAT(16I5)

302 FORMAT(A4,6X, 4I5, 5F10.0)

303 FORMAT(8F10.0)

304 FORMAT(4I5, 6F10.0)

305 FORMAT(10X, 7F10.0)

307 FORMAT(F8.0, 2I4)

308 FORMAT(I10, ' OTVOR PRETKOLA:', F10.4, 3I6)

309 FORMAT(10F8.0)

310 FORMAT(1H1,5X, 20A4//T20,'ULAZNI PODACI'//)

311 FORMAT(1X, A4, 6X, 4I6,5F15.6)

312 FORMAT(I10, 8F15.6/10X, 8F15.6)

313 FORMAT(5I5,6F15.6)

314 FORMAT(5X,'SIFRA ZADATKA:',3X,A6//)

315 FORMAT(10X, 6E15.7)

321 FORMAT(1H1, ' SIFRA *', A4, '* NIJE DOZVOLJENA'//)

323 FORMAT(A4, 6X, 7F10.0)

324 FORMAT(1H1, ' POTREBNO', I8, ' REDOVA, A DOZVOLJENO SAMO', I8)

C

C CANE DEC 2010

C

326 FORMAT(I10, ' OTVOR PRETKOLA:', F10.4, 2I6)

327 FORMAT(2F10.6)

328 FORMAT(10F10.6)

329 FORMAT(30F10.6)

C

C

FAKGE = 10.197162

TPOC = 1.0 E+20

TFIN = 1.0 E+20

READ(5,300) (NASLOV(M),M=1,20) ! red 1

WRITE(6,310)(NASLOV(M),M=1,20)

WRITE(7,300) (NASLOV(M), M=1,20)

READ(5,323) KSIZEAD, TTPP, TTFF ! red 2

IF(TTPP.GT.0.0) TPOC = TTPP

IF(TTFF.GT.0.0) TFIN = TTFF

WRITE(6,314)KSIZEAD

C

C CANE DEC2010

C

```

C          KSIZAD = ISVM          ISPAD SVIH MASINA
C
C          SPROVODNE LOPATICE SE ZATVA-
C
C          DO KRAJA - PROTOK NULA
C
C          WRITE(6,315) TPOC, TFIN
C
C          READ(5,301) NCVOR, NCEVI, MAXIT, MEDSTA, KBRAVA, KPRORD ! red 3
C
C          KBRAVA NICEMU NE SLUZI. CANE
C
C          IF(KPRORD.LT.1) KPRORD = 1
C
C          WRITE(6,301) NCVOR, NCEVI, MAXIT, MEDSTA, KBRAVA, KPRORD
C
C          READ(5,303) DELTAT, PERIOD, TACNST, DTSTAM          ! red 4
C
C          WRITE(6,312) MAXIT, DELTAT, PERIOD, TACNST, DTSTAM
C
C          READ(5,303) BATM, EPOLYT          ! red 5
C
C          RECEN = 1.0/EPOLYT
C
C          WRITE(6,312) KPRORD, BATM, EPOLYT, RECEN, CMQO
C
C
C          RECEN SE NE KORISTI KAO ULAZNI PODATAKI
C
C          CMQO SE NE KORISTI KAO ULAZNI PODATAKI
C
C
C          MAXFIN = PERIOD/(DELTAT*KPRORD) + 1.99999
C
C          IF(MAXFIN.LE.MAXRED) GO TO 5
C
C          MMM = MAXRED
C
C          WRITE(6,324) MAXFIN, MMM
C
C          STOP 'MRED'

```

5 NZATV=0

NUQFT=0

NCLOK=0

NMASIN = 0

NHIDR = 0

NVENT = 0

NVODST = 0

C

C CITA LISTU CVOROVA

C

DO 1 I=1,NCVOR

KTEZ(I) =0

DO 2 M=1,MAXOGR

2 KPRIK(I,M)=0

READ(5,302) KSIFRA,KCVOR(I),KI,KJ, KL,(POM(M),M=1,5) ! red 6

C

C red 6 je prvi red za sve cvorove

C

WRITE(6,311)KSIFRA,KCVOR(I),KI,KJ, KL,(POM(M),M=1,5)

IF(KSIFRA.EQ.KSPOJ) GO TO 10

IF(KSIFRA.EQ.KRACV) GO TO 11

IF(KSIFRA.EQ.KREZE) GO TO 12

IF(KSIFRA.EQ.KZATV) GO TO 13

IF(KSIFRA.EQ.KQFT) GO TO 15

IF(KSIFRA.EQ.KLOKA) GO TO 18

IF(KSIFRA.EQ.KMASI) GO TO 41

IF(KSIFRA.EQ.KHIDR) GO TO 49

IF(KSIFRA.EQ.KVODS) GO TO 55

WRITE(6,321) KSIFRA

STOP 'GRNS'

C*** S P O J 2 C E V I

10 KVRSTA(I)=0

GO TO 1

C*** R A C V A

11 KVRSTA(I)=1

GO TO 1

C*** R E Z E R V O A R

12 KVRSTA(I)=2

HAFIX(I) = POM(1)

GO TO 1

C*** Z A T V A R A C

13 KVRSTA(I) = 8

NZATV=NZATV+1

KGRED(I) = NZATV

KONTRL(NZATV)=KI

NTZAT(NZATV)=KJ

NMASV(NZATV) = KL

AZATV(NZATV)=POM(1)

ZKZAT(NZATV) = POM(2)

HAFIX(I) = POM(3)

```

DO 14 N=1,KJ

READ(5,305) TZATV(NZATV,N), CDZAT(NZATV,N)

14 WRITE(6,312) N,TZATV(NZATV,N),CDZAT(NZATV,N)

GO TO 1

C ***                Q = F(T)

15 KVRSTA(I)=4

NUQFT=NUQFT+1

KGRED(I) = NUQFT

NTQFT(NUQFT)=KI

DO 16 N=1,KI

READ(5,305) TQFT(NUQFT,N), QQFT(NUQFT,N)

16 WRITE(6,312) N,TQFT(NUQFT,N), QQFT(NUQFT,N)

GO TO 1

C ***                L O K A L N I   O T P O R

18 KVRSTA(I) = 3

NCLOCK = NCLOCK + 1

KGRED(I) = NCLOCK

KONLOCK(NCLOCK) = KI

CETA = POM(1)

APOVR = POM(2)

HAFIX(I) = POM(3)

CETMER(NCLOCK) = CETA/(2.0*GE*APOVR*APOVR)

WRITE(6,312) NCLOCK, CETA, APOVR, HAFIX(I), CETMER(NCLOCK)

GO TO 1

C ***                T U R B I N A

```


41 KVRSTA(I) = 5

NMASIN = NMASIN+1

KGRED(I) = NMASIN

NTASA(NMASIN) = KI

NTELM(NMASIN) = KJ

C

C CANE IZ UZEG FOLDER. Dec 2010

C *** KL = 0: obicna crpka; KL > 0: trubina sa regulatorom

C

IF((KL.LT.1).OR.(KL.GT.2)) STOP 'ULP-REGULATOR'

KVREGT(NMASIN) = KL

ASPIR(NMASIN) = POM(1)

ZNAKQ(NMASIN) = POM(2)

HMASFI(NMASIN)= POM(3)

ZPOTMA(NMASIN)= POM(4)

IF(NMASIN.GT.1) GO TO 4

C

C OCITAVANJE TABELA RADNIH KRIVIA TURBOMASINE

C

READ(5,301) NPARCK ! M 6 + 1 Ucitava Broj otvor sprovodnih lopatica

WRITE(6,301) NPARCK

DO 3 N=1,NPARCK

READ(5,307) OTVOR(N), NHSUKR(N), NMSUKR(N) ! M 6 + 2 ucitava radne krive

WRITE(6,308) N, OTVOR(N), NHSUKR(N), NMSUKR(N)

NDOH = NHSUKR(N)

READ(5,309) (XHSUKR(L,N), WHSUKR(L,N), L=1,NDOH) ! M 6 + 3 + ND (

WRITE(*,328) (XHSUKR(L,N), WHSUKR(L,N), L=1,NDOH)

NDOM = NMSUKR(N)

READ(5,309) (XMSUKR(L,N), WMSUKR(L,N), L=1,NDOH) !Red 4 M

3 WRITE(*,328) (XMSUKR(L,N), WMSUKR(L,N), L=1,NDOH)

C

C podaci o pumpi/turbini; referentne tacke suterovih krivih i zamajni moment

C (CANE DEC 2010) I PRECNIK TURBOMASINE

C

4 READ(5,305) (PODMAS(NMASIN,M), M=1,6) !Red 5 M

WRITE(6,312) NMASIN, (PODMAS(NMASIN,M), M=1,6)

C

C CANE STMPANJE RADNIH LINIJA TURBOMASINE

C

IF(NMASIN.GT.1) GO TO 82

WRITE(53,326) (N, OTVOR(N), NHSUKR(N), NMSUKR(N), N=1,NPARCK)

WRITE(54,326) (N, OTVOR(N), NHSUKR(N), NMSUKR(N), N=1,NPARCK)

DO 81 N=1,NPARCK

NDOH = NHSUKR(N)

WRITE(53,326) N, OTVOR(N), NHSUKR(N), NMSUKR(N)

WRITE(53,327) (XHSUKR(L,N), WHSUKR(L,N), L=1,NDOH)

NDOM = NMSUKR(N)

WRITE(54,326) N, OTVOR(N), NHSUKR(N), NMSUKR(N)

WRITE(54,327) (XMSUKR(L,N), WMSUKR(L,N), L=1,NDOM)

81 CONTINUE

C

DO 86 L=1,NDOH

WRITE(55,329) (XHSUKR(L,N), WHSUKR(L,N), N=1,NPARCK)

86 CONTINUE

DO 87 L=1,NDOM

WRITE(56,329) (XMSUKR(L,N), WMSUKR(L,N), N=1,NPARCK)

87 CONTINUE

DO 83 L=1,NDOH

DO 84 N=1,NPARCK

DIATUR = PODMAS(NMASIN,6)

C

XHXHXH = XHSUKR(L,N)

IF ((XHSUKR(L,N).GT.0).AND.(XHSUKR(L,N).LT.(PI/2.0)))

1 GO TO 91

IF ((XHSUKR(L,N).GT.(PI/2.0)).AND.(XHSUKR(L,N).LT.(PI)))

1 GO TO 92

IF ((XHSUKR(L,N).GT.(PI)).AND.(XHSUKR(L,N).LT.(3.0*PI/2.0)))

1 GO TO 93

IF ((XHSUKR(L,N).GT.(3.0*PI/2.0)).AND.(XHSUKR(L,N).LT.

1 (2.0*PI))) GO TO 94

C

91 ALFASU = -1.0

IF ((PI/2.0 - XHXHXH).LT.0.01) XHXHXH = PI/2 - 0.01

VSUT = -ABS(ALFASU*TAN(XHXHXH - PI))

GO TO 95

```

92   ALFASU = +1.0
      IF ((XHXHXH - PI/2.0).LT.0.01) XHXHXH = PI/2 + 0.01
          VSUT = -ABS(ALFASU*TAN(XHXHXH - PI))
      GO TO 95
93   ALFASU = -1.0
      IF((3.0*PI/2.0 - XHXHXH).LT.0.01) XHXHXH = 3.0*PI/2 - 0.01
          VSUT = +ABS(ALFASU*TAN(XHXHXH - PI))
      GO TO 95
94   ALFASU = -1.0
      IF((XHXHXH - 3.0*PI/2.0).LT.0.01) XHXHXH = 3.0*PI/2 + 0.01
          VSUT = +ABS(ALFASU*TAN(XHXHXH - PI))
95   CONTINUE
C
C
      XNTURB = ALFASU*PODMAS(NMASIN,3)*30.0/PI   ! BRZINA OBRTANJA rpm
C
      QTURB = VSUT*PODMAS(NMASIN,2)           ! PROTOK
      HSUTER = WHSUKR(L,N)*(ALFASU*ALFASU + VSUT*VSUT)
      HTURB = (PODMAS(NMASIN,1)/GE)*HSUTER     ! PAD/NAPOR
C
      CCCCC = 0.01*ABS(PODMAS(NMASIN,1)/GE)
          IF (HTURB.LT.CCCCC) HTURB = CCCCC
      Q11TUR = QTURB/(DIATUR*DIATUR*SQRT(HTURB))
          XN11TUR= XNTURB*DIATUR/SQRT(HTURB)
      XN11TURL(N) = XN11TUR

```

```

84      QN11TURL(N) = Q11TUR
83      WRITE(51, 329) (XN11TURL(N), QN11TURL(N), N=1,NPARCK)
C  WRITE(53,NDOH) ((XHSUKR(L,N), WHSUKR(L,N), L=1,NDOH), N=1,NPARCK)
82      CONTINUE
C
C pocetni podaci o turbini
      READ(5,305) PODMAS(NMASIN,12), PODMAS(NMASIN,8),          !Red 6 M
1  PODMAS(NMASIN,11), PODMAS(NMASIN,10), PODMAS(NMASIN,18),
2  PODMAS(NMASIN,22)
      WRITE(6,312) NMASIN, PODMAS(NMASIN,12), PODMAS(NMASIN,8),
1  PODMAS(NMASIN,11), PODMAS(NMASIN,10), PODMAS(NMASIN,18),
2  PODMAS(NMASIN,22)
C
C
      READ(5,305) PODMAS(NMASIN,20), YOS(NMASIN),          !Red 7 M
1  ODYDT(NMASIN), DTKASN(NMASIN), GGBB, DDBB, OOSS
      ASGRAN(NMASIN) = OTVOR(1)
c
C CANE
C PROMENJENO
      KSTATU(NMASIN) = -3
C
C
C masina
C
C
      KSIZAD = ISVM ispad svih
C

```

IF(KSIZAD.EQ.KISPSVM) KSTATU(NMASIN) = -3 ! BRZO ZAUSTAVLJANJE (ZATVARANJE)

C

C

TUKREG(NMASIN) = -1.0

TISPAD(NMASIN) = -1.0

C

C CANE DODAO IZ DUGACKOG FOLDERA

C *** Podaci za REGULATOR - obicnoj crpki nisu potrebni!

C

OSETRE(NMASIN) = 0.10

IF(OOSS.GT.0.0) OSETRE(NMASIN) = OOSS

GRABRZ(NMASIN) = 10.0

IF(GGBB.GT.0.0) GRABRZ(NMASIN) = GGBB

DONBRZ(NMASIN) = -2.0

IF(DDBB.LT.0.0) DONBRZ(NMASIN) = DDBB

WRITE(6,312) NMASIN, PODMAS(NMASIN,20), YOS(NMASIN),

1 ODYDT(NMASIN), DTKASN(NMASIN), GRABRZ(NMASIN), DONBRZ(NMASIN),

2 ASGRAN(NMASIN)

READ(5,305) DYDT1(NMASIN), SVM2BR(NMASIN), DYDT2(NMASIN), ! Red 8 M

1 SVM3BR(NMASIN), DYDT3(NMASIN), YDMIN(NMASIN), YDMAX(NMASIN)

WRITE(6,312) NMASIN, DYDT1(NMASIN), SVM2BR(NMASIN), DYDT2(NMASIN),

1 SVM3BR(NMASIN), DYDT3(NMASIN), YDMIN(NMASIN), YDMAX(NMASIN)

READ(5,305) TN(NMASIN), TY(NMASIN), TY1(NMASIN), ! Red 9 M

1 TD(NMASIN), BT(NMASIN), BP(NMASIN), XK(NMASIN)

WRITE(6,312) NMASIN, TN(NMASIN), TY(NMASIN), TY1(NMASIN),

```

1 TD(NMASIN), BT(NMASIN), BP(NMASIN), XK(NMASIN)

NDOT = NTASA(NMASIN)

DO 6 N=1,NDOT

READ(5,305) YSERVO(N,NMASIN), ASA(N,NMASIN)           ! Red 6 M

6 WRITE(6,312) N, YSERVO(N,NMASIN), ASA(N,NMASIN)

NDOE = NTELM(NMASIN)

DO 8 N=1,NDOE

READ(5,305) VRELM(N,NMASIN), PELM(N,NMASIN), CREGUL(N,NMASIN)   Red 6 M

8 WRITE(6,312) N, VRELM(N,NMASIN), PELM(N,NMASIN), CREGUL(N,NMASIN)

TURMAX(1,NMASIN) = PODMAS(NMASIN,11)

TURMAX(2,NMASIN) = PODMAS(NMASIN,8)

TURMAX(3,NMASIN) = -1.0 E+10

TURMAX(4,NMASIN) = -1.0 E+10

TURMIN(1,NMASIN) = PODMAS(NMASIN,11)

TURMIN(2,NMASIN) = PODMAS(NMASIN,8)

TURMIN(3,NMASIN) = +1.0 E+10

TURMIN(4,NMASIN) = +1.0 E+10

GO TO 1

```

```

C ***           H I D R O F O R

```

```

49 KVRSTA(I) = 9

NHIDR = NHIDR + 1

KGRED(I) = NHIDR

PODSUD(NHIDR,1) = POM(1)

PODSUD(NHIDR,2) = POM(2)

PODSUD(NHIDR,3) = POM(3)

```

```
PODSUD(NHIDR,4) = POM(4)
READ(5,305) (PODSUD(NHIDR,M), M=6,8)
PODSUD(NHIDR,6) = 1000.0*FAKGE*PODSUD(NHIDR,6)
PODSUD(NHIDR,5) = EPOLYT*DELTAT/(PODSUD(NHIDR,7)*
1 (PODSUD(NHIDR,6)**RECEN))
WRITE(6,315) (PODSUD(NHIDR,M), M=5,8), RECEN
GO TO 1
```

C ***

V O D O S T A N

```
55 KVRSTA(I) = 7
NVODST = NVODST + 1
KGRED(I) = NVODST
NKOMOR(NVODST,1) = KI
VSTAN(NVODST,1) = POM(1)
VSTAN(NVODST,2) = POM(2)
VSTAN(NVODST,3) = POM(3)
VSTAN(NVODST,4) = POM(4)
VSTAN(NVODST,50) = POM(5)
KV = 2*KI + 3
DO 29 M=5,KV,2
READ(5,305) VSTAN(NVODST,M), VSTAN(NVODST,M+1)
29 WRITE(6,312) M, VSTAN(NVODST,M), VSTAN(NVODST,M+1)
1 CONTINUE
```

C

C CITA LISTU LINIJA

C


```

KARTAC = 0

DO 20 I=1,NCEVI

READ(5,304) ICVOR(I), JCVOR(I), NRTAC(I), NKARTX(I), DUZINA(I),
1 FI(I), ATALAS(I), XLANDA(I), ZIOSE(I), ZJOSE(I)

WRITE(6,313) I, ICVOR(I), JCVOR(I), NRTAC(I),NKARTX(I),DUZINA(I),
1 FI(I), ATALAS(I), XLANDA(I), ZIOSE(I), ZJOSE(I)

READ(5,305) QNUL(I),HINUL(I),HJNUL(I)

WRITE(6,312) I, QNUL(I),HINUL(I),HJNUL(I)

IF(NKARTX(I).LE.0) GO TO 20

KARTAC = KARTAC + 1

NNN = NKARTX(I)

READ(5,305) (XKART(I,M), M=1,NNN)

WRITE(6,312) NNN, (XKART(I,M), M=1,NNN)

20 CONTINUE

RETURN

END

C =====

SUBROUTINE MREZA

C

C *** SUBR ZA SREDJIVANJE MREZE I POSTAVLJANJE POCETNIH VREDNOSTI

C

INCLUDE 'HELPAR'

INCLUDE 'HELCOM'

C =====

C

```

```
300 FORMAT(20A4)
301 FORMAT(16I5)
306 FORMAT(4I5, 4E15.7/(20X, 4E15.7))
312 FORMAT(I10, 8F15.6/10X, 8F15.6)
315 FORMAT(10X, 6E15.7)
316 FORMAT(1H1,'CEV BR.',I6,' NIJE POVEZANA SA LISTOM CVOROVA',
 1 I6//)
317 FORMAT(/)
318 FORMAT(// 5X , 'MREZA IMA',I6,' TACAKA'//)
319 FORMAT(//' POCINJE OBRADA '//)
320 FORMAT('/ PROVERITE KOEF. LAMBDA ', I10, 4E15.7)
322 FORMAT(1H1, 'POGRESNI U.P. ZA HIDROF. KAZAN BR.',
 1 5I6/(5E16.7))
325 FORMAT(1H1, 'MAXMRE PREKORACENO', 6I10)
326 FORMAT(1H1, 'RACUNSKE TACKE SU SUVISE RAZMAKNUTE, CEV:', I6/
 1 (6E15.7))
```

C

```
KOUNT = 0
XNULA = 0.0
JEDAN = 1
DO 20 I=1,NCEVI
ACEVI(I)=PI*FI(I)*FI(I)/4.0
DELTAX(I)=DUZINA(I)/FLOAT(NRTAC(I))
ADT = ATALAS(I)*DELTAT
PUTMAX = MAXIST*ADT
```

```

IF(DELTAX(I).LE.PUTMAX) GO TO 18
WRITE(6,326) I, ATALAS(I), DELTAT, DELTAX(I), PUTMAX
STOP 'PUTMAX'
18 INTEG = DELTAX(I)/ADT
FRACT = DELTAX(I)/ADT - INTEG
IF(FRACT.LT.0.0) FRACT = 0.0
IF(NRTAC(I).LT.1) NRTAC(I) = 1
INDI(I)=KOUNT+1
INDJ(I) = INDI(I) + NRTAC(I)
KOUNT = INDJ(I)
IF(KOUNT.LE.MAXMRE) GO TO 7
MMM = MAXMRE
WRITE(6,325) MMM, KOUNT, I, INDI(I), NRTAC(I)
STOP 'MMRE'
7 VNULA = QNUL(I)/ACEVI(I)
HDYN= VNULA*VNULA/(2.0*GE)
DHNUL =(XLANDA(I)*DUZINA(I)/FI(I))*HDYN
CCCC = XLANDA(I)*DELTAX(I)/(2.0*GE*FI(I)*ACEVI(I)**2)
DDHH = HINUL(I) - HJNUL(I)
IF(ABS(DDHH-DHNUL).GT.TACNST) WRITE(6,320) I,XLANDA(I),DDHH,DHNUL
WRITE(6,312) KOUNT,DELTAX(I),ACEVI(I),VNULA,HDYN,DHNUL,CCCC,DDHH
JDON=INDI(I)
JGOR=INDJ(I)
XXX=0.0
DO 21 J=JDON,JGOR

```

```

ABSC(J)=XXX
FLIN= XXX/DUZINA(I)
HPOC(J)=HINUL(I)+FLIN*(HJNUL(I)-HINUL(I))
QPOC(J)=QNUL(I)
DO 19 M=1,MAXIST
HIST(M,J) = HPOC(J)
19 QIST(M,J) = QPOC(J)
ITCEL(J) = INTEG
TIDEO(J) = FRACT
AFAKT(J) = ATALAS(I)/(GE*ACEVI(I))
CTREN(J) = CCCC
ZKOTA(J) = ZIOSE(I) + FLIN*(ZJOSE(I)-ZIOSE(I))
HMAX(J)=HPOC(J)
HMIN(J)=HPOC(J)
WRITE(6,312) J, ABSC(J), HPOC(J), QPOC(J), ATALAS(I),
1 HMAX(J), HMIN(J), ZKOTA(J)
XXX = XXX + DELTAX(I)
21 WRITE(6,306) I, J, M, ITCEL(J), TIDEO(J), AFAKT(J), CTREN(J)
DO 22 N=1,NCVOR
IF(KCVOR(N).EQ.ICVOR(I)) GO TO 23
22 CONTINUE
WRITE(6,316) I,ICVOR(I)
STOP 'ICVR'
23 KTEZ(N) = KTEZ(N) + 1
MMM=KTEZ(N)

```

```

KPRIK(N,MMM)=-I
DO 24 N=1,NCVOR
IF(KCVOR(N).EQ.JCVOR(I)) GO TO 25
24 CONTINUE
WRITE(6,316) I,JCVOR(I)
STOP 'JCVR'
25 KTEZ(N) = KTEZ(N) + 1
MMM=KTEZ(N)
KPRIK(N,MMM)=+I
20 CONTINUE
NRECI = LLLMAS*NMASIN + LLLVST*NVODST +
1 LLLZAT*NZATV + LLLHID*NHIDR + LLLKAR*KARTAC
NSLOG = NBUFER/NRECI
NUKTRA= MAXFIN/NSLOG
WRITE(6,301) JEDAN, NRECI, NSLOG, NUKTRA
C
C ===== PREBACUJE FIX PODATKE NA FILE '7' =====
C
WRITE(7,301) JEDAN, MAXFIN, NRECI, NSLOG, NUKTRA
WRITE(7,301) NMASIN, NVODST, NZATV, NHIDR, KARTAC
IF(NMASIN.LE.0) GO TO 62
DO 61 I=1,NCVOR
IF(KVRSTA(I).NE.5) GO TO 61
NREDNO = KGRED(I)
WRITE(7,306) I, KCVOR(I), KVRSTA(I), KGRED(I), (PODMAS(NREDNO,M),

```

```

1 M=1,6), ASPIR(NREDNO), ZPOTMA(NREDNO)

61 CONTINUE

62 IF(NVODST.LE.0) GO TO 66

DO 65 I=1,NCVOR

IF(KVRSTA(I).NE.7) GO TO 65

NREDNO = KGRED(I)

BROJ = FLOAT(NKOMOR(NREDNO,1))

WRITE(7,306) I, KCVOR(I), KVRSTA(I), KGRED(I), BROJ,

1 (VSTAN(NREDNO,M), M=1,44)

65 CONTINUE

66 IF(NZATV.LE.0) GO TO 68

DO 67 I=1,NCVOR

IF(KVRSTA(I).NE.8) GO TO 67

NREDNO = KGRED(I)

WRITE(7,306) I, KCVOR(I), KVRSTA(I), KGRED(I), AZATV(NREDNO)

67 CONTINUE

68 IF(NHIDR.LE.0) GO TO 70

DO 69 I=1,NCVOR

IF(KVRSTA(I).NE.9) GO TO 69

NREDNO = KGRED(I)

WRITE(7,306) I, KCVOR(I), KVRSTA(I), KGRED(I), PODSUD(NREDNO,6),

1 PODSUD(NREDNO,7), PODSUD(NREDNO,3), PODSUD(NREDNO,4),

2 PODSUD(NREDNO,2), HATM, EPOLYT, XNULA, PODSUD(NREDNO,1)

69 CONTINUE

70 DO 71 I=1,NCEVI

```

```

IF(NKARTX(I).LE.0) GO TO 71
NNN = NKARTX(I)
WRITE(7,306) I, ICVOR(I), JCVOR(I), NNN, (XKART(I,M), M=1,NNN)
71 CONTINUE
C
C POSTAVLJA POCETNE VREDNOSTI ZA GRANICNE USLOVE
C
DO 33 I=1,NCVOR
IF(KVRSTA(I).EQ.8) GO TO 38
IF(KVRSTA(I).EQ.5) GO TO 43
IF(KVRSTA(I).EQ.9) GO TO 50
IF(KVRSTA(I).EQ.7) GO TO 56
GO TO 33
38 NREDNO = KGRED(I)
QZAMAX(NREDNO) = -1.0 E+10
QZAMIN(NREDNO) = +1.0 E+10
NNNZ = NTZAT(NREDNO)
DO 39 JJ=2,NNNZ
IF(VREME.LE.TZATV(NREDNO,JJ)) GO TO 40
39 CONTINUE
JJ = NNNZ
40 ZKD0 = CDZAT(NREDNO,JJ-1) + (CDZAT(NREDNO,JJ) -
1 CDZAT(NREDNO,JJ-1))*(VREME-TZATV(NREDNO,JJ-1))/
2 (TZATV(NREDNO,JJ)-TZATV(NREDNO,JJ-1))
IF(ZKD0.LT.1.0 E-10) ZKD0 = 1.0 E-10

```

```

CETAZ(NREDNO) = 1.0/(ZKD0*ZKD0) - 1.0

GO TO 33

43 MMM = KTEZ(I)

NREDNO = KGRED(I)

IF(MMM.GT.1) GO TO 44

INDC = IABS(KPRIK(I,1))

INDMR = INDJ(INDC)

IF(KPRIK(I,1).LT.0) INDMR = INDI(INDC)

Q0 = QPOC(INDMR)

HLO = HMASFI(NREDNO)

HD0 = HPOC(INDMR)

GO TO 45

44 INDCL = IABS(KPRIK(I,1))

INDMRL = INDJ(INDCL)

IF(KPRIK(I,1).LT.0) INDMRL = INDI(INDCL)

INDCD = IABS(KPRIK(I,2))

INDMRD = INDJ(INDCD)

IF(KPRIK(I,2).LT.0) INDMRD = INDI(INDCD)

Q0 = 0.50*(QPOC(INDMRL) + QPOC(INDMRD))

HLO = HPOC(INDMRL)

HD0 = HPOC(INDMRD)

45 PODMAS(NREDNO,7) = PODMAS(NREDNO,8)

PODMAS(NREDNO,9) = PODMAS(NREDNO,10)

PODMAS(NREDNO,13) = HLO

PODMAS(NREDNO,14) = HD0

```



```

PODMAS(NREDNO,15)= 0.0
PODMAS(NREDNO,16)= 0.0
PODMAS(NREDNO,17)= PODMAS(NREDNO,18)
PODMAS(NREDNO,19)= 0.0
PODMAS(NREDNO,21) = -PODMAS(NREDNO,10)*PODMAS(NREDNO,11)/
1 1000000.0
PODMAS(NREDNO,22) = 0.0
GO TO 33
50 NREDNO = KGRED(I)
INDCL = IABS(KPRIK(I,1))
INDMRL= INDJ(INDCL)
IF(KPRIK(I,1).LT.0) INDMRL = INDI(INDCL)
INDCD = IABS(KPRIK(I,2))
INDMRD= INDJ(INDCD)
IF(KPRIK(I,2).LT.0) INDMRD = INDI(INDCD)
Q0 = 0.50*(QPOC(INDMRL) + QPOC(INDMRD))
H0 = 0.50*(HPOC(INDMRL) + HPOC(INDMRD))
HPROBA = PODSUD(NREDNO,8) + PODSUD(NREDNO,6)/GAMAW - HATM
IF(ABS(HPROBA-H0).LE.TACNST) GO TO 51
WRITE(6,322) NREDNO, INDCL, INDMRL, INDCD, INDMRD,
1 H0, HPROBA, TACNST, HATM, Q0, (PODSUD(NREDNO,M), M=1,15)
STOP 'PODS'
51 PODSUD(NREDNO, 9) = H0
PODSUD(NREDNO,10) = Q0
PODSUD(NREDNO,11) = 0

```

```

PODSUD(NREDNO,12) = PODSUD(NREDNO,6)
PODSUD(NREDNO,13) = PODSUD(NREDNO,7)
PODSUD(NREDNO,14) = PODSUD(NREDNO,8)
GO TO 33
56 NREDNO = KGRED(I)
INDCL = IABS(KPRIK(I,1))
INDMRL = INDJ(INDCL)
IF(KPRIK(I,1).LT.0) INDMRL = INDI(INDCL)
INDCD = IABS(KPRIK(I,2))
INDMRD = INDJ(INDCD)
IF(KPRIK(I,2).LT.0) INDMRD = INDI(INDCD)
KV = 2*NKOMOR(NREDNO,1) + 3
HVOD = 0.50*(HPOC(INDMRL) + HPOC(INDMRD))
QTUN = QPOC(INDMRL)
QVOD = QPOC(INDMRL) - QPOC(INDMRD)
ZVOD = HVOD
IF(ABS(QVOD).LE.0.0010) GO TO 57
IF(QVOD.GT.0) ZVOD = HVOD - VSTAN(NREDNO,1)*QVOD**2
IF(QVOD.LT.0) ZVOD = HVOD + VSTAN(NREDNO,2)*QVOD**2
57 VSTAN(NREDNO,45) = HVOD
VSTAN(NREDNO,46) = QTUN
VSTAN(NREDNO,47) = QVOD
VSTAN(NREDNO,48) = ZVOD
DO 58 L=5,KV,2
IF(ZVOD.LT.VSTAN(NREDNO,L)) GO TO 59

```

58 CONTINUE

L = KV + 2

59 NKOMOR(NREDNO,2) = L - 2

VSTAN(NREDNO,49) = VSTAN(NREDNO,L-1)

33 CONTINUE

C

C KONTROLNA STAMPA ULAZNIH PODATAKA

C

WRITE(6,317)

DO 26 N=1,NCVOR

MMM=KTEZ(N)

26 WRITE(6,301) N,KCVOR(N),KVRSTA(N),MMM,(KPRIK(N,M),M=1,MMM)

WRITE(6,317)

DO 27 I=1,NCEVI

27 WRITE(6,301) I,ICVOR(I),JCVOR(I),INDI(I),INDJ(I)

WRITE(6,318) KOUNT

WRITE(6,319)

RETURN

END

HELEK 3

SUBROUTINE OBRADA

C

C PODPROGRAM ZA PRORACUNAVANJE RAZVOJA HIDR.UDARA

C

```

INCLUDE 'HELPAR'

INCLUDE 'HELCOM'

C =====

C

DIMENSION HZPOM(MAXOGR), QZPOM(MAXOGR), SZPOM(MAXOGR),

1 AFPOM(MAXOGR), CTPOM(MAXOGR), QPOM(MAXOGR), IMPOM(MAXOGR),

2 XPOM(NNTAC), YPOM(NNTAC)

C

C

202 FORMAT(/6I5, 6F15.6/(20X, 7F15.6))

203 FORMAT(1H1, 'INTERNA GRESKA - SUBR OBRADA/GRANICNI USLOV', 6I5/)

204 FORMAT(10I8)

206 FORMAT(I8, 8E15.7)

207 FORMAT(/)

208 FORMAT(// ' STANJE MREZE - T =', F10.4, ' SEC'//)

209 FORMAT(I10, 7F15.6)

210 FORMAT(1H1, 'SUBR OBRADA - POGRESNI UP ZA ISPAD CST', 6I6)

211 FORMAT(1H1, 'SUBR OBRADA - POGRESNI UP ZA MASINU', 6I6)

C

C *** ODREDJIVANJE HPOC I QPOC POMOCU INTERPOLACIJE PO VREMENU

C

DO 1 N=1,KOUNT

IND = ITCEL(N)

HPOC(N) = HIST(IND,N) + TIDEO(N)*(HIST(IND+1,N) - HIST(IND,N))

1 QPOC(N) = QIST(IND,N) + TIDEO(N)*(QIST(IND+1,N) - QIST(IND,N))

```

C

C OBRADA LINIJA/SIRENJE POREMECAJA

C

DO 3 I=1,NCEVI

JPOC = INDI(I) + 1

JKRAJ = INDJ(I) - 1

IF(JKRAJ.LT.JPOC) GO TO 3

DO 2 J=JPOC,JKRAJ

HL = HPOC(J-1)

QL = QPOC(J-1)

HD = HPOC(J+1)

QD = QPOC(J+1)

CLEVO = HL + QL*(AFAKT(J) - CTREN(J)*ABS(QL))

CDESNO= HD - QD*(AFAKT(J) - CTREN(J)*ABS(QD))

HRES(J) = (CLEVO + CDESNO)/2.0

2 QRES(J) = (CLEVO - HRES(J))/AFAKT(J)

3 CONTINUE

C

C OBRADA GRANICNIH USLOVA

C

DO 10 I=1,NCVOR

MMM = KTEZ(I)

DO 9 M=1,MMM

INDC = IABS(KPRIK(I,M))

IF(KPRIK(I,M).GT.0) THEN

SZPOM(M) = +1.0

INDMR = INDJ(INDC) - 1

IMPOM(M) = INDJ(INDC)

ELSE

SZPOM(M) = -1.0

INDMR = INDI(INDC) + 1

IMPOM(M) = INDI(INDC)

ENDIF

AFPOM(M) = AFAKT(INDMR)

CTPOM(M) = CTREN(INDMR)

HZPOM(M) = HPOC(INDMR)

9 QZPOM(M) = QPOC(INDMR)

C

C GRANICNI USLOVI - SITO:

C

IF(KVRSTA(I).EQ.0) GO TO 20

IF(KVRSTA(I).EQ.1) GO TO 22

IF(KVRSTA(I).EQ.2) GO TO 24

IF(KVRSTA(I).EQ.3) GO TO 26

IF(KVRSTA(I).EQ.4) GO TO 30

IF(KVRSTA(I).EQ.8) GO TO 33

IF(KVRSTA(I).EQ.5) GO TO 44

IF(KVRSTA(I).EQ.9) GO TO 48

IF(KVRSTA(I).EQ.7) GO TO 49

C

C MESTO ZA NOVE SIFRE GRANICNIH USLOVA

C

13 WRITE(6,203) I, KCVOR(I), MMM, KVRSTA(I)

STOP 'GRSB'

C *** S P O J 2 C E V I

20 IF(MMM.NE.2) GO TO 13

IF((KPRIK(I,1).GT.0).AND.(KPRIK(I,2).LT.0)) GO TO 21

WRITE(6,204) I, KCVOR(I), MMM, (KPRIK(I,M), M=1,MMM)

GO TO 13

21 IL = IMPOM(1)

ID = IMPOM(2)

CALL SPOJ2C(HZPOM(1), QZPOM(1), HZPOM(2), QZPOM(2), AFPOM(1),

1 CTPOM(1), AFPOM(2), CTPOM(2), HNOVO, QLNOVO, QDNOVO)

HRES(IL) = HNOVO

QRES(IL) = QLNOVO

HRES(ID) = HNOVO

QRES(ID) = QDNOVO

GO TO 10

C *** R A C V A N J E C E V O V O D A

22 III = IMPOM(1)

CALL RACVA(MMM, HZPOM, QZPOM, SZPOM, AFPOM, CTPOM, HNOVO, QPOM)

DO 23 M=1,MMM

III = IMPOM(M)

HRES(III) = HNOVO

23 QRES(III) = QPOM(M)

GO TO 10

C*** JEZERO/REZERVOAR

24 DO 25 M=1,MMM

III = IMPOM(M)

CALL HCONST(HZPOM(M), QZPOM(M), SZPOM(M), AFPOM(M), CTPOM(M),

1 HRES(III), QRES(III), HAFIX(I))

25 CONTINUE

GO TO 10

C*** LOKALNI OTPOR

26 NREDNO = KGRED(I)

IF(MMM.NE.2) GO TO 28

IF((KPRIK(I,1).GT.0).AND.(KPRIK(I,2).LT.0)) GO TO 27

WRITE(6,204) I, KCVOR(I), MMM, (KPRIK(I,M), M=1,MMM)

GO TO 13

27 CALL CETLOK(QZPOM(1), HZPOM(1), QZPOM(2), HZPOM(2), AFPOM(1),

1 CTPOM(1), AFPOM(2), CTPOM(2), 0, CETMER(NREDNO), QNOVO,

2 HLNOVO, HDNOVO, HAFIX(I))

IL = IMPOM(1)

HRES(IL) = HLNOVO

QRES(IL) = QNOVO

ID = IMPOM(2)

HRES(ID) = HDNOVO

QRES(ID) = QNOVO

GO TO 10

28 IF(MMM.NE.1) GO TO 13


```

IF(KPRIK(I,1).GT.0) GO TO 29
CALL CETLOK(0.0, 0.0, QZPOM(1), HZPOM(1), 0.0, 0.0, AFPOM(1),
1 CTPOM(1),-1,CETMER(NREDNO),QNOVO,HLNOVO,HDNOVO,HAFIX(I))
III = IMPOM(1)
HRES(III) = HDNOVO
QRES(III) = QNOVO
GO TO 10
29 CALL CETLOK(QZPOM(1), HZPOM(1), 0.0, 0.0, AFPOM(1), CTPOM(1), 0.0,
1 0.0, +1, CETMER(NREDNO), QNOVO, HLNOVO, HDNOVO, HAFIX(I))
III = IMPOM(1)
HRES(III) = HLNOVO
QRES(III) = QNOVO
GO TO 10
C *** USLOV Q = F(T)
30 NREDNO = KGRED(I)
NTAC = NTQFT(NREDNO)
DO 31 N=1,NTAC
XPOM(N) = TQFT(NREDNO,N)
31 YPOM(N) = QQFT(NREDNO,N)
DO 32 M=1,MMM
III = IMPOM(M)
CALL QFT(HZPOM(M), QZPOM(M), SZPOM(M), AFPOM(M), CTPOM(M),
1 HRES(III), QRES(III), VREME, XPOM, YPOM, NTAC)
32 CONTINUE
GO TO 10

```

```

C *** Z A T V A R A C

33 NREDNO = KGRED(I)

  IF(NMASV(NREDNO).LE.0) THEN

    TCEKA = 0.0

  ELSE

    NNN = NMASV(NREDNO)

    IF(TISPAD(NNN).LT.0.0) TCEKA = VREME

    IF(TISPAD(NNN).GE.0.0) TCEKA = TISPAD(NNN)

  ENDIF

  NTAC = NTZAT(NREDNO)

  DO 34 N=1,NTAC

    XPOM(N) = TZATV(NREDNO,N)

34 YPOM(N) = CDZAT(NREDNO,N)

    IF(MMM.NE.2) GO TO 36

    IF((KPRIK(I,1).GT.0).AND.(KPRIK(I,2).LT.0)) GO TO 35

    WRITE(6,204) I, KCVOR(I), MMM, (KPRIK(I,M), M=1,MMM)

    GO TO 13

35 IL = IMPOM(1)

    ID = IMPOM(2)

    CALL VALVE(QZPOM(1), HZPOM(1), QZPOM(2), HZPOM(2), AFPOM(1),
1 CTPOM(1), AFPOM(2), CTPOM(2), 0, QNOVO, HLNOVO, HDNOVO,
2 AZATV(NREDNO), VREME, TCEKA, XPOM, YPOM, NTAC, HAFIX(I),
3 CETAZ(NREDNO))

    HRES(IL) = HLNOVO

    QRES(IL) = QNOVO

```

```

HRES(ID) = HDNOVO
QRES(ID) = QNOVO
GO TO 38
36 IF(MMM.NE.1) GO TO 13
IF(KPRIK(I,1).GT.0) GO TO 37
ID = IMPOM(1)
CALL VALVE(0.0, 0.0, QZPOM(1), HZPOM(1), 0.0, 0.0, AFPOM(1),
1 CTPOM(1), -1, QNOVO, HLNOVO, HDNOVO, AZATV(NREDNO), VREME,
2 TCEKA, XPOM, YPOM, NTAC, HAFIX(I), CETAZ(NREDNO))
HRES(ID) = HDNOVO
QRES(ID) = QNOVO
GO TO 38
37 IL = IMPOM(1)
CALL VALVE(QZPOM(1), HZPOM(1), 0.0, 0.0, AFPOM(1), CTPOM(1),
1 0.0, 0.0, +1, QNOVO, HLNOVO, HDNOVO, AZATV(NREDNO), VREME,
2 TCEKA, XPOM, YPOM, NTAC, HAFIX(I), CETAZ(NREDNO))
HRES(IL) = HLNOVO
QRES(IL) = QNOVO
38 IF(QNOVO.GT.QZAMAX(NREDNO)) QZAMAX(NREDNO) = QNOVO
IF(QNOVO.LT.QZAMIN(NREDNO)) QZAMIN(NREDNO) = QNOVO
GO TO 10
C *** T U R B O M A S I N A
44 NREDNO = KGRED(I)
IF(MMM.NE.2) GO TO 46
IF((KPRIK(I,1).GT.0).AND.(KPRIK(I,2).LT.0)) GO TO 45

```

```

WRITE(6,204) I, KCVOR(I), MMM, (KPRIK(I,M), M=1,MMM)

GO TO 13

45 CALL MASINA(QZPOM(1), HZPOM(1), QZPOM(2), HZPOM(2),
1 AFPOM(1), CTPOM(1), AFPOM(2), CTPOM(2), NREDNO, 0, HLRES,
2 HDRES, QRESEN)

IL = IMPOM (1)

HRES(IL) = HLRES

QRES(IL) = QRESEN

ID = IMPOM(2)

HRES(ID) = HDRES

QRES(ID) = QRESEN

GO TO 10

46 IF(MMM.NE.1) GO TO 13

IF(KPRIK(I,1).LT.0) GO TO 47

WRITE(6,211) I, KCVOR(I), MMM, KVRSTA(I), KPRIK(I,1), NREDNO

STOP 'KPRM'

47 CALL MASINA(0.0, 0.0, QZPOM(1), HZPOM(1), 0.0, 0.0,
1 AFPOM(1), CTPOM(1), NREDNO, -1, HLRES, HDRES, QRESEN)

ID = IMPOM(1)

HRES(ID) = HDRES

QRES(ID) = QRESEN

GO TO 10

C *** H I D R O F O R S K I   K A Z A N

48 NREDNO = KGRED(I)

CALL KAZAN(QZPOM(1), HZPOM(1), QZPOM(2), HZPOM(2),

```

1 AFPOM(1), CTPOM(1), AFPOM(2), CTPOM(2), NREDNO,

2 HNRES, QLRES, QDRES)

IL = IMPOM(1)

HRES(IL) = HNRES

QRES(IL) = QLRES

ID = IMPOM(2)

HRES(ID) = HNRES

QRES(ID) = QDRES

GO TO 10

C *** V O D O S T A N

49 NREDNO = KGRED(I)

CALL VDSTAN(QZPOM(1), HZPOM(1), QZPOM(2), HZPOM(2),

1 AFPOM(1), CTPOM(1), AFPOM(1), CTPOM(1), AFPOM(2), CTPOM(2),

2 AFPOM(2), CTPOM(2), NREDNO, HNRES, QLRES, QDRES, +1.0, +1.0)

IL = IMPOM(1)

HRES(IL) = HNRES

QRES(IL) = QLRES

ID = IMPOM(2)

HRES(ID) = HNRES

QRES(ID) = QDRES

C

C MESTO ZA NOVE GRANICNE USLOVE

C

10 CONTINUE

C

C *** SREDJIVANJE M R E Z E ZA SLEDECI KORAK RACUNICE!

C

DO 50 N=1,KOUNT

DO 51 M=MAXIST,2,-1

HIST(M,N) = HIST(M-1,N)

51 QIST(M,N) = QIST(M-1,N)

HIST(1,N) = HRES(N)

50 QIST(1,N) = QRES(N)

RETURN

END

C =====

SUBROUTINE PECAT(LLRED)

C

C Podprogram 'PECAT' - prenosi rezultate u file *8* (DIRECT)

C

INCLUDE 'HELPAR'

INCLUDE 'HELCOM'

C =====

C

DIMENSION QPOM(4), HPOM(4), BLOKF8(NBUFFER)

C

C ===== REDOVNO PUNJENJE DATOTEKE '8' =====

C

DO 1 I=1,NCVOR

IF(KVRSTA(I).EQ.5) GO TO 2

IF(KVRSTA(I).EQ.7) GO TO 4

IF(KVRSTA(I).EQ.8) GO TO 5

IF(KVRSTA(I).EQ.9) GO TO 9

GO TO 1

C*** Turbomasina

2 NREDNO = KGRED(I)

IADR = NSADRZ + LLLMAS*(NREDNO-1)

BLOKF8(IADR+1) = VREME

BLOKF8(IADR+2) = PODMAS(NREDNO,8)

BLOKF8(IADR+3) = PODMAS(NREDNO,10)

BLOKF8(IADR+4) = PODMAS(NREDNO,11)

BLOKF8(IADR+5) = PODMAS(NREDNO,12)

BLOKF8(IADR+6) = PODMAS(NREDNO,13)

BLOKF8(IADR+7) = PODMAS(NREDNO,14)

BLOKF8(IADR+8) = PODMAS(NREDNO,17)

BLOKF8(IADR+9) = PODMAS(NREDNO,18)

BLOKF8(IADR+10)= PODMAS(NREDNO,19)

BLOKF8(IADR+11)= PODMAS(NREDNO,20)

BLOKF8(IADR+12)= PODMAS(NREDNO,21)

BLOKF8(IADR+13)= PODMAS(NREDNO,22)

BLOKF8(IADR+14)= PODMAS(NREDNO,23)

GO TO 1

C*** Vodostan

4 NREDNO = KGRED(I)

IADR = NSADRZ + LLLMAS*NMASIN + LLLVST*(NREDNO-1)

```
BLOKF8(IADR+1) = VREME
BLOKF8(IADR+2) = VSTAN(NREDNO,45)
BLOKF8(IADR+3) = VSTAN(NREDNO,48)
BLOKF8(IADR+4) = VSTAN(NREDNO,47)
BLOKF8(IADR+5) = VSTAN(NREDNO,49)
GO TO 1
```

```
C ***      Z a t v a r a c .....

```

```
5 NREDNO = KGRED(I)
MMM = KTEZ(I)
IF(MMM.NE.2) GO TO 6
INDCL = IABS(KPRIK(I,1))
INDCD = IABS(KPRIK(I,2))
INDML = INDJ(INDCL)
INDMD = INDI(INDCD)
QTEK = QPOC(INDML)
HLEVO = HPOC(INDML)
HDESNO = HPOC(INDMD)
GO TO 8
6 IF(KPRIK(I,1).LT.0) GO TO 7
INDCL = IABS(KPRIK(I,1))
INDML = INDJ(INDCL)
QTEK = QPOC(INDML)
HLEVO = HPOC(INDML)
HDESNO = HAFIX(I)
GO TO 8
```


7 INDCD = IABS(KPRIK(I,1))

INDMD = INDI(INDCD)

QTEK = QPOC(INDMD)

HLEVO = HAFIX(I)

HDESNO = HPOC(INDMD)

8 IADR = NSADRZ + LLLMAS*NMASIN +

1 LLLVST*NVODST + LLLZAT*(NREDNO-1)

BLOKF8(IADR+1) = VREME

BLOKF8(IADR+2) = 0.0

BLOKF8(IADR+3) = CETAZ(NREDNO)

BLOKF8(IADR+4) = QTEK

BLOKF8(IADR+5) = HLEVO

BLOKF8(IADR+6) = HDESNO

GO TO 1

C *** Hidrofor

9 NREDNO = KGRED(I)

IADR = NSADRZ + LLLMAS*NMASIN + LLLVST*NVODST

1 + LLLZAT*NZATV + LLLHID*(NREDNO-1)

BLOKF8(IADR+1) = VREME

BLOKF8(IADR+2) = PODSUD(NREDNO,12)

BLOKF8(IADR+3) = PODSUD(NREDNO,14)

BLOKF8(IADR+4) = PODSUD(NREDNO,11)

BLOKF8(IADR+5) = PODSUD(NREDNO,13)

BLOKF8(IADR+6) = PODSUD(NREDNO,9)

1 CONTINUE

```

C ***      Obicne tacke u sistemu .....

NREDNO = 0

DO 10 I=1,NCEVI

IF(NKARTX(I).LE.0) GO TO 10

JDON = INDI(I)

JGOR = INDJ(I)

JJJ = JDON+1

NNN = NKARTX(I)

DO 11 N=1,4

QPOM(N) = 0.0

HPOM(N) = 0.0

IF(N.GT.NNN) GO TO 11

DO 12 J=JJJ,JGOR

IF(XKART(I,N).LE.ABSC(J)) GO TO 13

12 CONTINUE

J = JGOR

13 FLIN = (XKART(I,N)-ABSC(J-1))/(ABSC(J)-ABSC(J-1))

QPOM(N) = QPOC(J-1) + FLIN*(QPOC(J) - QPOC(J-1))

HPOM(N) = HPOC(J-1) + FLIN*(HPOC(J) - HPOC(J-1))

11 CONTINUE

NREDNO = NREDNO + 1

IADR = NSADRZ + LLLMAS*NMASIN + LLLVST*NVODST

1 + LLLZAT*NZATV + LLLHID*NHIDR + LLLKAR*(NREDNO-1)

BLOKF8(IADR+1) = VREME

BLOKF8(IADR+2) = QPOM(1)

```

BLOKF8(IADR+3) = HPOM(1)

BLOKF8(IADR+4) = QPOM(2)

BLOKF8(IADR+5) = HPOM(2)

BLOKF8(IADR+6) = QPOM(3)

BLOKF8(IADR+7) = HPOM(3)

BLOKF8(IADR+8) = QPOM(4)

BLOKF8(IADR+9) = HPOM(4)

10 CONTINUE

C

C ===== Dopunjavanje BUFFER-A završeno: TRANSFER? =====

C

NSADRZ = NSADRZ + NRECI

KONTRA = KONTRA + 1

IF((KONTRA.LT.NSLOG).AND.(LLRED.GE.0)) GO TO 99

C *** Transfer na DISK (datoteka '8')

NTRANS = NTRANS + 1

WRITE(UNIT=8,REC=NTRANS) (BLOKF8(M), M=1,NBUFFER)

C

C Cane: Nov 2010

c

220 FORMAT(512E15.7)

WRITE(9,220) (BLOKF8(M), M=1,NBUFFER)

C

DO 21 M=1,NBUFFER

21 BLOKF8(M) = 0.0

NSADRZ = 0

KONTRA = 0

99 RETURN

END

HELEK 4

SUBROUTINE VALVE(QL, HL, QD, HD, ALFAL, BETAL, ALFAD, BETAD,

1 KONTRL, QZ, HZL, HZD, AREA, TSTV, TCEKA, TZAT, ZKD, NTAC,

2 HFIX, CETA)

C

C POTPROGRAM 'ZATVARAC' : KD = F(T)

C KONTRL = -1 - AKUMULACIJA UZVODNO OD ZATVARACA (LEVO)

C KONTRL = +1 - AKUMULACIJA NIZVODNO OD ZATVARACA (DESNO)

C KONTRL = 0 - ZATVARAC UNUTAR SISTEMA

C

DIMENSION TZAT(1), ZKD(1)

C

C

CLEVO = HL + ALFAL*QL - 0.5*BETAL*ABS(QL)*QL

CDESNO= HD - ALFAD*QD + 0.5*BETAD*ABS(QD)*QD

IF(KONTRL.LT.0) CLEVO = HFIX

IF(KONTRL.GT.0) CDESNO= HFIX

C

C *** OBICAN ZATVARAC RADI PO ZAKONU KD = F(T), TCEKA = 0.0,

C REGULATOR PRITISKA (SV) CEKA NA ISPAD TURBINE!

C

T = TSTV - TCEKA

DO 1 N=2,NTAC

IF(T.LE.TZAT(N)) GO TO 2

1 CONTINUE

N=NTAC

2 COEFKD = ZKD(N-1) + (ZKD(N)-ZKD(N-1))*(T-TZAT(N-1))/(TZAT(N) -
1 TZAT(N-1))

IF(COEFKD.LT.1.0 E-10) COEFKD = 1.0 E-10

CETA = 1.0/(COEFKD**2) - 1.0

IF(CETA.LE.0.0000001) CETA = 1.0 E-10

AKOEF = CETA/(19.62*AREA**2) + 0.5*(BETAL+BETAD)

BKOEf = ALFAL + ALFAD

CKOEF = CDESNO - CLEVO

IF(ABS(AKOEF).LT.1.0 E-20) GO TO 5

IF(ABS(CKOEF).LT.1.0 E-20) GO TO 4

DISKR = BKOEf*BKOEf + 4.0*AKOEF*ABS(CKOEF)

IF(CKOEF.GT.0) QZ=+(BKOEf - SQRT(DISKR))/(2.0*AKOEF)

IF(CKOEF.LT.0) QZ=-(BKOEf - SQRT(DISKR))/(2.0*AKOEF)

3 HZL = CLEVO - ALFAL*QZ- 0.5*BETAL*ABS(QZ)*QZ

HZD = CDESNO+ ALFAD*QZ+ 0.5*BETAD*ABS(QZ)*QZ

IF(KONTRL.LT.0) HZL = HFIX

IF(KONTRL.GT.0) HZD = HFIX

RETURN

4 QZ = 0.0

GO TO 3

5 QZ = -CKOEF/BKOEF

GO TO 3

END

C =====

SUBROUTINE CETLOK(QL, HL, QD, HD, ALFAL, BETAL, ALFAD, BETAD,

1 KONTRL, CETMER, QZ, HZL, HZD, HFIX)

C

C POTPROGRAM 'LOKALNI OTPOR': CETA = CONST.

C KONTRL = -1 - AKUMULACIJA UZVODNO OD LOK. OTPORA (LEVO)

C KONTRL = +1 - AKUMULACIJA NIZVODNO OD LOK. OTPORA (DESNO)

C KONTRL = 0 - LOK. OTPOR UNUTAR SISTEMA

C

C CETMER = CETA/(2*GE*A**2)

C

CLEVO = HL + ALFAL*QL - 0.5*BETAL*ABS(QL)*QL

CDESNO= HD - ALFAD*QD + 0.5*BETAD*ABS(QD)*QD

IF(KONTRL.LT.0) CLEVO = HFIX

IF(KONTRL.GT.0) CDESNO= HFIX

AKOEF = CETMER + 0.50*(BETAL + BETAD)

BKOEF = ALFAL + ALFAD

CKOEF = CDESNO - CLEVO

IF(ABS(AKOEF).LT.1.0 E-20) GO TO 5

IF(ABS(CKOEF).LT.1.0 E-20) GO TO 4

DISKR = BKOEF*BKOEF + 4.0*AKOEF*ABS(CKOEF)

IF(CKOEF.GT.0) QZ=+(BKOEF - SQRT(DISKR))/(2.0*AKOEF)

IF(CKOEF.LT.0) QZ=- (BKOEF - SQRT(DISKR))/(2.0*AKOEF)

3 HZL = CLEVO - ALFAL*QZ- 0.5*BETAL*ABS(QZ)*QZ

HZD = CDESNO+ ALFAD*QZ+ 0.5*BETAD*ABS(QZ)*QZ

IF(KONTRL.LT.0) HZL = HFIX

IF(KONTRL.GT.0) HZD = HFIX

RETURN

4 QZ = 0.0

GO TO 3

5 QZ = -CKOEF/BKOEF

GO TO 3

END

C =====

SUBROUTINE SPOJ2C(HL, QL, HD, QD, AFAKL, CTRENL, AFAKD, CTREND,

2 HRES, QLRES, QDRES)

C

C PODPROGRAM ZA RESAVANJE SPOJA 2 CEVI

C

CLEVO = HL + QL*(AFAKL - CTRENL*ABS(QL))

CDESNO = HD - QD*(AFAKD - CTREND*ABS(QD))

QLRES = (CLEVO - CDESNO)/(AFAKL + AFAKD)

QDRES = QLRES

HRES = CLEVO - AFAKL*QLRES

RETURN

END

C =====

SUBROUTINE RACVA(NGRAN, HZ, QZ, SZNAK, AFAKZ, CTREZ, HRES, QRES)

C

C PODPROGRAM ZA RESAVANJE RACVE SA 'NGRAN' CEVI

C

DIMENSION HZ(1), QZ(1), SZNAK(1), AFAKZ(1), CTREZ(1), QRES(1)

C

GORE = 0.0

DOLE = 0.0

DO 1 N=1,NGRAN

GORE = GORE + SZNAK(N)*QZ(N) + (HZ(N) - SZNAK(N)*

1 CTREZ(N)*ABS(QZ(N))*QZ(N))/AFAKZ(N)

DOLE = DOLE + 1.0/AFAKZ(N)

1 CONTINUE

HRES = GORE/DOLE

DO 6 N=1,NGRAN

QRES(N) = QZ(N) + (HZ(N)-HRES)/(SZNAK(N)*AFAKZ(N)) -

1 CTREZ(N)*ABS(QZ(N))*QZ(N)/AFAKZ(N)

6 CONTINUE

RETURN

END

C =====

SUBROUTINE HCONST(HZ, QZ, SZNAK, AFAKZ, CTREZ, HRES, QRES, HFIX)

C

C PODPROGRAM H = CONST/REZERVOAR, AKUMULACIJA

C

HRES = HFIX

QRES = QZ + SZNAK*(HZ-HFIX)/AFAKZ - CTRENTZ*ABS(QZ)*QZ/AFAKZ

RETURN

END

C =====

SUBROUTINE QFT(HZ, QZ, SZNAK, AFAKZ, CTRENTZ, HRES, QRES,

1 VREME, TQFT, QZFT, NTAC)

C

C PODPROGRAM Q = F(T)/HIDROGRAM

C

DIMENSION TQFT(1), QZFT(1)

C

C

DO 1 N=2,NTAC

IF(VREME.LE.TQFT(N)) GO TO 2

1 CONTINUE

N = NTAC

2 QRES = QZFT(N-1) + (QZFT(N)-QZFT(N-1))*

1 (VREME-TQFT(N-1))/(TQFT(N)-TQFT(N-1))

HRES = HZ + SZNAK*(AFAKZ*(QZ - QRES) - CTRENTZ*ABS(QZ)*QZ)

RETURN

END

C =====

SUBROUTINE KAZAN(QL, HL, QD, HD, ALFAL, BETAL,

```

1 ALFAD, BETAD, NREDNO, HNRES, QLRES, QDRES)
C
C PODPROGRAM 'VETRENIK'/HIDROFORSKI KAZAN
C
  INCLUDE 'HELPAR'
  INCLUDE 'HELCOM'
C =====
C
C REDOSLED U 'PODSUD':
C  VINST, AS, RUL, RIST, CONST, PO, VO, ZO, H, Q, QV, P, V, Z, -
C  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
C
  100 FORMAT(// ' SUBR KAZAN-MAXIT:', 5I6/(8F15.6))
  101 FORMAT(// ' SUBR KAZAN-MEDSTA', 3I6/(10F13.5))
C
C
  CLEVO = HL + ALFAL*QL - BETAL*ABS(QL)*QL
  CDESNO= HD - ALFAD*QD + BETAD*ABS(QD)*QD
  IKONT = -1
  REGULA = -1.0
  DHPRIR = 0.500
  HPROBA = PODSUD(NREDNO,9)
  ITER = 0
1 ITER = ITER + 1
  QLRES = (CLEVO - HPROBA)/ALFAL

```

```

QDRES = (HPROBA- CDESNO)/ALFAD
QV = QLRES - QDRES
Z = PODSUD(NREDNO,14)+DELTAT*QV/PODSUD(NREDNO,2)
V = PODSUD(NREDNO,13)-DELTAT*QV
P = PODSUD(NREDNO,6)*(PODSUD(NREDNO,7)/V)**EPOLYT
IF(QV.GE.0.0) R = PODSUD(NREDNO,3)
IF(QV.LT.0.0) R = PODSUD(NREDNO,4)
HKOM = P/GAMAW + Z + R*ABS(QV)*QV - HATM
YNOVO = HPROBA - HKOM
IF(ABS(YNOVO).LT.TACNST) GO TO 8
IF(ITER.LE.MAXIT) GO TO 9
C *** DIVERGIRA - NIJE NASAO RESENJA!
WRITE(6,100) NREDNO, ITER, MAXIT, NREDNO, IKONT, HPROBA, HKOM,
1 TACNST, REGULA, DHPRIR, QV, Z, P, V, R, QLRES, QDRES,
2 (PODSUD(NREDNO,M), M=1,15), X1, Y1, X2, Y2, YNOVO, VREME
GO TO 12
9 IF(IKONT.GT.0) GO TO 30
IKONT = +1
X1 = HPROBA
Y1 = YNOVO
HPROBA = HPROBA + DHPRIR
GO TO 1
30 IF(REGULA.GT.0) GO TO 35
X2 = HPROBA
Y2 = YNOVO

```

```

IF((Y1*Y2).LT.0) GO TO 34
IF(ABS(Y1).LT.ABS(Y2)) GO TO 33
HPROBA = 2.0*X2 - X1
Y1 = Y2
X1 = X2
GO TO 1
33 HPROBA = 2.0*X1 - X2
GO TO 1
34 REGULA = +1.0
32 HPROBA = (Y1*X2 - Y2*X1)/(Y1 - Y2)
GO TO 1
35 IF((Y1*YNOVO).GT.0) GO TO 36
Y2 = YNOVO
X2 = HPROBA
GO TO 32
36 Y1 = YNOVO
X1 = HPROBA
GO TO 32
C
C ERGRE EXIT
C
12 IF(ABS(YNOVO).GT.(10.0*TACNST)) STOP 'KAZAN'
C
C ===== NASAO RESENJE =====
C

```

8 HNRES = (HPROBA + HKOM)/2.0

PODSUD(NREDNO, 9) = HNRES

PODSUD(NREDNO,10) = QLRES

PODSUD(NREDNO,11) = QV

PODSUD(NREDNO,12) = P

PODSUD(NREDNO,13) = V

PODSUD(NREDNO,14) = Z

RETURN

END

C

C =====

C

SUBROUTINE VDSTAN (QLEVO, HLEVO, QDESNO, HDESNO, CALL, CBETL,

1 CALFAL, CBETAL, CALFAD, CBETAD, CALD, CBETD, N, H, QL, QD,

2 ZNAKQL, ZNAKQD)

C

C

INCLUDE 'HELPAR'

INCLUDE 'HELCOM'

C =====

C

C PODACI SU SLOZENI OVIM REDOM: R1,R2,B,M(KONSTANTE PRIGUSENJA I PRELIVA),MAX

C 19 PAROVA Z,A(Z), 44-TO MESTO:Q-PRELIVA , H , Q , QV , Z , A(Z) , Z-PRELIVA

C 44 , 45, 46, 47 ,48 , 49 , 50

C

1 FORMAT (1H1,'NE KONVERGIRA - VODOSTAN'////(I10, 5E20.7))

C

C

CLEVO = HLEVO + ZNAKQL*CALL*QLEVO - 0.5*ZNAKQL*CBETL*ABS(QLEVO)

1 *QLEVO

CDESNO = HDESNO - ZNAKQD*CALD*QDESNO+ 0.5*ZNAKQD*CBETD*

1 ABS(QDESNO)*QDESNO

CALFAL = CALFAL*ZNAKQL

CBETAL = CBETAL*ZNAKQL

CALFAD = CALFAD*ZNAKQD

CBETAD = CBETAD*ZNAKQD

KRAJ = 2*NKOMOR(N,1) + 3

IPOC = NKOMOR(N,2) + 2

ZDON = VSTAN(N,48)

HPRED = VSTAN(N,45)

QPRED = VSTAN(N,46)

QVPR = VSTAN(N,47)

ZPRED = VSTAN(N,48)

APRED = VSTAN(N,49)

CSPIL=VSTAN(N,3)*VSTAN(N,4)*4.42945

QPREL=VSTAN(N,44)

PRELIV=QPREL

ZAPRM=0.

ITER = 0

C

```

3 ITER = ITER + 1

B1 = CLEVO - 0.5*CBETAL*ABS(QPRED)*QPRED

B2 = CDESNO + 0.5*CBETAD*ABS(QPRED-QVPR)*(QPRED-QVPR)

B4 = ZPRED - ZAPRM/APRED

R = VSTAN(N,1)

IF (QVPR.GT.0.) GO TO 4

R = VSTAN(N,2)

4 DELTA = -(CALFAD+CALFAL)*(R*ABS(QVPR) + (DELTAT/APRED)) -
1 CALFAD*CALFAL

C
Q = ((R*ABS(QVPR)+(DELTAT/APRED))*(B2-B1)- CALFAD*(B1-B4))/DELTA
QV = -(CALFAD*(B1-B4) + CALFAL*(B2-B4))/DELTA
Z = B4 +(DELTAT/APRED)*(QV-PRELIV)
H = Z + R*ABS(QV)*QV

C
QSPIL=0
PRELIV=0
DO 5 I=5,KRAJ,2
5 IF(Z.LT.VSTAN(N,I))GO TO 6

C
C PRELIVANJE - RAJKO MART , 84

C
QSPIL=CSPIL*(Z-VSTAN(N,50))**1.5
PRELIV=(QSPIL+QPREL)*0.5

GO TO 10

```

C

C NEMA PRELIVANJA

C

6 IF(ABS(APRED-VSTAN(N,I-1)).LT.0.00001)GO TO 10

IF(QV.LT.0.) GO TO 11

ZAPRM = 0.

IFIN = I-2

IF (IPOC.GT.IFIN) GO TO 12

DO 13 K=IPOC,IFIN,2

ZAPRM = ZAPRM + VSTAN(N,K-1)*(VSTAN(N,K) - ZDON)

13 ZDON = VSTAN(N,K)

12 ZPRED = VSTAN(N,I-2)

APRED = VSTAN(N,I-1)

GO TO 14

C VODOSTAN SE PRAZNI

11 ZGOR = VSTAN(N,48)

IFIN = I - 2

IPOC = NKOMOR(N,2)

IF(IPOC.LT.IFIN) GO TO 16

DO 15 K=IPOC,IFIN,-2

ZAPRM = ZAPRM - VSTAN(N,K+1)*(ZGOR - VSTAN(N,K))

15 ZGOR = VSTAN(N,K)

16 ZPRED = VSTAN(N,IFIN)

APRED = VSTAN(N,IFIN+1)

C KONTROLA KONVERGENCIJE

14 IF(ITER.LE.MAXIT) GO TO 3

WRITE(6,1) N,H,Q,QV,Z,R,NKOMOR(N,1),B1,B2,B4,DELTA,R,NKOMOR(N,2),

1 VSTAN(N,45),VSTAN(N,46),VSTAN(N,47),VSTAN(N,48),VSTAN(N,49)

STOP 'VODS'

C KONTROLA REZULTATA

10 IF(ABS(H-HPRED).LT.TACNST) GO TO 17

HPRED = H

QPRED = Q

QVPR = QV

GO TO 14

C SREDJIVANJE REZULTATA

17 VSTAN(N,45) = H

VSTAN(N,46) = Q

VSTAN(N,47) = QV

VSTAN(N,48) = Z

VSTAN(N,49) = APRED

VSTAN(N,44) = QSPIL

NKOMOR(N,2) = I-2

QL = Q

QD = Q - QV

RETURN

END

HELEK 5

SUBROUTINE MASINA(QL, HL, QD, HD, ALFAL, BETAL, ALFAD, BETAD,

```

1   NREDNO, KOHFIX, HLRES, HDRES, QRESEN)
C
C ===== Podprogram za resavanje TURBOMASINA SA REGULATOROM =====
C
C   INCLUDE 'HELPAR'
C
C   INCLUDE 'HELCOM'
C   =====
C
C Red u 'PODMAS': Y0, Q0, OM0, M0, J, CETA, Q", Q', M", M'
C   ===== 1 2 3 4 5 6 7 8 9 10
C           OM, YH, H', H", X, XT, Y1, Y, E, AS,
C           11 12 13 14 15 16 17 18 19 20
C           PE, RM, YD
C           21 22 23
C
C Status regulatora (KSTATU): +2, BRZO OTVARANJE S.A.,
C           +1, OTVARA S.A. (REGULATOR),
C           0, USTALJENO STRANJE (NEUTRALNO),
C           -1, ZATVARA S.A. (REGULATOR),
C           -2, BRZO ZATVARANJE + IDE NA PRAZNI HOD,
C           -3, BRZO ZAUSTAVLJANJE MASINE.
C Cane, decembar 2010
C
C Drugi red ul.podatak KSIZAD = ISVM dodeljuje KSTATU = -3
C

```

C

```
100 FORMAT(// ' SUBR MASINA - MAXIT:', 4I6, F15.4/(8F15.6))
101 FORMAT(/ '++++MEDSTA - MASINA:', 2I6, 'T =', F10.5/(8E15.6))
102 FORMAT(/ 5X, 'MEDSTA - MASINA:', 2I6, F10.5/(8E15.6))
103 FORMAT(/ 5X, 'MASINA - AS GRAN:', I6, F10.5/(8E15.6))
105 FORMAT(' ===== G O T O V O =====')
```

C

C

```
IF(MEDSTA.EQ.1) WRITE(6,101) NREDNO, NMASIN, VREME,
1 (PODMAS(NREDNO,M), M=1,2,3), TUKREG(NREDNO), TISPAD(NREDNO)
DT2 = DELTAT/2.0
DASA = ASGRAN(NREDNO)/11.0
KLJUC3 = 0 ! KLJUC3 NUCEMU NE SLUZI. CANE
IKONT = -1
REGULA = -1.0
DOJED = +1.0
FFF = 0.0
```

C

```
C ===== ODREDJIVANJE MAX BRZINE ZATVARANJA =====
```

C

```
YSVEL = YOS(NREDNO)*PODMAS(NREDNO,18)
DYDTMX(NREDNO) = DYDT1(NREDNO)
IF(YSVEL.LT.SVM2BR(NREDNO)) DYDTMX(NREDNO) = DYDT2(NREDNO)
IF(YSVEL.LT.SVM3BR(NREDNO)) DYDTMX(NREDNO) = DYDT3(NREDNO)
DELTOM = 100.0*(-PODMAS(NREDNO,11)/PODMAS(NREDNO,3) - 1.0)
```

```

IF(TUKREG(NREDNO).GT.0.0) GO TO 6
C *** PRVI ULAZAK U REGULATOR
IF(ABS(DELTOM).LE.OSETRE(NREDNO)) GO TO 5
C *** REGULATOR SE POKRENUO!
TUKREG(NREDNO) = VREME
6 IF(KSTATU(NREDNO).EQ.-3) GO TO 5
IF(DELTOM.GT.0.0) KSTATU(NREDNO) = -1
KSTATU(NREDNO) = KSTATU(NREDNO)
IF(DELTOM.LT.0.0) KSTATU(NREDNO) = +1
KSTATU(NREDNO) = KSTATU(NREDNO)
IF(DELTOM.GT.GRABRZ(NREDNO)) KSTATU(NREDNO) = -3
KSTATU(NREDNO) = KSTATU(NREDNO)
IF(DELTOM.LT.DONBRZ(NREDNO)) KSTATU(NREDNO) = +2
KSTATU(NREDNO) = KSTATU(NREDNO)
5 CLEVO = HL + ALFAL*QL - 0.50*BETAL*ABS(QL)*QL
CDESNO= HD - ALFAD*QD + 0.50*BETAD*ABS(QD)*QD
IF(MEDSTA.EQ.1) WRITE(6,102) NREDNO, KSTATU(NREDNO), VREME,
1 OSETRE(NREDNO), DELTOM, TUKREG(NREDNO), TISPAD(NREDNO)
IF(KOHFIX.LT.0) CLEVO = HMASFI(NREDNO)
IF(KOHFIX.GT.0) CDESNO = HMASFI(NREDNO)
PELTEK = PELM(1,NREDNO)
CTEK = CREGUL(1,NREDNO)
NNN = NTELM(NREDNO)
IF(NNN.LE.1) GO TO 4
DO 1 I=2,NNN

```

```

IF(VREME.LE.VRELM(I,NREDNO)) GO TO 2
1 CONTINUE
I = NNN
2 XXX=(VREME-VRELM(I-1,NREDNO))/(VRELM(I,NREDNO)-VRELM(I-1,NREDNO))
PELTEK = PELM(I-1,NREDNO) + XXX*(PELM(I,NREDNO)-PELM(I-1,NREDNO))
CTEK = CREGUL(I-1,NREDNO)+XXX*(CREGUL(I,NREDNO)-CREGUL(I-1,NREDNO))
4 IF(KSTATU(NREDNO).GT.-2) GO TO 3
C *** SAMOISKLJUCIVANJE MASINE!
PELTEK = 0.0
CTEK = 0.0
IF(TISPAD(NREDNO).LT.0.0) TISPAD(NREDNO) = VREME
3 PELTEK = 1000000.0*PELTEK*ABS(PODMAS(NREDNO,11)/PODMAS(NREDNO,3))
RAZMST = 1000000.0*PODMAS(NREDNO,21)/ABS(PODMAS(NREDNO,11)) -
1 PODMAS(NREDNO,10)
OMEGA = PODMAS(NREDNO,11)
CONST = PODMAS(NREDNO,6)/(2.0*GE*ASPIR(NREDNO)*ASPIR(NREDNO))
QPRED = 2.0*PODMAS(NREDNO,8) - PODMAS(NREDNO,7)
TPRED = 2.0*PODMAS(NREDNO,10) - PODMAS(NREDNO,9)
IF(MEDSTA.EQ.1) WRITE(6,102) I, NNN, VREME, QL, HL, QD, HD,
1 ALFAL, BETAL, ALFAD, BETAD, CLEVO, CDESNO, PELTEK, RAZMST,
2 CTEK, CONST, QPRED, TPRED
Y1ST = PODMAS(NREDNO,17)
YST = PODMAS(NREDNO,18)
EST = PODMAS(NREDNO,19)
RMST = PODMAS(NREDNO,22)

```

Y1TEK = Y1ST

YTEK = YST

ETEK = EST

RMTEK = RMST

ITERA = 0

10 ITERA = ITERA + 1

HISP = CLEVO - ALFAL*ZNAKQ(NREDNO)*QPRED

1 - 0.50*BETAL*ABS(QPRED)*ZNAKQ(NREDNO)*QPRED

HIZA = CDESNO + ALFAD*ZNAKQ(NREDNO)*QPRED

1 + 0.50*BETAD*ABS(QPRED)*ZNAKQ(NREDNO)*QPRED

IF(KOHFIX.LT.0) HISP = HMASFI(NREDNO)

IF(KOHFIX.GT.0) HIZA = HMASFI(NREDNO)

HUDAR = HISP - HIZA

C

C ===== UNUTRASNI KRUG =====

C

ITERB = 0

40 ITERB = ITERB + 1

ELMOM = PELTEK/ABS(OMEGA)

RAZMOM = ELMOM - TPRED

SUMAM = (RAZMOM + RAZMST)/2.0

OMEGA = PODMAS(NREDNO,11) + DELTAT*SUMAM/PODMAS(NREDNO,5)

XTEK = ABS(OMEGA)/PODMAS(NREDNO,3) - 1.0

XTAC = (XTEK - PODMAS(NREDNO,15))/DELTAT

ASATEK = PODMAS(NREDNO,20)

IF(TUKREG(NREDNO).LT.0.0) GO TO 46

C *** KASNJENJE REGULATORA

IF(VREME.LT.(TUKREG(NREDNO)+DTKASN(NREDNO))) GO TO 46

IF((KSTATU(NREDNO).GE.-1).AND.(KSTATU(NREDNO).LE.+1)) GO TO 9

C *** REGULATOR IDE PO PROGRAMU!

IF(KSTATU(NREDNO).GE.+2) GO TO 19

C

C ===== REGULATOR BRZINE ISKLJUCEN, BRZO ZATVARANJE =====

C

DELY = -DELTAT*DYDTMX(NREDNO)

YTEK = YST + DELY

Y1TEK = -1.0

ETEK = 0.0

RMTEK = XTEK + XTAC*TN(NREDNO)

GO TO 38

C

C ===== BRZO OTVARANJE S.A. PRI STARTU =====

C

19 DELY = DELTAT*ODYDT(NREDNO)

YTEK = YST + DELY

Y1TEK = +1.0

ETEK = 0.0

RMTEK = XTEK + XTAC*TN(NREDNO)

GO TO 38

C

C ===== REGULATOR BRZINE NORMALNO RADI =====

C

C ===== RUNGE - KUTA F-LA IV REDA =====

C

C

9 CALL DESTRA(KVREGT(NREDNO), XTEK, XTAC, Y1ST, YST, EST, RMST,

1 XK(NREDNO), TY1(NREDNO), TY(NREDNO), TN(NREDNO), TD(NREDNO),

2 BP(NREDNO), BT(NREDNO), CTEK, YDMIN(NREDNO), YDMAX(NREDNO),

3 DY1K1, DYK1, DEK1, DRMK1)

CALL DESTRA(KVREGT(NREDNO), XTEK, XTAC, Y1ST+DY1K1*DT2,

1 YST+DYK1*DT2, EST+DEK1*DT2, RMST+DRMK1*DT2,

2 XK(NREDNO), TY1(NREDNO), TY(NREDNO), TN(NREDNO), TD(NREDNO),

3 BP(NREDNO), BT(NREDNO), CTEK, YDMIN(NREDNO), YDMAX(NREDNO),

4 DY1K2, DYK2, DEK2, DRMK2)

CALL DESTRA(KVREGT(NREDNO), XTEK, XTAC, Y1ST+DY1K2*DT2,

1 YST+DYK2*DT2, EST+DEK2*DT2, RMST+DRMK2*DT2,

2 XK(NREDNO), TY1(NREDNO), TY(NREDNO), TN(NREDNO), TD(NREDNO),

3 BP(NREDNO), BT(NREDNO), CTEK, YDMIN(NREDNO), YDMAX(NREDNO),

4 DY1K3, DYK3, DEK3, DRMK3)

CALL DESTRA(KVREGT(NREDNO), XTEK, XTAC, Y1ST+DY1K3*DELTAT,

1 YST+DYK3*DELTAT, EST+DEK3*DELTAT, RMST+DRMK3*DELTAT,

2 XK(NREDNO), TY1(NREDNO), TY(NREDNO), TN(NREDNO), TD(NREDNO),

3 BP(NREDNO), BT(NREDNO), CTEK, YDMIN(NREDNO), YDMAX(NREDNO),

4 DY1K4, DYK4, DEK4, DRMK4)

DELY1 = DELTAT*(DY1K1 + 2.0*(DY1K2 + DY1K3) + DY1K4)/6.0

DELY = DELTAT*(DYK1 + 2.0*(DYK2 + DYK3) + DYK4)/6.0

DELE = DELTAT*(DEK1 + 2.0*(DEK2 + DEK3) + DEK4)/6.0

DELRM = DELTAT*(DRMK1 + 2.0*(DRMK2 + DRMK3) + DRMK4)/6.0

DYDTMR = DELY/DELTAT

IF(DYDTMR.LE.0.0) GRDYDT = DYDTMX(NREDNO)

IF(DYDTMR.GT.0.0) GRDYDT = ODYDT(NREDNO)

IF(ABS(DYDTMR).LE.GRDYDT) GO TO 39

DYDTMR = DYDTMR*GRDYDT/ABS(DYDTMR)

DELY = DELTAT*DYDTMR

39 Y1TEK = Y1ST + DELY1

YTEK = YST + DELY

ETEK = EST + DELE

RMTEK = RMST + DELRM

IF(ABS(Y1TEK).GT.1.0) Y1TEK = Y1TEK/ABS(Y1TEK)

C

C ===== OVDE SE GRANE PROGRAMA SUSTICU!

C

38 IF(YTEK.GT.1.0) YTEK = +1.0

IF(YTEK.LT.0.0) YTEK = 0.0

YSVEL = YTEK*YOS(NREDNO)

IF(MEDSTA.EQ.1) WRITE(6,102) NREDNO,KSTATU(NREDNO),TUKREG(NREDNO),

1 OMEGA, ELMOM, RAZMOM, SUMAM, Y1ST, YST, EST, RMST, DY1K1, DYK1,

2 DEK1, DRMK1, DY1K2, DYK2, DEK2, DRMK2, DY1K3, DYK3, DEK3, DRMK3,

3 DY1K4, DYK4, DEK4, DRMK4, DYDTMR, Y1TEK, YTEK, ETEK, RMTEK,

4 YSVEL, XTEK, XTAC

```

NDO = NTASA(NREDNO)

DO 42 N=2,NDO

IF(YSVEL.LE.YSERVO(N,NREDNO)) GO TO 43

42 CONTINUE

N = NDO

43 ASATEK = ASA(N-1,NREDNO) + (ASA(N,NREDNO) - ASA(N-1,NREDNO))*
1 (YSVEL-YSERVO(N-1,NREDNO))/(YSERVO(N,NREDNO)-YSERVO(N-1,NREDNO))

C

C ===== TRAZI OBLIZNJE PARCIJALNE KRIVE =====

C

46 DO 44 N=1,NPARCK

IF(ASATEK.LE.OTVOR(N)) GO TO 45

44 CONTINUE

ASATEK = OTVOR(NPARCK)

N = NPARCK

45 NASGOR = N

NASDON = N-1

IF(NASDON.GT.0) GO TO 47

C

C ===== OTVOR 'SA' MANJI OD GRANICNE VREDNOSTI - DRUGI ALGORITAM ===

C

IF(KSTATU(NREDNO).LT.0) GO TO 28

C

C ===== POCINJE PONOVO DA OTVARA MASINU! =====

C

```

```

IF((ASATEK.LT.DASA).AND.(KSTATU(NREDNO).GE.0)) ASATEK = 1.1*DASA

FFF = ASATEK/ASGRAN(NREDNO)

XXKK = FFF*XKPRIG(NREDNO)

IF(XXKK.LT.1.0 E-12) XXKK = 1.0 E-12

AKOEF = 1.0/(GE*XXKK) + 0.50*(BETAL + BETAD)

BKOEF = ALFAL + ALFAD

CKOEF = CDESNO - CLEVO

IF(ABS(CKOEF).LT.1.0E-10) GO TO 28

DISKR = BKOEF*BKOEF + 4.0*AKOEF*ABS(CKOEF)

IF(DISKR.LT.0.0) GO TO 28

IF(CKOEF.GT.0.0) QRESEN = +(BKOEF - SQRT(DISKR))/(2.0*AKOEF)

IF(CKOEF.LT.0.0) QRESEN = -(BKOEF - SQRT(DISKR))/(2.0*AKOEF)

HISP = CLEVO - ALFAL*QRESEN - 0.50*BETAL*ABS(QRESEN)*QRESEN

HIZA = CDESNO + ALFAD*QRESEN + 0.50*BETAD*ABS(QRESEN)*QRESEN

QPRED = QRESEN/ZNAKQ(NREDNO)

YTREN = GE*(HISP - HIZA)

DOJED = 1.0 - FFF

IF(DOJED.LT.0.0) DOJED = 0.0

TTREN = FFF*PODMAS(NREDNO,10) + DOJED*CMQ0*PODMAS(NREDNO,4)*

1 ABS(OMEGA/PODMAS(NREDNO,3))*(OMEGA/PODMAS(NREDNO,3))

IF(MEDSTA.EQ.1) WRITE(6,103) NREDNO, ASGRAN(NREDNO), ASATEK,

1 FFF, DOJED, XKPRIG(NREDNO), YTREN, TTREN, DISKR,

2 AKOEF, BKOEF, CKOEF, QPRED, HISP, HIZA

GO TO 29

```

C

C ===== OTVORI S.A. VECI OD AS GRAN =====

C

47 FLIN = 1.0

IF(NASGOR.NE.NASDON) FLIN = (ASATEK - OTVOR(NASDON))/

1 (OTVOR(NASGOR) - OTVOR(NASDON))

C

C TRAZI 'Y' I 'M' NA OSNOVU SUTER-OVIH DIJAGRAMA - DONJA KRIVA =====

C

VMALO = QPRED/PODMAS(NREDNO,2)

ALFA = OMEGA/PODMAS(NREDNO,3)

SUMA = VMALO*VMALO + ALFA*ALFA

XARG = ATAN2(ALFA,VMALO)

IF(XARG.LT.0.0) XARG = XARG + 2.0*PI

NNHH = NHSUKR(NASDON)

NNMM = NMSUKR(NASDON)

DO 11 I=2,NNHH

IF(XARG.LE.XHSUKR(I,NASDON)) GO TO 12

11 CONTINUE

I = NNHH

12 YORDD=WHSUKR(I-1,NASDON) + (WHSUKR(I,NASDON)-WHSUKR(I-1,NASDON))*

1 (XARG-XHSUKR(I-1,NASDON))/(XHSUKR(I,NASDON)-XHSUKR(I-1,NASDON))

DO 13 J=2,NNMM

IF(XARG.LE.XMSUKR(J,NASDON)) GO TO 14

13 CONTINUE

J = NNMM

14 BORDD=WMSUKR(J-1,NASDON) + (WMSUKR(J,NASDON)-WMSUKR(J-1,NASDON))*

1 (XARG-XMSUKR(J-1,NASDON))/(XMSUKR(J,NASDON)-XMSUKR(J-1,NASDON))

C

C ===== GORNJA SUTER-OVA KRIVA =====

C

NNHH = NHSUKR(NASGOR)

NNMM = NMSUKR(NASGOR)

DO 32 I=2,NNHH

IF(XARG.LE.XHSUKR(I,NASGOR)) GO TO 33

32 CONTINUE

I = NNHH

33 YORDG=WHSUKR(I-1,NASGOR) + (WHSUKR(I,NASGOR)-WHSUKR(I-1,NASGOR))*

1 (XARG-XHSUKR(I-1,NASGOR))/(XHSUKR(I,NASGOR)-XHSUKR(I-1,NASGOR))

DO 34 J=2,NNMM

IF(XARG.LE.XMSUKR(J,NASGOR)) GO TO 35

34 CONTINUE

J = NNMM

35 BORDG=WMSUKR(J-1,NASGOR) + (WMSUKR(J,NASGOR)-WMSUKR(J-1,NASGOR))*

1 (XARG-XMSUKR(J-1,NASGOR))/(XMSUKR(J,NASGOR)-XMSUKR(J-1,NASGOR))

YORDM = YORDD + FLIN*(YORDG - YORDD)

BORDM = BORDD + FLIN*(BORDG - BORDD)

IF(MEDSTA.EQ.1) WRITE(6,102) NASDON, NASGOR, XARG, XARG, VMALO,

1 ALFA, YORDD, BORDD, YORDG, BORDG, YORDM, BORDM, ASATEK

TTREN = BORDM*SUMA*PODMAS(NREDNO,4)

YTREN = YORDM*SUMA*PODMAS(NREDNO,1)

```

RAZMOM = ELMOM - TTREN
SUMAM = (RAZMOM + RAZMST)/2.0
OMNOV = PODMAS(NREDNO,11) + DELTAT*SUMAM/PODMAS(NREDNO,5)
OMGRE = OMNOV - OMEGA
IF(MEDSTA.EQ.1) WRITE(6,102) NREDNO, ITERB, OMEGA, OMEGA, OMNOV,
1 TTREN, YTREN, RAZMOM, SUMAM, OMGRE, ERROME
IF(ABS(OMGRE).LE.ERROME) GO TO 15
IF(ITERB.LT.MAXIT) GO TO 41
WRITE(6,100) ITERB,NREDNO,ITERA,IKONT,GRESKA,REGULA,VREME,QPRED,
1 HUDAR,HPUMP,HISP,HIZA,YTREN,OMEGA,OMNOV,TTREN,TPRED
C
KLJUC3 = -1                                ! KLJUC3 NUCEMU NE SLUZI. CANE
C
GO TO 30
41 TPRED = (TTREN+TPRED)/2.0
OMEGA = OMNOV
GO TO 40
15 HPUMP = YTREN/GE - CONST*QPRED*QPRED
HGRES = HPUMP - HUDAR
IF(MEDSTA.EQ.1) WRITE(6,102) ITERA, ITERB, QPRED, QPRED, YTREN,
1 HPUMP, HUDAR, HGRES, TACNST, ASATEK
IF(ABS(HGRES).LE.TACNST) GO TO 30
IF(ITERA.LE.MAXIT) GO TO 17
GRESKA = HPUMP - HUDAR
WRITE(6,100) ITERA, NREDNO, ITERB, IKONT, GRESKA, REGULA, VREME,

```

1 QPRED, HUDAR, HPUMP, HISP, HIZA, YTREN, OMEGA, OMNOV, TTREN,

2 TPRED, XKPRIG(NREDNO), FFF, DOJED

KLJUC3 = -1

! KLJUC3 NUCEMU NE SLUZI. CANE

GO TO 30

C

C ===== REGULA FALSI =====

C

17 IF(IKONT.GT.0) GO TO 20

IKONT = +1

Q1 = QPRED

Y1 = HPUMP - HUDAR

QPRED = QPRED - DQTAB

GO TO 10

20 IF(REGULA.GT.0) GO TO 25

Y2 = HPUMP - HUDAR

Q2 = QPRED

IF((Y1*Y2).LT.0) GO TO 24

IF(ABS(Y1).LT.ABS(Y2)) GO TO 23

QPRED = 2.0*Q2 - Q1

Y1 = Y2

Q1 = Q2

GO TO 10

23 QPRED = 2.0*Q1 - Q2

GO TO 10

24 REGULA = +1

22 QPRED = (Y1*Q2 - Y2*Q1)/(Y1-Y2)

GO TO 10

25 YNOVO = HPUMP - HUDAR

IF((Y1*YNOVO).GT.0) GO TO 26

Y2 = YNOVO

Q2 = QPRED

GO TO 22

26 Y1 = YNOVO

Q1 = QPRED

GO TO 22

C

C ===== PRETKOLO TURBINE ZATVORENO =====

C

28 QPRED = 0.0

ASATEK = 0.0

HISP = CLEVO

HIZA = CDESNO

YTREN = GE*(HISP - HIZA)

TTREN = CMQ0*PODMAS(NREDNO,4)*ABS(OMEGA/PODMAS(NREDNO,3))*

1 (OMEGA/PODMAS(NREDNO,3))

29 RAZMOM = ELMOM - TTREN

SUMAM = (RAZMOM + RAZMST)/2.0

OMNOV = PODMAS(NREDNO,11) + DELTAT*SUMAM/PODMAS(NREDNO,5)

C

C RESENJE NADJENO - SREDJUJE PODATKE ZA SLEDECI KORAK

C

30 HLRES = HISP

HDRES = HIZA

QRESEN = QPRED*ZNAKQ(NREDNO)

PODMAS(NREDNO,7) = PODMAS(NREDNO,8)

PODMAS(NREDNO,8) = QPRED

PODMAS(NREDNO,9) = PODMAS(NREDNO,10)

PODMAS(NREDNO,10) = TTREN

PODMAS(NREDNO,11) = OMNOV

PODMAS(NREDNO,12) = YTREN

PODMAS(NREDNO,13) = HISP

PODMAS(NREDNO,14) = HIZA

PODMAS(NREDNO,15) = XTEK

PODMAS(NREDNO,16) = XTAC

PODMAS(NREDNO,17) = Y1TEK

PODMAS(NREDNO,18) = YTEK

PODMAS(NREDNO,19) = ETEK

PODMAS(NREDNO,20) = ASATEK

PODMAS(NREDNO,21) = PELTEK/1000000.0

PODMAS(NREDNO,22) = RMTEK

PODMAS(NREDNO,23) = XK(NREDNO)*(BP(NREDNO)*CTEK - ETEK - RMTEK)

IF(ASATEK.GE.ASGRAN(NREDNO)) XKPRIG(NREDNO) = (QPRED*QPRED)/YTREN

IF(TURMAX(1,NREDNO).LT.OMNOV) TURMAX(1,NREDNO) = OMNOV

IF(TURMIN(1,NREDNO).GT.OMNOV) TURMIN(1,NREDNO) = OMNOV

IF(TURMAX(2,NREDNO).LT.QPRED) TURMAX(2,NREDNO) = QPRED

IF(TURMIN(2,NREDNO).GT.QPRED) TURMIN(2,NREDNO) = QPRED

IF(TURMAX(3,NREDNO).LT.HISP) TURMAX(3,NREDNO) = HISP

IF(TURMIN(3,NREDNO).GT.HISP) TURMIN(3,NREDNO) = HISP

IF(TURMAX(4,NREDNO).LT.HIZA) TURMAX(4,NREDNO) = HIZA

IF(TURMIN(4,NREDNO).GT.HIZA) TURMIN(4,NREDNO) = HIZA

C

C CANE DEC 2010\

C

PROTOK = (-1.0)*PODMAS(NREDNO, 7)

PRITISAK_ISPRED = PODMAS(NREDNO, 13)

PRITISAK_IZA = PODMAS(NREDNO, 14)

PAD_NAPOR = PRITISAK_ISPRED - PRITISAK_IZA

BROJ_OBRATAJA = (-1.0)*PODMAS(NREDNO,11)*30/3.14159

OTVOR_PREDKOLA = PODMAS(NREDNO,20)

C

IF(NREDNO.EQ.1) WRITE (111, 111) VREME, PROTOK, PAD_NAPOR,

1 BROJ_OBRATAJA,

1 OTVOR_PREDKOLA, PRITISAK_ISPRED, PRITISAK_IZA

IF(NREDNO.EQ.1) WRITE (101, 111) VREME, (PODMAS(NREDNO, M101),

1 M101 = 1, 23)

C =====

IF(NREDNO.EQ.2) WRITE (112, 111) VREME, PROTOK, PAD_NAPOR,

1 BROJ_OBRATAJA,

1 OTVOR_PREDKOLA, PRITISAK_ISPRED, PRITISAK_IZA

IF(NREDNO.EQ.2) WRITE (102, 111) VREME, (PODMAS(NREDNO, M101),

```

1          M101 = 1, 23) ! (KONTBL(M,I), M=1,3)

111 FORMAT (24F16.3)

C  =====

C

C Red u 'PODMAS': Y0, Q0, OM0, M0, J, CETA, Q", Q', M", M'

C  ===== 1 2 3 4 5 6 7 8 9 10

C          OM, YH, H', H", X, XT, Y1, Y, E, AS,

C          11 12 13 14 15 16 17 18 19 20

C          PE, RM, YD

C          21 22 23

C

C Status regulatora (KSTATU): +2, BRZO OTVARANJE S.A.,

C          +1, OTVARA S.A. (REGULATOR),

C          0, USTALJENO STRANJE (NEUTRALNO),

C          -1, ZATVARA S.A. (REGULATOR),

C          -2, BRZO ZATVARANJE + IDE NA PRAZNI HOD,

C          -3, BRZO ZAUSTAVLJANJE MASINE.

C

IF(MEDSTA.NE.1) RETURN

WRITE(6,102) ITERA, ITERB, VREME, QPRED, YTREN, OMNOV, TTREN,

1 HISP, HIZA, XARG, VMALO, ALFA,HLRES,HDRES,QRESEN,XKPRIG(NREDNO),

2 XTEK, XTAC, CTEK, ASATEK, Y1TEK, YTEK, ETEK, RMTEK

WRITE(6,105)

RETURN

END

```

C =====

SUBROUTINE DESTRA(KVR, X, XTAC, Y1, Y, E, RM, XK, TY1, TY, TN, TD,
1 BP, BT, C, YDMIN, YDMAX, DY1, DY, DE, DRM)

C

C ===== SUBR ZA FORMIRANJE DESNIH STRANA R-K POSTUPKA =====

C KVR = 1, REGULATOR TIP A 'BAJINA BASTA',

C KVR = 2, REGULATOR TIP A HE 'ZAVOJ'.

C

U = X + TN*XTAC

IF(KVR.NE.1) GO TO 2

C *** REGULATOR 'BAJINA BASTA'

DY1 = $-(1.0 + XK*BP)*Y1 - XK*E + XK*(C - U)/TY1$

DY = $(Y1 - Y)/TY$

DE = $-(1.0/TD + XK*BT/TY1)*E - BT*(1.0 + XK*BP)*Y1/TY1 +$

1 $XK*BT*(C - U)/TY1$

DRM = 0.0

GO TO 99

2 IF(KVR.NE.2) STOP 'REGULATOR'

C *** REGULATOR HE 'ZAVOJ'

YDTEK = $XK*(BP*C - E - RM)$

IF(YDTEK.LT.YDMIN) YDTEK = YDMIN

IF(YDTEK.GT.YDMAX) YDTEK = YDMAX

DY1 = $(YDTEK - Y1)/TY1$

DY = $(Y1 - Y)/TY$

DE = $-BT*XK*(U - RM)/(0.1*TN*(1.0 + BT*XK)) - E/(TD + BT*TD*XK)$

$$\text{DRM} = (U - \text{RM}) / (0.1 * \text{TN})$$

C*** GOTOVO

99 RETURN

END

BAJINA BASTA ULP5 nq 27

9,00

1,00 76,00 76,00

.4636 .0000 .4845 .0000 .5071 .0000 .5317 .0000 .5586 .0000

.5880 .0000 .6202 .0000 .6557 .0000 .6947 .0000 .7378 .0000

.7854 .0000 .8380 .0000 .8961 .0000 .9601 .0000 1,03 .0000

1,11 .0000 1,19 .0000 1,28 .0000 1,37 .0000 1,47 .0000

1,57 .0000 1,57 .0000 1,67 .0000 1,77 .0000 1,86 .0000

1,95 .0000 2,03 .0000 2,11 .0000 2,18 .0000 2,25 .0000

2,30 .0000 2,36 .0000 2,36 .0000 2,41 .0000 2,47 .0000

2,53 .0000 2,60 .0000 2,68 .0000 2,76 .0000 2,85 .0000

2,94 .0000 3,04 .0000 3,14 .0000 3,14 .0000 3,24 .0000

3,34 .0000 3,43 .0000 3,52 .0000 3,61 .0000 3,68 .0000

3,75 .0000 3,82 .0000 3,87 .0000 3,93 .0000 3,93 .0000

3,98 .0000 4,04 .0000 4,10 .0000 4,17 .0000 4,25 8,00

4,33 4,66 4,42 2,87 4,52 1,61 4,61 1,12 4,71 1,03

4,71 1,03 4,81 .9010 4,91 .5288 5,00 -0,55 5,09 .0000

5,18 .0000 5,25 .0000 5,32 .0000 5,39 .0000 5,45 .0000

5,50 .0000

.4636 .0000 .4845 .0000 .5071 .0000 .5317 .0000 .5586 .0000

.5880	.0000	.6202	.0000	.6557	.0000	.6947	.0000	.7378	.0000
.7854	.0000	.8380	.0000	.8961	.0000	.9601	.0000	1,03	.0000
1,11	.0000	1,19	.0000	1,28	.0000	1,37	.0000	1,47	.0000
1,57	.0000	1,57	.0000	1,67	.0000	1,77	.0000	1,86	.0000
1,95	.0000	2,03	.0000	2,11	.0000	2,18	.0000	2,25	.0000
2,30	.0000	2,36	.0000	2,36	.0000	2,41	.0000	2,47	.0000
2,53	.0000	2,60	.0000	2,68	.0000	2,76	.0000	2,85	.0000
2,94	.0000	3,04	.0000	3,14	.0000	3,14	.0000	3,24	.0000
3,34	.0000	3,43	.0000	3,52	.0000	3,61	.0000	3,68	.0000
3,75	.0000	3,82	.0000	3,87	.0000	3,93	.0000	3,93	.0000
3,98	.0000	4,04	.0000	4,10	.0000	4,17	.0000	4,25	8,64
4,33	2,63	4,42	1,39	4,52	.5296	4,61	.0855	4,71	-0,08
4,71	-0,08	4,81	-0,20	4,91	-0,38	5,00	-0,64	5,09	.0000
5,18	.0000	5,25	.0000	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
2,00	76,00	76,00							
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.0000	.6202	.0000	.6557	.0000	.6947	.0000	.7378	.0000
.7854	.0000	.8380	.0000	.8961	.0000	.9601	.0000	1,03	.0000
1,11	.0000	1,19	.0000	1,28	.0000	1,37	.0000	1,47	.0000
1,57	.0000	1,57	.0000	1,67	.0000	1,77	.0000	1,86	.0000
1,95	.0000	2,03	.0000	2,11	.0000	2,18	.0000	2,25	.0000
2,30	.0000	2,36	.0000	2,36	.0000	2,41	.0000	2,47	.0000
2,53	.0000	2,60	.0000	2,68	.0000	2,76	.0000	2,85	.0000
2,94	.0000	3,04	.0000	3,14	.0000	3,14	.0000	3,24	.0000

3,34	.0000	3,43	.0000	3,52	.0000	3,61	.0000	3,68	.0000
3,75	.0000	3,82	.0000	3,87	.0000	3,93	.0000	3,93	.0000
3,98	.0000	4,04	6,10	4,10	3,46	4,17	2,95	4,25	2,35
4,33	1,69	4,42	1,33	4,52	1,11	4,61	1,01	4,71	.9750
4,71	.9750	4,81	.9238	4,91	.8327	5,00	.6578	5,09	.1724
5,18	.0000	5,25	.0000	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.0000	.6202	.0000	.6557	.0000	.6947	.0000	.7378	.0000
.7854	.0000	.8380	.0000	.8961	.0000	.9601	.0000	1,03	.0000
1,11	.0000	1,19	.0000	1,28	.0000	1,37	.0000	1,47	.0000
1,57	.0000	1,57	.0000	1,67	.0000	1,77	.0000	1,86	.0000
1,95	.0000	2,03	.0000	2,11	.0000	2,18	.0000	2,25	.0000
2,30	.0000	2,36	.0000	2,36	.0000	2,41	.0000	2,47	.0000
2,53	.0000	2,60	.0000	2,68	.0000	2,76	.0000	2,85	.0000
2,94	.0000	3,04	.0000	3,14	.0000	3,14	.0000	3,24	.0000
3,34	.0000	3,43	.0000	3,52	.0000	3,61	.0000	3,68	.0000
3,75	.0000	3,82	.0000	3,87	.0000	3,93	.0000	3,93	.0000
3,98	.0000	4,04	2,05	4,10	1,79	4,17	1,44	4,25	1,01
4,33	.6424	4,42	.3597	4,52	.1246	4,61	-0,04	4,71	-0,14
4,71	-0,13	4,81	-0,23	4,91	-0,42	5,00	-0,64	5,09	-0,86
5,18	.0000	5,25	.0000	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
4,00	76,00	76,00							
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000

.5880	.0000	.6202	.0000	.6557	.0000	.6947	.0000	.7378	.0000
.7854	.0000	.8380	.0000	.8961	-0,06	.9601	.3369	1,03	.6176
1,11	.8240	1,19	.9931	1,28	1,14	1,37	1,25	1,47	1,34
1,57	1,38	1,57	1,38	1,67	1,41	1,77	1,45	1,86	1,52
1,95	1,64	2,03	1,83	2,11	2,10	2,18	2,32	2,25	2,64
2,30	2,88	2,36	3,08	2,36	3,08	2,41	3,31	2,47	3,57
2,53	3,84	2,60	4,10	2,68	4,35	2,76	4,58	2,85	4,78
2,94	4,91	3,04	4,97	3,14	4,95	3,14	4,95	3,24	4,86
3,34	4,69	3,43	4,45	3,52	4,17	3,61	3,87	3,68	3,57
3,75	3,30	3,82	3,06	3,87	2,84	3,93	2,64	3,93	2,64
3,98	2,44	4,04	2,22	4,10	1,93	4,17	1,60	4,25	1,32
4,33	1,15	4,42	1,01	4,52	.9442	4,61	.9406	4,71	.9370
4,71	.9370	4,81	.9109	4,91	.8577	5,00	.7706	5,09	.6224
5,18	.3640	5,25	.0000	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.0000	.6202	.0000	.6557	.0000	.6947	.0000	.7378	.0000
.7854	.0000	.8380	.0000	.8961	.4939	.9601	.5530	1,03	.5882
1,11	.5840	1,19	.5560	1,28	.5046	1,37	.4385	1,47	.3267
1,57	.3370	1,57	.3370	1,67	.3743	1,77	.4423	1,86	.5248
1,95	.6431	2,03	.8080	2,11	.9676	2,18	1,15	2,25	1,30
2,30	1,47	2,36	1,61	2,36	1,61	2,41	1,75	2,47	1,91
2,53	2,07	2,60	2,23	2,68	2,39	2,76	2,53	2,85	2,65
2,94	2,73	3,04	2,76	3,14	2,74	3,14	2,96	3,24	2,88
3,34	2,75	3,43	2,59	3,52	2,39	3,61	2,18	3,68	1,98

3,75	1,78	3,82	1,60	3,87	1,43	3,93	1,28	3,93	1,28
3,98	1,14	4,04	.9450	4,10	.7625	4,17	.5876	4,25	.4113
4,33	.2486	4,42	.0892	4,52	-0,02	4,61	-0,11	4,71	-0,18
4,71	-0,16	4,81	-0,29	4,91	-0,56	5,00	-0,67	5,09	-0,80
5,18	-0,87	5,25	.0000	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
8,00	76,00	76,00							
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.0000	.6202	.0000	.6557	.0000	.6947	.0000	.7378	.2715
.7854	.3735	.8380	.4873	.8961	.6079	.9601	.7302	1,03	.8515
1,11	.9704	1,19	1,09	1,28	1,18	1,37	1,26	1,47	1,31
1,57	1,35	1,57	1,35	1,67	1,37	1,77	1,38	1,86	1,39
1,95	1,42	2,03	1,48	2,11	1,57	2,18	1,68	2,25	1,80
2,30	1,90	2,36	1,99	2,36	1,99	2,41	2,07	2,47	2,15
2,53	2,22	2,60	2,27	2,68	2,32	2,76	2,35	2,85	2,36
2,94	2,35	3,04	2,30	3,14	2,22	3,14	2,22	3,24	2,11
3,34	1,99	3,43	1,86	3,52	1,72	3,61	1,60	3,68	1,48
3,75	1,37	3,82	1,27	3,87	1,19	3,93	1,13	3,93	1,13
3,98	1,06	4,04	.9927	4,10	.9262	4,17	.8537	4,25	.7936
4,33	.7698	4,42	.7798	4,52	.8144	4,61	.8594	4,71	.8900
4,71	.8900	4,81	.8911	4,91	.8673	5,00	.7826	5,09	.6750
5,18	.5016	5,25	.0368	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.0000	.6202	.0000	.6557	.0000	.6947	.0000	.7378	.4276

.7854	.4910	.8380	.5392	.8961	.5683	.9601	.5859	1,03	.5956
1,11	.5856	1,19	.5603	1,28	.5248	1,37	.4817	1,47	.4356
1,57	.3910	1,57	.3910	1,67	.3762	1,77	.4135	1,86	.4752
1,95	.5534	2,03	.6536	2,11	.7809	2,18	.9195	2,25	1,04
2,30	1,17	2,36	1,27	2,36	1,27	2,41	1,36	2,47	1,47
2,53	1,57	2,60	1,67	2,68	1,76	2,76	1,83	2,85	1,88
2,94	1,90	3,04	1,89	3,14	1,84	3,14	1,99	3,24	1,89
3,34	1,77	3,43	1,64	3,52	1,49	3,61	1,35	3,68	1,21
3,75	1,08	3,82	.9529	3,87	.8419	3,93	.7441	3,93	.7441
3,98	.6546	4,04	.5505	4,10	.4385	4,17	.3153	4,25	.1944
4,33	.0940	4,42	.0594	4,52	-0,10	4,61	-0,21	4,71	-0,29
4,71	-0,27	4,81	-0,36	4,91	-0,52	5,00	-0,64	5,09	-0,78
5,18	-0,90	5,25	-1,32	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
12,00	76,00	76,00							
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.0000	.6202	.0000	.6557	.2387	.6947	.3074	.7378	.3846
.7854	.4700	.8380	.5641	.8961	.6634	.9601	.7691	1,03	.8787
1,11	.9840	1,19	1,08	1,28	1,16	1,37	1,23	1,47	1,29
1,57	1,32	1,57	1,32	1,67	1,34	1,77	1,35	1,86	1,34
1,95	1,36	2,03	1,38	2,11	1,41	2,18	1,44	2,25	1,48
2,30	1,54	2,36	1,59	2,36	1,59	2,41	1,63	2,47	1,65
2,53	1,67	2,60	1,69	2,68	1,69	2,76	1,68	2,85	1,65
2,94	1,60	3,04	1,53	3,14	1,44	3,14	1,44	3,24	1,34
3,34	1,23	3,43	1,13	3,52	1,04	3,61	.9680	3,68	.9007

3,75	.8416	3,82	.7988	3,87	.7663	3,93	.7350	3,93	.7350
3,98	.7044	4,04	.6780	4,10	.6591	4,17	.6529	4,25	.6632
4,33	.6862	4,42	.7183	4,52	.7663	4,61	.8277	4,71	.8700
4,71	.8700	4,81	.8713	4,91	.8385	5,00	.7716	5,09	.6724
5,18	.5464	5,25	.2206	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.0000	.6202	.3615	.6557	.4067	.6947	.4508	.7378	.4900
.7854	.5210	.8380	.5508	.8961	.5732	.9601	.5919	1,03	.5993
1,11	.5920	1,19	.5655	1,28	.5505	1,37	.5163	1,47	.4713
1,57	.4170	1,57	.4170	1,67	.3762	1,77	.3971	1,86	.4394
1,95	.5000	2,03	.5760	2,11	.6588	2,18	.7436	2,25	.8293
2,30	.9182	2,36	1,01	2,36	1,01	2,41	1,09	2,47	1,17
2,53	1,25	2,60	1,32	2,68	1,39	2,76	1,45	2,85	1,49
2,94	1,50	3,04	1,49	3,14	1,44	3,14	1,55	3,24	1,46
3,34	1,35	3,43	1,23	3,52	1,12	3,61	1,01	3,68	.9132
3,75	.8212	3,82	.7369	3,87	.6605	3,93	.5940	3,93	.5940
3,98	.4923	4,04	.4017	4,10	.3088	4,17	.2224	4,25	.1296
4,33	.0447	4,42	-0,03	4,52	-0,11	4,61	-0,19	4,71	-0,28
4,71	-0,26	4,81	-0,46	4,91	-0,52	5,00	-0,69	5,09	-0,82
5,18	-0,92	5,25	-1,10	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
16,00	76,00	76,00							
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.1662	.6202	.2203	.6557	.2770	.6947	.3410	.7378	.4122

.7854	.4925	.8380	.5818	.8961	.6732	.9601	.7718	1,03	.8706
1,11	.9672	1,19	1,06	1,28	1,15	1,37	1,22	1,47	1,27
1,57	1,31	1,57	1,31	1,67	1,32	1,77	1,32	1,86	1,31
1,95	1,29	2,03	1,28	2,11	1,29	2,18	1,30	2,25	1,32
2,30	1,33	2,36	1,34	2,36	1,34	2,41	1,36	2,47	1,37
2,53	1,37	2,60	1,36	2,68	1,34	2,76	1,30	2,85	1,25
2,94	1,19	3,04	1,12	3,14	1,03	3,14	1,03	3,24	.9347
3,34	.8519	3,43	.7761	3,52	.7155	3,61	.6608	3,68	.6228
3,75	.5926	3,82	.5732	3,87	.5597	3,93	.5480	3,93	.5480
3,98	.5348	4,04	.5390	4,10	.5523	4,17	.5735	4,25	.6032
4,33	.6422	4,42	.6881	4,52	.7471	4,61	.8109	4,71	.8520
4,71	.8520	4,81	.8574	4,91	.8202	5,00	.7541	5,09	.6707
5,18	.5688	5,25	.4081	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.3292	.6202	.3716	.6557	.4134	.6947	.4549	.7378	.4932
.7854	.5285	.8380	.5558	.8961	.5811	.9601	.6040	1,03	.6140
1,11	.6904	1,19	.5879	1,28	.5615	1,37	.5221	1,47	.4733
1,57	.4170	1,57	.4170	1,67	.4040	1,77	.4183	1,86	.4312
1,95	.4534	2,03	.4944	2,11	.5551	2,18	.6322	2,25	.7012
2,30	.7663	2,36	.8350	2,36	.8350	2,41	.9072	2,47	.9799
2,53	1,05	2,60	1,12	2,68	1,18	2,76	1,22	2,85	1,25
2,94	1,25	3,04	1,23	3,14	1,18	3,14	1,27	3,24	1,20
3,34	1,10	3,43	1,00	3,52	.9050	3,61	.8122	3,68	.7226
3,75	.6415	3,82	.5677	3,87	.4976	3,93	.4320	3,93	.4320

3,98	.3604	4,04	.2944	4,10	.2269	4,17	.1509	4,25	.0691
4,33	.0000	4,42	-0,06	4,52	-0,12	4,61	-0,21	4,71	-0,28
4,71	-0,26	4,81	-0,40	4,91	-0,53	5,00	-0,68	5,09	-0,80
5,18	-0,90	5,25	-1,03	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
20,00	76,00	76,00							
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.0000	.6202	.2044	.6557	.2602	.6947	.3225	.7378	.3905
.7854	.4665	.8380	.5525	.8961	.6421	.9601	.7362	1,03	.8368
1,11	.9336	1,19	1,03	1,28	1,11	1,37	1,18	1,47	1,23
1,57	1,26	1,57	1,32	1,67	1,34	1,77	1,35	1,86	1,35
1,95	1,34	2,03	1,35	2,11	1,35	2,18	1,35	2,25	1,35
2,30	1,35	2,36	.4170	2,36	.4160	2,41	1,35	2,47	1,35
2,53	1,34	2,60	1,33	2,68	1,31	2,76	1,27	2,85	1,21
2,94	1,13	3,04	1,04	3,14	.9360	3,14	.7620	3,24	.7020
3,34	.6471	3,43	.5982	3,52	.5664	3,61	.5440	3,68	.5265
3,75	.5148	3,82	.5055	3,87	.4989	3,93	.4160	3,93	.4170
3,98	.4989	4,04	.5067	4,10	.5188	4,17	.5390	4,25	.5704
4,33	.6069	4,42	.6495	4,52	.7010	4,61	.7505	4,71	.8000
4,71	.8430	4,81	.8238	4,91	.7760	5,00	.7028	5,09	.6138
5,18	.5040	5,25	.0368	5,32	.0000	5,39	.0000	5,45	.0000
5,50	.0000								
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.3363	.6202	.3764	.6557	.4164	.6947	.4557	.7378	.4896
.7854	.5205	.8380	.5486	.8961	.5732	.9601	.5940	1,03	.6081

1,11	.6128	1,19	.5862	1,28	.5532	1,37	.5221	1,47	.4822
1,57	.4400	1,57	.4400	1,67	.4436	1,77	.4548	1,86	.4642
1,95	.4767	2,03	.4976	2,11	.5338	2,18	.5839	2,25	.6354
2,30	.6834	2,36	.7300	2,36	.7300	2,41	.7878	2,47	.8537
2,53	.9262	2,60	1,00	2,68	1,06	2,76	1,11	2,85	1,14
2,94	1,14	3,04	1,11	3,14	1,05	3,14	1,13	3,24	1,06
3,34	.9762	3,43	.8779	3,52	.7821	3,61	.6998	3,68	.6194
3,75	.5422	3,82	.4676	3,87	.3998	3,93	.3364	3,93	.3364
3,98	.2816	4,04	.2219	4,10	.1544	4,17	.0874	4,25	.0285
4,33	-0,03	4,42	-0,08	4,52	-0,15	4,61	-0,22	4,71	-0,30
4,71	-0,28	4,81	-0,44	4,91	-0,59	5,00	-0,71	5,09	-0,84
5,18	-0,92	5,25	-0,98	5,32	-1,01	5,39	.0000	5,45	.0000
5,50	.6435								
24,00	76,00	76,00							
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.1938	.6202	.2409	.6557	.2948	.6947	.3553	.7378	.4222
.7854	.5000	.8380	.5790	.8961	.6646	.9601	.7544	1,03	.8456
1,11	.9344	1,19	1,02	1,28	1,09	1,37	1,16	1,47	1,21
1,57	1,25	1,57	1,25	1,67	1,27	1,77	1,27	1,86	1,25
1,95	1,22	2,03	1,19	2,11	1,16	2,18	1,15	2,25	1,15
2,30	1,14	2,36	1,13	2,36	1,13	2,41	1,11	2,47	1,10
2,53	1,08	2,60	1,06	2,68	1,03	2,76	.9784	2,85	.9202
2,94	.8510	3,04	.7762	3,14	.6970	3,14	.6970	3,24	.6168
3,34	.5481	3,43	.4917	3,52	.4534	3,61	.4280	3,68	.4118
3,75	.4013	3,82	.3951	3,87	.3939	3,93	.3980	3,93	.3980

3,98	.4105	4,04	.4323	4,10	.4611	4,17	.5000	4,25	.5464
4,33	.6000	4,42	.6578	4,52	.7173	4,61	.7723	4,71	.8130
4,71	.8130	4,81	.8218	4,91	.7885	5,00	.7266	5,09	.6491
5,18	.5632	5,25	.4632	5,32	.2013	5,39	.0000	5,45	.0000
5,50	.0000								
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.3415	.6202	.3794	.6557	.4182	.6947	.4557	.7378	.4900
.7854	.5240	.8380	.5536	.8961	.5793	.9601	.5973	1,03	.6051
1,11	.6024	1,19	.5862	1,28	.5661	1,37	.5365	1,47	.5030
1,57	.4620	1,57	.4620	1,67	.4337	1,77	.4481	1,86	.4569
1,95	.4629	2,03	.4696	2,11	.4875	2,18	.5208	2,25	.5616
2,30	.6033	2,36	.6400	2,36	.6400	2,41	.6906	2,47	.7476
2,53	.8121	2,60	.8779	2,68	.9344	2,76	.9759	2,85	.9972
2,94	.9971	3,04	.9723	3,14	.9180	3,14	.9914	3,24	.9175
3,34	.8308	3,43	.7431	3,52	.6592	3,61	.5841	3,68	.5170
3,75	.4494	3,82	.3872	3,87	.3300	3,93	.2846	3,93	.2846
3,98	.2387	4,04	.1818	4,10	.1210	4,17	.0580	4,25	.0000
4,33	-0,05	4,42	-0,11	4,52	-0,18	4,61	-0,24	4,71	-0,32
4,71	-0,29	4,81	-0,36	4,91	-0,49	5,00	-0,68	5,09	-0,83
5,18	-0,92	5,25	-0,97	5,32	-1,01	5,39	.0000	5,45	.0000
5,50	.0000								
28,00	76,00	76,00							
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.2015	.6202	.2470	.6557	.2981	.6947	.3545	.7378	.4195
.7854	.4930	.8380	.5702	.8961	.6561	.9601	.7430	1,03	.8324

1,11	.9200	1,19	1,00	1,28	1,07	1,37	1,13	1,47	1,18
1,57	1,22	1,57	1,22	1,67	1,24	1,77	1,23	1,86	1,22
1,95	1,19	2,03	1,15	2,11	1,12	2,18	1,10	2,25	1,08
2,30	1,06	2,36	1,05	2,36	1,05	2,41	1,04	2,47	1,02
2,53	.9933	2,60	.9559	2,68	.9144	2,76	.8595	2,85	.7982
2,94	.7269	3,04	.6584	3,14	.5900	3,14	.5900	3,24	.5267
3,34	.4712	3,43	.4248	3,52	.3948	3,61	.3768	3,68	.3647
3,75	.3557	3,82	.3518	3,87	.3519	3,93	.3615	3,93	.3615
3,98	.3812	4,04	.4079	4,10	.4403	4,17	.4801	4,25	.5296
4,33	.5862	4,42	.6440	4,52	.7000	4,61	.7525	4,71	.7900
4,71	.7900	4,81	.8020	4,91	.7596	5,00	.7000	5,09	.6310
5,18	.5552	5,25	.4632	5,32	.2685	5,39	.0000	5,45	.0000
5,50	.0000								
.4636	.0000	.4845	.0000	.5071	.0000	.5317	.0000	.5586	.0000
.5880	.3477	.6202	.3818	.6557	.4186	.6947	.4557	.7378	.4900
.7854	.5215	.8380	.5497	.8961	.5732	.9601	.5919	1,03	.5912
1,11	.5704	1,19	.5431	1,28	.5477	1,37	.5404	1,47	.5198
1,57	.4830	1,57	.4830	1,67	.4356	1,77	.4394	1,86	.4459
1,95	.4509	2,03	.4544	2,11	.4625	2,18	.4785	2,25	.5030
2,30	.5359	2,36	.5715	2,36	.5715	2,41	.6249	2,47	.6787
2,53	.7342	2,60	.7868	2,68	.8344	2,76	.8724	2,85	.8917
2,94	.8885	3,04	.8624	3,14	.8130	3,14	.8780	3,24	.8030
3,34	.7228	3,43	.6470	3,52	.5772	3,61	.5098	3,68	.4503
3,75	.3921	3,82	.3359	3,87	.2822	3,93	.2333	3,93	.2333
3,98	.1927	4,04	.1429	4,10	.0884	4,17	.0318	4,25	-0,03

4,33	-0,06	4,42	-0,11	4,52	-0,17	4,61	-0,24	4,71	-0,32
4,71	-0,30	4,81	-0,47	4,91	-0,62	5,00	-0,74	5,09	-0,88
5,18	-0,93	5,25	-1,00	5,32	-1,13	5,39	.0000	5,45	.0000
5,50	.0000								

BAJINA BASTA ULP5 nq 38

rhe 'bajina basta' - test 5: ispad I masine, II radi i dalje - (dy/dx)min

RADI 0.000 0.000

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REZERVOAR 1 0 0 0 850.10

VODOSTAN 2 20 0 0 0.000945 0.000945 1.00 0.400 900.00

776.00 113.00

777.00 414.60

778.00 695.00

779.00 923.40

781.00 1021.10

783.00 923.40

784.00 695.00

785.00 414.60

786.00 113.00

886.00 113.00

887.40 260.80

888.00 514.90

889.00	944.60									
890.00	1111.30									
891.00	1197.80									
892.00	1226.10									
893.00	1197.80									
895.00	944.60									
896.00	514.90									
897.20	113.00									
SPOJ	3									
SPOJ	4									
SPOJ	5									
RACVA	6									
SPOJ	7									
SPOJ	8									
MASINA	9	6	4	1	3.8014	-1.000	0.0	240.0		
9										
1.000	76	76								
.4900	.0000	.5000	.0000	.5200	.0000	.5400	.0000	.5600	.0000	
.5800	.0000	.6000	.0000	.6300	.0000	.6600	.0000	.6900	.0000	
.7200	.0000	.7500	.0000	.7900	.0000	.8300	.0000	.8800	.0000	
.9700	.0000	1.0800	.0000	1.2200	.0000	1.3700	.0000	1.4800	.0000	
1.5708	.0000	1.5708	.0000	1.6400	.0000	1.7100	.0000	1.7700	.0000	
1.8300	.0000	1.9000	.0000	1.9600	.0000	2.0200	.0000	2.1300	.0000	
2.2400	.0000	2.3300	.0000	2.4300	.0000	2.5200	.0000	2.6200	.0000	
2.7200	.0000	2.7800	.0000	2.8300	.0000	2.8800	.0000	2.9400	.0000	

3.0000 .0000 3.0600 .0000 3.1416 .0000 3.1416 .0000 3.1700 .0000
 3.2900 .0000 3.3900 .0000 3.4900 .0000 3.5800 .0000 3.6600 .0000
 3.7700 .0000 3.8300 .0000 3.9000 .0000 3.9270 .0000 3.9270 .0000
 3.9600 .0000 4.0400 .0000 4.1200 .0000 4.2000 .0000 4.3000 8.0000
 4.4200 4.6552 4.4900 2.8670 4.5800 1.6106 4.6700 1.1238 4.7124 1.0250
 4.7124 1.0250 4.7400 .9010 4.8200 .5288 4.9100 .5505 4.9700 .0000
 5.0100 .0000 5.0500 .0000 5.0800 .0000 5.1000 .0000 5.1100 .0000
 5.1200 .0000
 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
 .5800 .0000 .6000 .0000 .6300 .0000 .6600 .0000 .6900 .0000
 .7200 .0000 .7500 .0000 .7900 .0000 .8300 .0000 .8800 .0000
 .9700 .0000 1.0800 .0000 1.2200 .0000 1.3700 .0000 1.4800 .0000
 1.5708 .0000 1.5708 .0000 1.6400 .0000 1.7100 .0000 1.7700 .0000
 1.8300 .0000 1.9000 .0000 1.9600 .0000 2.0200 .0000 2.1300 .0000
 2.2400 .0000 2.3300 .0000 2.4300 .0000 2.5200 .0000 2.6200 .0000
 2.7200 .0000 2.7800 .0000 2.8300 .0000 2.8800 .0000 2.9400 .0000
 3.0000 .0000 3.0600 .0000 3.1416 .0000 3.1416 .0000 3.1700 .0000
 3.2900 .0000 3.3900 .0000 3.4900 .0000 3.5800 .0000 3.6600 .0000
 3.7700 .0000 3.8300 .0000 3.9000 .0000 3.9270 .0000 3.9270 .0000
 3.9600 .0000 4.0400 .0000 4.1200 .0000 4.2000 .0000 4.3000 8.6400
 4.4200 2.6348 4.4900 1.3872 4.5800 .5296 4.6700 .0855 4.7124 -.0810
 4.7124 -.0750 4.7400 -.2030 4.8200 -.3750 4.9100 -.6422 4.9700 .0000
 5.0100 .0000 5.0500 .0000 5.0800 .0000 5.1000 .0000 5.1100 .0000
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.4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
.5800 .0000 .6000 .0000 .6300 .0000 .6600 .0000 .6900 .0000
.7200 .0000 .7500 .0000 .7900 .0000 .8300 .0000 .8800 .3200
.9700 .7100 1.0800 .9600 1.2200 1.0900 1.3700 1.1900 1.4800 1.2400
1.5708 1.2300 1.5708 1.2300 1.6400 1.1940 1.7100 1.2000 1.7700 1.2100
1.8300 1.2150 1.9000 1.2200 1.9600 1.2700 2.0200 1.3300 2.1300 1.4600
2.2400 1.7600 2.3300 1.9400 2.4300 2.2100 2.5200 2.4500 2.6200 2.6600
2.7200 2.9000 2.7800 3.0100 2.8300 3.0400 2.8800 3.1100 2.9400 3.1400
3.0000 3.1200 3.0600 3.1300 3.1416 3.1600 3.1416 3.1600 3.1700 3.1900
3.2900 3.1000 3.3900 2.9500 3.4900 2.6800 3.5800 2.4900 3.6600 2.3400
3.7700 2.1500 3.8300 1.9800 3.9000 1.8000 3.9270 1.7500 3.9270 1.7500
3.9600 1.7000 4.0400 1.4500 4.1200 1.2800 4.2000 1.1300 4.3000 .9600
4.4200 .8800 4.4900 .8900 4.5800 .9100 4.6700 .9700 4.7124 .9600
4.7124 .9600 4.7400 .9400 4.8200 .9100 4.9100 .7600 4.9700 .6350
5.0100 .5300 5.0500 .4800 5.0800 .4500 5.1000 .0000 5.1100 .0000
5.1200 .0000

.4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
.5800 .0000 .6000 .0000 .6300 .0000 .6600 .0000 .6900 .0000
.7200 .0000 .7500 .0000 .7900 .0000 .8300 .0000 .8800 .5500
.9700 .5480 1.0800 .5400 1.2200 .5210 1.3700 .4100 1.4800 .3200
1.5708 .2600 1.5708 .2600 1.6400 .2200 1.7100 .2400 1.7700 .2500
1.8300 .2800 1.9000 .4100 1.9600 .5200 2.0200 .6300 2.1300 .8000
2.2400 1.1200 2.3300 1.3300 2.4300 1.6200 2.5200 1.8400 2.6200 2.1100
2.7200 2.2500 2.7800 2.3500 2.8300 2.3900 2.8800 2.4700 2.9400 2.5200
3.0000 2.5100 3.0600 2.5000 3.1416 2.5100 3.1416 2.5100 3.1700 2.5080

3.2900 2.4100 3.3900 2.2900 3.4900 2.0700 3.5800 1.9000 3.6600 1.7400
3.7700 1.5300 3.8300 1.3500 3.9000 1.1700 3.9270 1.1100 3.9270 1.1100
3.9600 1.0600 4.0400 .8000 4.1200 .6100 4.2000 .4400 4.3000 .2800
4.4200 .1400 4.4900 .0400 4.5800 -.0600 4.6700 -.1700 4.7124 -.2000
4.7124 -.2000 4.7400 -.2900 4.8200 -.3500 4.9100 -.5300 4.9700 -.6200
5.0100 -.6500 5.0500 -.6900 5.0800 -.7000 5.1000 .0000 5.1100 .0000
5.1200 .0000
4.00 76 76
.4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
.5800 .0000 .6000 .0000 .6300 .0000 .6600 .0000 .6900 .0000
.7200 .2200 .7500 .3500 .7900 .4600 .8300 .5300 .8800 .6600
.9700 .9800 1.0800 .9100 1.2200 1.0400 1.3700 1.1200 1.4800 1.1600
1.5708 1.1800 1.5708 1.1800 1.6400 1.2100 1.7100 1.1800 1.7700 1.1400
1.8300 1.1300 1.9000 1.1250 1.9600 1.1220 2.0200 1.1280 2.1300 1.1400
2.2400 1.2300 2.3300 1.3000 2.4300 1.3700 2.5200 1.4500 2.6200 1.4200
2.7200 1.6600 2.7800 1.7000 2.8300 1.7200 2.8800 1.7300 2.9400 1.7200
3.0000 1.7100 3.0600 1.6900 3.1416 1.6700 3.1416 1.6700 3.1700 1.6400
3.2900 1.5600 3.3900 1.4600 3.4900 1.3600 3.5800 1.2900 3.6600 1.2200
3.7700 1.1400 3.8300 1.0500 3.9000 .9700 3.9270 .9300 3.9270 .9300
3.9600 .8900 4.0400 .8500 4.1200 .7700 4.2000 .7300 4.3000 .7200
4.4200 .7320 4.4900 .7800 4.5800 .8400 4.6700 .9000 4.7124 .9100
4.7124 .9100 4.7400 .9000 4.8200 .8900 4.9100 .8510 4.9700 .7000
5.0100 .6300 5.0500 .5400 5.0800 .4600 5.1000 .4400 5.1100 .0000
5.1200 .0000
.4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000

.5800 .0000 .6000 .0000 .6300 .0000 .6600 .0000 .6900 .0000
.7200 .4700 .7500 .4800 .7900 .5100 .8300 .5200 .8800 .5510
.9700 .5600 1.0800 .5500 1.2200 .5000 1.3700 .4200 1.4800 .3300
1.5708 .2800 1.5708 .2800 1.6400 .2400 1.7100 .2450 1.7700 .2600
1.8300 .2900 1.9000 .3000 1.9600 .3800 2.0200 .4700 2.1300 .5800
2.2400 .8000 2.3300 .9200 2.4300 1.0800 2.5200 1.2400 2.6200 1.5600
2.7200 1.8000 2.7800 1.6500 2.8300 1.7200 2.8800 1.7600 2.9400 1.7920
3.0000 1.7000 3.0600 1.7980 3.1416 1.7900 3.1416 1.7900 3.1700 1.7700
3.2900 1.6600 3.3900 1.5900 3.4900 1.4700 3.5800 1.3400 3.6600 1.2100
3.7700 1.1200 3.8300 .9100 3.9000 .7800 3.9270 .7100 3.9270 .7100
3.9600 .6300 4.0400 .5500 4.1200 .4000 4.2000 .3000 4.3000 .2000
4.4200 -.1800 4.4900 -.1700 4.5800 -.1600 4.6700 -.1500 4.7124 -.1900
4.7124 -.1900 4.7400 -.2300 4.8200 -.3100 4.9100 -.4200 4.9700 -.5400
5.0100 -.5800 5.0500 -.6950 5.0800 -.7500 5.1000 -.7700 5.1100 .0000
5.1200 .0000
8.000 76 76
.4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .1500
.5800 .1580 .6000 .1900 .6300 .2400 .6600 .2900 .6900 .3400
.7200 .3900 .7500 .4400 .7900 .5000 .8300 .5900 .8800 .6610
.9700 .7800 1.0800 .9000 1.2200 1.0100 1.3700 1.1300 1.4800 1.1620
1.5708 1.1650 1.5708 1.1650 1.6400 1.1700 1.7100 1.1600 1.7700 1.1500
1.8300 1.1490 1.9000 1.1480 1.9600 1.1400 2.0200 1.1100 2.1300 1.1000
2.2400 1.0900 2.3300 1.1200 2.4300 1.1500 2.5200 1.1900 2.6200 1.2100
2.7200 1.2700 2.7800 1.2400 2.8300 1.2380 2.8800 1.2300 2.9400 1.2200
3.0000 1.2000 3.0600 1.1700 3.1416 1.1530 3.1416 1.1530 3.1700 1.1120

3.2900 1.0300 3.3900 1.0100 3.4900 .9500 3.5800 .8800 3.6600 .8300
 3.7700 .7600 3.8300 .7100 3.9000 .6800 3.9270 .6600 3.9270 .6600
 3.9600 .6500 4.0400 .6200 4.1200 .6000 4.2000 .6050 4.3000 .6200
 4.4200 .6800 4.4900 .7300 4.5800 .7700 4.6700 .8300 4.7124 .8400
 4.7124 .8400 4.7400 .8500 4.8200 .8470 4.9100 .7900 4.9700 .7100
 5.0100 .6400 5.0500 .5700 5.0800 .4900 5.1000 .4500 5.1100 .4300
 5.1200 .0000
 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .3300
 .5800 .3350 .6000 .3600 .6300 .3900 .6600 .4100 .6900 .4400
 .7200 .4600 .7500 .4810 .7900 .5000 .8300 .5300 .8800 .5400
 .9700 .5610 1.0800 .5510 1.2200 .5100 1.3700 .4220 1.4800 .3600
 1.5708 .3400 1.5708 .3400 1.6400 .3300 1.7100 .3100 1.7700 .3200
 1.8300 .3400 1.9000 .3600 1.9600 .3800 2.0200 .4400 2.1300 .5300
 2.2400 .6300 2.3300 .7500 2.4300 .8800 2.5200 1.0200 2.6200 1.1500
 2.7200 1.2300 2.7800 1.3200 2.8300 1.3700 2.8800 1.4000 2.9400 1.4200
 3.0000 1.4300 3.0600 1.4200 3.1416 1.4100 3.1416 1.4100 3.1700 1.3800
 3.2900 1.3000 3.3900 1.2600 3.4900 1.1600 3.5800 1.0400 3.6600 .9200
 3.7700 .7900 3.8300 .6800 3.9000 .5800 3.9270 .5400 3.9270 .5400
 3.9600 .4900 4.0400 .4100 4.1200 .2900 4.2000 .2000 4.3000 .1200
 4.4200 .0200 4.4900 -.0300 4.5800 -.0800 4.6700 -.1600 4.7124 -.1800
 4.7124 -.1800 4.7400 -.2200 4.8200 -.3150 4.9100 -.3900 4.9700 -.4000
 5.0100 -.4050 5.0500 -.5450 5.0800 -.7600 5.1000 -.7800 5.1100 -.8000
 5.1200 .0000
 12.000 76 76
 .4900 .1100 .5000 .1300 .5200 .1400 .5400 .1700 .5600 .1900

.5800 .2100 .6000 .2300 .6300 .2700 .6600 .3000 .6900 .3500
.7200 .3910 .7500 .4410 .7900 .5100 .8300 .5600 .8800 .6300
.9700 .7600 1.0800 .8900 1.2200 1.0300 1.3700 1.0900 1.4800 1.1300
1.5708 1.1600 1.5708 1.1600 1.6400 1.1900 1.7100 1.2200 1.7700 1.1630
1.8300 1.1330 1.9000 1.1100 1.9600 1.1000 2.0200 1.0900 2.1300 1.0500
2.2400 1.0300 2.3300 1.0200 2.4300 1.0180 2.5200 1.0160 2.6200 1.0150
2.7200 1.0120 2.7800 1.0010 2.8300 .9900 2.8800 .9800 2.9400 .9700
3.0000 .9500 3.0600 .9200 3.1416 .8900 3.1416 .8900 3.1700 .8700
3.2900 .8000 3.3900 .7500 3.4900 .7000 3.5800 .6600 3.6600 .6200
3.7700 .5700 3.8300 .5400 3.9000 .5300 3.9270 .5200 3.9270 .5200
3.9600 .5100 4.0400 .5000 4.1200 .5230 4.2000 .5500 4.3000 .5800
4.4200 .6300 4.4900 .6900 4.5800 .7400 4.6700 .7900 4.7124 .8200
4.7124 .8200 4.7400 .8300 4.8200 .8250 4.9100 .8000 4.9700 .7200
5.0100 .6420 5.0500 .5750 5.0800 .5130 5.1000 .4700 5.1100 .4420
5.1200 .4300
.4900 .2600 .5000 .2800 .5200 .2900 .5400 .3100 .5600 .3310
.5800 .3500 .6000 .3700 .6300 .3910 .6600 .4120 .6900 .4410
.7200 .4610 .7500 .4820 .7900 .5160 .8300 .5210 .8800 .5410
.9700 .5620 1.0800 .5700 1.2200 .5430 1.3700 .4620 1.4800 .4010
1.5708 .3500 1.5708 .3500 1.6400 .3400 1.7100 .3300 1.7700 .3320
1.8300 .3200 1.9000 .3340 1.9600 .3520 2.0200 .3800 2.1300 .4420
2.2400 .5230 2.3300 .6300 2.4300 .7400 2.5200 .8500 2.6200 .9500
2.7200 1.0600 2.7800 1.1100 2.8300 1.1500 2.8800 1.1800 2.9400 1.2000
3.0000 1.2200 3.0600 1.1900 3.1416 1.1700 3.1416 1.1700 3.1700 1.1600
3.2900 1.1000 3.3900 1.0300 3.4900 .9540 3.5800 .8520 3.6600 .7500

3.7700 .6200 3.8300 .5300 3.9000 .4610 3.9270 .4200 3.9270 .4200
 3.9600 .3930 4.0400 .3000 4.1200 .2200 4.2000 .1400 4.3000 .0700
 4.4200 .0100 4.4900 -.0400 4.5800 -.0900 4.6700 -.1400 4.7124 -.1920
 4.7124 -.1920 4.7400 -.2350 4.8200 -.4000 4.9100 -.5400 4.9700 -.6300
 5.0100 -.6800 5.0500 -.7100 5.0800 -.7400 5.1000 -.7850 5.1100 -.7900
 5.1200 -.8100
 16.000 76 76
 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .1510
 .5800 .1600 .6000 .2100 .6300 .2600 .6600 .3100 .6900 .3510
 .7200 .4000 .7500 .4420 .7900 .5200 .8300 .5610 .8800 .6400
 .9700 .7500 1.0800 .8700 1.2200 .9900 1.3700 1.0800 1.4800 1.1250
 1.5708 1.1300 1.5708 1.1300 1.6400 1.1400 1.7100 1.1210 1.7700 1.1100
 1.8300 1.1000 1.9000 1.1120 1.9600 1.1050 2.0200 1.0800 2.1300 1.0700
 2.2400 1.0200 2.3300 1.0030 2.4300 .9800 2.5200 .9400 2.6200 .9200
 2.7200 .9000 2.7800 .8800 2.8300 .8720 2.8800 .8600 2.9400 .8500
 3.0000 .8100 3.0600 .7800 3.1416 .7400 3.1416 .7400 3.1700 .7200
 3.2900 .6700 3.3900 .6200 3.4900 .5900 3.5800 .5400 3.6600 .5030
 3.7700 .4700 3.8300 .4600 3.9000 .4440 3.9270 .4300 3.9270 .4300
 3.9600 .4320 4.0400 .4460 4.1200 .4700 4.2000 .5200 4.3000 .5630
 4.4200 .6270 4.4900 .6800 4.5800 .7100 4.6700 .7480 4.7124 .7680
 4.7124 .7680 4.7400 .7880 4.8200 .7700 4.9100 .7300 4.9700 .6810
 5.0100 .6450 5.0500 .5970 5.0800 .5230 5.1000 .4780 5.1100 .4610
 5.1200 .4200
 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .3100
 .5800 .3220 .6000 .3500 .6300 .3800 .6600 .4130 .6900 .4420

.7200 .4620 .7500 .4830 .7900 .5130 .8300 .5220 .8800 .5420
 .9700 .5630 1.0800 .5550 1.2200 .5230 1.3700 .4700 1.4800 .4200
 1.5708 .3830 1.5708 .3830 1.6400 .3700 1.7100 .3000 1.7700 .3140
 1.8300 .3300 1.9000 .3520 1.9600 .3670 2.0200 .3900 2.1300 .4480
 2.2400 .5030 2.3300 .5800 2.4300 .6600 2.5200 .7800 2.6200 .8400
 2.7200 .9100 2.7800 .9800 2.8300 1.0200 2.8800 1.0300 2.9400 1.0400
 3.0000 1.0500 3.0600 1.0420 3.1416 1.0100 3.1416 1.0100 3.1700 1.0970
 3.2900 .9600 3.3900 .8900 3.4900 .8200 3.5800 .7200 3.6600 .6400
 3.7700 .5100 3.8300 .4640 3.9000 .3600 3.9270 .3400 3.9270 .3400
 3.9600 .3150 4.0400 .2400 4.1200 .1500 4.2000 .0900 4.3000 .0300
 4.4200 -.0200 4.4900 -.0700 4.5800 -.1200 4.6700 -.1750 4.7124 -.1930
 4.7124 -.1930 4.7400 -.2400 4.8200 -.3300 4.9100 -.4500 4.9700 -.5600
 5.0100 -.6200 5.0500 -.6980 5.0800 -.7550 5.1000 -.7900 5.1100 -.8100
 5.1200 -.8300
 20.000 76 76
 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
 .5800 .1500 .6000 .2000 .6300 .2500 .6600 .3040 .6900 .3520
 .7200 .3920 .7500 .4600 .7900 .5150 .8300 .5700 .8800 .6410
 .9700 .7150 1.0800 .8300 1.2200 .9400 1.3700 1.0500 1.4800 1.0900
 1.5708 1.1000 1.5708 1.1000 1.6400 1.0530 1.7100 1.0800 1.7700 1.0700
 1.8300 1.0900 1.9000 1.1050 1.9600 1.0950 2.0200 1.0750 2.1300 1.0300
 2.2400 1.0240 2.3300 .9600 2.4300 .9300 2.5200 .9000 2.6200 .8700
 2.7200 .8400 2.7800 .8100 2.8300 .7900 2.8800 .7800 2.9400 .7600
 3.0000 .7120 3.0600 .6900 3.1416 .6600 3.1416 .6600 3.1700 .6420
 3.2900 .5730 3.3900 .5400 3.4900 .4900 3.5800 .4500 3.6600 .4200

3.7700 .4100 3.8300 .4000 3.9000 .3800 3.9270 .3700 3.9270 .3700
 3.9600 .3820 4.0400 .4120 4.1200 .4400 4.2000 .4800 4.3000 .5420
 4.4200 .5900 4.4900 .6430 4.5800 .6920 4.6700 .7200 4.7124 .7300
 4.7124 .7300 4.7400 .7400 4.8200 .7320 4.9100 .7000 4.9700 .6500
 5.0100 .6350 5.0500 .5800 5.0800 .5200 5.1000 .4820 5.1100 .4520
 5.1200 .532

 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
 .5800 .3100 .6000 .3400 .6300 .3820 .6600 .4140 .6900 .4300
 .7200 .4500 .7500 .4900 .7900 .5180 .8300 .5310 .8800 .5520
 .9700 .5700 1.0800 .5600 1.2200 .5400 1.3700 .4400 1.4800 .3900
 1.5708 .3520 1.5708 .3520 1.6400 .3200 1.7100 .3120 1.7700 .3220
 1.8300 .3330 1.9000 .3620 1.9600 .3800 2.0200 .4000 2.1300 .4440
 2.2400 .5040 2.3300 .5720 2.4300 .6400 2.5200 .7100 2.6200 .7800
 2.7200 .8300 2.7800 .8900 2.8300 .9100 2.8800 .9200 2.9400 .9320
 3.0000 .9300 3.0600 .9220 3.1416 .9120 3.1416 .9120 3.1700 .9000
 3.2900 .8320 3.3900 .7820 3.4900 .6900 3.5800 .6200 3.6600 .5520
 3.7700 .4410 3.8300 .3920 3.9000 .3110 3.9270 .2800 3.9270 .2800
 3.9600 .2600 4.0400 .1800 4.1200 .1300 4.2000 .0700 4.3000 .0200
 4.4200 -.0300 4.4900 -.0600 4.5800 -.1400 4.6700 -.1900 4.7124 -.2200
 4.7124 -.2200 4.7400 -.2700 4.8200 -.3400 4.9100 -.4550 4.9700 -.5500
 5.0100 -.6100 5.0500 -.6800 5.0800 -.7580 5.1000 -.7950 5.1100 -.8200
 5.1200 -.8320

 24.000 76 76

 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .1500
 .5800 .1610 .6000 .2110 .6300 .2610 .6600 .3200 .6900 .3600

.7200 .4100 .7500 .4500 .7900 .5030 .8300 .5620 .8800 .6000
.9700 .7120 1.0800 .8200 1.2200 .9300 1.3700 1.0200 1.4800 1.0600
1.5708 1.1060 1.5708 1.1060 1.6400 1.1100 1.7100 1.1120 1.7700 1.1160
1.8300 1.1180 1.9000 1.1200 1.9600 1.1190 2.0200 1.1170 2.1300 1.0620
2.2400 1.0220 2.3300 .9700 2.4300 .9320 2.5200 .8800 2.6200 .8400
2.7200 .8000 2.7800 .7700 2.8300 .7400 2.8800 .7200 2.9400 .7000
3.0000 .6500 3.0600 .6200 3.1416 .5900 3.1416 .5900 3.1700 .5620
3.2900 .5040 3.3900 .4800 3.4900 .4400 3.5800 .3900 3.6600 .3800
3.7700 .3700 3.8300 .3500 3.9000 .3400 3.9270 .3450 3.9270 .3450
3.9600 .3520 4.0400 .3820 4.1200 .4200 4.2000 .4700 4.3000 .5300
4.4200 .5800 4.4900 .6300 4.5800 .6600 4.6700 .6900 4.7124 .7020
4.7124 .7020 4.7400 .7100 4.8200 .7090 4.9100 .6920 4.9700 .6620
5.0100 .6100 5.0500 .5630 5.0800 .5250 5.1000 .4900 5.1100 .4720
5.1200 .4420
.4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .3100
.5800 .3200 .6000 .3510 .6300 .3810 .6600 .4150 .6900 .4440
.7200 .4630 .7500 .4840 .7900 .5120 .8300 .5330 .8800 .5430
.9700 .5640 1.0800 .5560 1.2200 .5320 1.3700 .4680 1.4800 .4110
1.5708 .3600 1.5708 .3600 1.6400 .3510 1.7100 .3550 1.7700 .3610
1.8300 .3810 1.9000 .4000 1.9600 .4200 2.0200 .4300 2.1300 .4620
2.2400 .5100 2.3300 .5700 2.4300 .6200 2.5200 .6700 2.6200 .7200
2.7200 .7700 2.7800 .8100 2.8300 .8300 2.8800 .8400 2.9400 .8350
3.0000 .8320 3.0600 .8200 3.1416 .8180 3.1416 .8180 3.1700 .8000
3.2900 .7400 3.3900 .6900 3.4900 .6300 3.5800 .5420 3.6600 .5050
3.7700 .3900 3.8300 .3220 3.9000 .2800 3.9270 .2500 3.9270 .2500

3.9600 .2200 4.0400 .1400 4.1200 .1010 4.2000 .0500 4.3000 .0010
4.4200 -.0500 4.4900 -.0900 4.5800 -.1500 4.6700 -.1800 4.7124 -.2250
4.7124 -.2250 4.7400 -.2450 4.8200 -.3600 4.9100 -.4400 4.9700 -.5450
5.0100 -.6300 5.0500 -.7000 5.0800 -.7530 5.1000 -.7770 5.1100 -.7950
5.1200 -.8140
28.000 76 76
.4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
.5800 .1510 .6000 .2120 .6300 .2620 .6600 .3030 .6900 .3610
.7200 .4080 .7500 .4510 .7900 .5140 .8300 .5500 .8800 .6100
.9700 .7300 1.0800 .8100 1.2200 .9100 1.3700 1.0100 1.4800 1.0500
1.5708 1.0900 1.5708 1.0900 1.6400 1.1130 1.7100 1.1200 1.7700 1.1110
1.8300 1.1150 1.9000 1.1210 1.9600 1.1120 2.0200 1.0920 2.1300 1.0510
2.2400 1.0110 2.3300 .9660 2.4300 .9200 2.5200 .8700 2.6200 .8300
2.7200 .7800 2.7800 .7500 2.8300 .7320 2.8800 .7100 2.9400 .6600
3.0000 .6120 3.0600 .5900 3.1416 .5600 3.1416 .5600 3.1700 .5510
3.2900 .4900 3.3900 .4510 3.4900 .4110 3.5800 .3610 3.6600 .3550
3.7700 .3400 3.8300 .3350 3.9000 .3300 3.9270 .3340 3.9270 .3340
3.9600 .3410 4.0400 .3700 4.1200 .4100 4.2000 .4600 4.3000 .5200
4.4200 .5700 4.4900 .6200 4.5800 .6610 4.6700 .6800 4.7124 .6900
4.7124 .6900 4.7400 .7000 4.8200 .6910 4.9100 .6810 4.9700 .6650
5.0100 .6122 5.0500 .5610 5.0800 .5120 5.1000 .4800 5.1100 .4700
5.1200 .4400
.4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
.5800 .3210 .6000 .3520 .6300 .3830 .6600 .4110 .6900 .4450
.7200 .4615 .7500 .4910 .7900 .5170 .8300 .5340 .8800 .5530

.9700 .5650 1.0800 .5580 1.2200 .5410 1.3700 .4600 1.4800 .4000
1.5708 .3700 1.5708 .3700 1.6400 .3600 1.7100 .3630 1.7700 .3680
1.8300 .3800 1.9000 .4050 1.9600 .4220 2.0200 .4310 2.1300 .4630
2.2400 .5020 2.3300 .5600 2.4300 .6210 2.5200 .6600 2.6200 .7000
2.7200 .7400 2.7800 .7700 2.8300 .7900 2.8800 .8000 2.9400 .8100
3.0000 .7910 3.0600 .7800 3.1416 .7710 3.1416 .7710 3.1700 .7820
3.2900 .7100 3.3900 .6620 3.4900 .5900 3.5800 .5200 3.6600 .4500
3.7700 .3610 3.8300 .3200 3.9000 .2600 3.9270 .2400 3.9270 .2400
3.9600 .2000 4.0400 .1300 4.1200 .0800 4.2000 .0400 4.3000 -.0100
4.4200 -.0700 4.4900 -.1000 4.5800 -.1460 4.6700 -.1950 4.7124 -.2400
4.7124 -.2400 4.7400 -.2380 4.8200 -.3700 4.9100 -.4580 4.9700 -.5300
5.0100 -.6250 5.0500 -.7150 5.0800 -.7510 5.1000 -.7720 5.1100 -.7920
5.1200 -.8120

5368.37 50.00 44.880 6.7515E+6 1.50 E+6 10.380
5420.70 -61.00 -44.880 6.4394E+6 0.9820 0.109530
24.80 316.00 10.00 0.250 8.00 -1.00
0.210 316.00 0.130 220.00 0.0176 0.00 0.00
0.0 0.240 0.020 8.00 0.486 0.050 16.250
0.0 0.0
90.0 5.70
160.0 11.10
220.0 16.35
290.0 22.70
346.0 28.00
0.0 284.0 0.109530

1.00 284.0 0.109530
 1.001 0.00 0.00
 100000.0 0.00 0.00
 MASINA 10 6 4 1 3.8014 -1.000 0.0 240.0
 5368.37 50.00 44.880 6.7515E+6 1.50 E+6 10.38
 5420.70 -61.00 -44.880 6.4394E+6 0.9820 0.109530
 24.92 317.00 10.00 0.250 8.00 -1.00
 0.210 317.00 0.130 220.00 0.0176 0.00 0.00
 0.0 0.240 0.020 8.00 0.486 0.050 16.250
 0.0 0.0
 90.0 5.70
 160.0 11.10
 220.0 16.35
 290.0 22.70
 346.0 28.00
 0.0 284.0 0.109530
 5.00 284.0 0.109530
 5.001 000.0 0.105960
 100000.0 000.0 0.105960
 RACVA 11
 SPOJ 12
 REZERVOAR 13 0 0 0 284.040
 1 2 120 4 8003.0 6.300 1228.4 0.01323
 122.00 867.900 854.774
 2000.0 4000.0 6000.0 8000.0

2	3	3	0	21.0	6.300	1198.0	0.01306
				122.00	854.774	854.740	
3	4	3	0	18.1	4.800	1097.3	0.00881
				122.00	854.740	854.663	
4	5	40	3	766.0	4.800	1223.3	0.013
				122.00	854.633	849.825	
				0.0	350.0	700.0	
5	6	40	3	663.0	4.200	1243.0	0.013
				122.00	849.825	841.712	
				0.0	300.0	600.0	
6	7	5	0	29.0	3.000	1057.1	0.01256
				61.00	841.712	841.251	
7	9	2	0	12.01	2.200	1097.3	0.01299
				61.00	841.251	840.320	
9	11	10	0	69.0	5.000	796.4	0.01296
				61.00	287.560	287.472	
6	8	7	0	45.0	3.000	1057.1	0.013
				61.00	841.712	840.971	
8	10	2	0	12.01	2.200	1097.3	0.013
				61.00	840.971	840.040	
10	11	10	0	69.0	5.000	796.4	0.01296
				61.00	287.280	287.192	
11	12	30	2	207.0	7.000	1188.0	0.01498
				122.00	287.472	287.245	
				0.0	200.0		

12 13 10 0 64.0 6.500 1157.8 0.01503

122.00 287.245 287.143

BAJINA BASTA ULP5 nq 50

rhe 'bajina basta' - test 5: ispad I masine, II radi i dalje - (dy/dx)min

RADI 0.000 0.000

13 13 30 1 0 1

0.00547 50.00 0.050

1.000 1.300 0.060

REZERVOAR 1 0 0 0 850.10

VODOSTAN 2 20 0 0 0.000945 0.000945 1.00 0.400 900.00

776.00 113.00

777.00 414.60

778.00 695.00

779.00 923.40

781.00 1021.10

783.00 923.40

784.00 695.00

785.00 414.60

786.00 113.00

886.00 113.00

887.40 260.80

888.00 514.90

889.00 944.60

890.00 1111.30

891.00	1197.80									
892.00	1226.10									
893.00	1197.80									
895.00	944.60									
896.00	514.90									
897.20	113.00									
SPOJ	3									
SPOJ	4									
SPOJ	5									
RACVA	6									
SPOJ	7									
SPOJ	8									
MASINA	9	6	4	1	3.8014	-1.000	0.0	240.0		
9										
1.000	76	76								
.4900	.0000	.5000	.0000	.5200	.0000	.5400	.0000	.5600	.0000	
.5800	.0000	.6000	.0000	.6300	.0000	.6600	.0000	.6900	.0000	
.7200	.0000	.7500	.0000	.7900	.0000	.8300	.0000	.8800	.0000	
.9700	.0000	1.0800	.0000	1.2200	.0000	1.3700	.0000	1.4800	.0000	
1.5708	.0000	1.5708	.0000	1.6400	.0000	1.7100	.0000	1.7700	.0000	
1.8300	.0000	1.9000	.0000	1.9600	.0000	2.0200	.0000	2.1300	.0000	
2.2400	.0000	2.3300	.0000	2.4300	.0000	2.5200	.0000	2.6200	.0000	
2.7200	.0000	2.7800	.0000	2.8300	.0000	2.8800	.0000	2.9400	.0000	
3.0000	.0000	3.0600	.0000	3.1416	.0000	3.1416	.0000	3.1700	.0000	
3.2900	.0000	3.3900	.0000	3.4900	.0000	3.5800	.0000	3.6600	.0000	

3.7700 .0000 3.8300 .0000 3.9000 .0000 3.9270 .0000 3.9270 .0000
 3.9600 .0000 4.0400 .0000 4.1200 .0000 4.2000 .0000 4.3000 8.0000
 4.4200 4.6552 4.4900 2.8670 4.5800 1.6106 4.6700 1.1238 4.7124 1.0250
 4.7124 1.0250 4.7400 .9010 4.8200 .5288 4.9100 .5505 4.9700 .0000
 5.0100 .0000 5.0500 .0000 5.0800 .0000 5.1000 .0000 5.1100 .0000
 5.1200 .0000
 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
 .5800 .0000 .6000 .0000 .6300 .0000 .6600 .0000 .6900 .0000
 .7200 .0000 .7500 .0000 .7900 .0000 .8300 .0000 .8800 .0000
 .9700 .0000 1.0800 .0000 1.2200 .0000 1.3700 .0000 1.4800 .0000
 1.5708 .0000 1.5708 .0000 1.6400 .0000 1.7100 .0000 1.7700 .0000
 1.8300 .0000 1.9000 .0000 1.9600 .0000 2.0200 .0000 2.1300 .0000
 2.2400 .0000 2.3300 .0000 2.4300 .0000 2.5200 .0000 2.6200 .0000
 2.7200 .0000 2.7800 .0000 2.8300 .0000 2.8800 .0000 2.9400 .0000
 3.0000 .0000 3.0600 .0000 3.1416 .0000 3.1416 .0000 3.1700 .0000
 3.2900 .0000 3.3900 .0000 3.4900 .0000 3.5800 .0000 3.6600 .0000
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 5.1200 .0000
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 2.7200 .7787 2.7800 .7303 2.8300 .6951 2.8800 .6745 2.9400 .6384
 3.0000 .5978 3.0600 .5642 3.1416 .5280 3.1416 .5280 3.1700 .5120
 3.2900 .4310 3.3900 .3562 3.4900 .3118 3.5800 .2792 3.6600 .2713
 3.7700 .2479 3.8300 .2521 3.9000 .2532 3.9270 .2673 3.9270 .2673
 3.9600 .2854 4.0400 .3154 4.1200 .3542 4.2000 .3963 4.3000 .4447
 4.4200 .4875 4.4900 .5093 4.5800 .5184 4.6700 .5487 4.7124 .5614
 4.7124 .5614 4.7400 .5621 4.8200 .5514 4.9100 .5162 4.9700 .4383
 5.0100 .0000 5.0500 .0000 5.0800 .0000 5.1000 .0000 5.1100 .0000
 5.1200 .0000
 .4900 .0000 .5000 .0000 .5200 .0000 .5400 .0000 .5600 .0000
 .5800 .0000 .6000 .0000 .6300 .0000 .6600 .4021 .6900 .4416
 .7200 .4613 .7500 .4880 .7900 .5145 .8300 .5291 .8800 .5172
 .9700 .4917 1.0800 .5194 1.2200 .5543 1.3700 .5321 1.4800 .5172
 1.5708 .5108 1.5708 .5108 1.6400 .5269 1.7100 .5628 1.7700 .5834

1.8300 .6352 1.9000 .6674 1.9600 .6893 2.0200 .7162 2.1300 .7462
2.2400 .7814 2.3300 .8148 2.4300 .8569 2.5200 .8632 2.6200 .8721
2.7200 .8708 2.7800 .8672 2.8300 .8621 2.8800 .8509 2.9400 .8326
3.0000 .8107 3.0600 .7921 3.1416 .7619 3.1416 .7619 3.1700 .7463
3.2900 .6632 3.3900 .5864 3.4900 .5023 3.5800 .4351 3.6600 .3724
3.7700 .2513 3.8300 .1927 3.9000 .1428 3.9270 .1186 3.9270 .1186
3.9600 .0782 4.0400 .0286 4.1200 .0116 4.2000 -.0853 4.3000 -.1305
4.4200 -.2027 4.4900 -.2151 4.5800 -.2867 4.6700 -.3789 4.7124 -.4438
4.7124 -.4438 4.7400 -.5256 4.8200 -.7231 4.9100 -.7428 4.9700 -.7013
5.0100 .0000 5.0500 .0000 5.0800 .0000 5.1000 .0000 5.1100 .0000
5.1200 .0000

5368.37 50.00 44.880 6.7515E+6 1.50 E+6 10.380

5420.70 -61.00 -44.880 6.4394E+6 0.9820 0.109530

24.80 316.00 10.00 0.250 8.00 -1.00

0.210 316.00 0.130 220.00 0.0176 0.00 0.00

0.0 0.240 0.020 8.00 0.486 0.050 16.250

0.0 0.0

90.0 5.70

160.0 11.10

220.0 16.35

290.0 22.70

346.0 28.00

0.0 284.0 0.109530

1.00 284.0 0.109530

1.001 0.00 0.00

100000.0 0.00 0.00
 MASINA 10 6 4 1 3.8014 -1.000 0.0 240.0
 5368.37 50.00 44.880 6.7515E+6 1.50 E+6 10.38
 5420.70 -61.00 -44.880 6.4394E+6 0.9820 0.109530
 24.92 317.00 10.00 0.250 8.00 -1.00
 0.210 317.00 0.130 220.00 0.0176 0.00 0.00
 0.0 0.240 0.020 8.00 0.486 0.050 16.250
 0.0 0.0
 90.0 5.70
 160.0 11.10
 220.0 16.35
 290.0 22.70
 346.0 28.00
 0.0 284.0 0.109530
 5.00 284.0 0.109530
 5.001 000.0 0.105960
 100000.0 000.0 0.105960

RACVA 11

SPOJ 12

REZERVOAR 13 0 0 0 284.040

1 2 120 4 8003.0 6.300 1228.4 0.01323

122.00 867.900 854.774

2000.0 4000.0 6000.0 8000.0

2 3 3 0 21.0 6.300 1198.0 0.01306

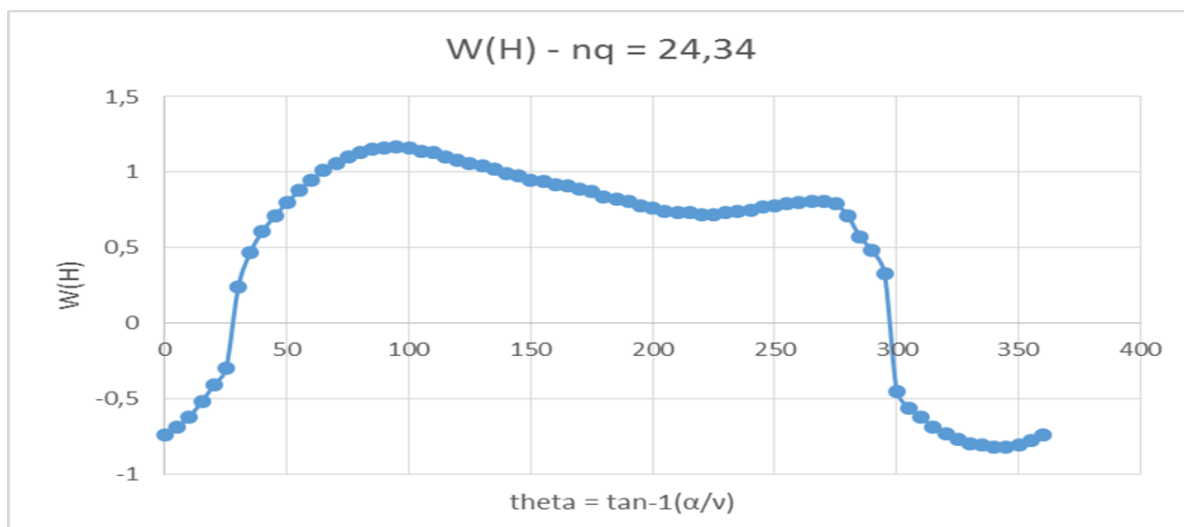
122.00 854.774 854.740

3	4	3	0	18.1	4.800	1097.3	0.00881
				122.00	854.740	854.663	
4	5	40	3	766.0	4.800	1223.3	0.013
				122.00	854.633	849.825	
				0.0	350.0	700.0	
5	6	40	3	663.0	4.200	1243.0	0.013
				122.00	849.825	841.712	
				0.0	300.0	600.0	
6	7	5	0	29.0	3.000	1057.1	0.01256
				61.00	841.712	841.251	
7	9	2	0	12.01	2.200	1097.3	0.01299
				61.00	841.251	840.320	
9	11	10	0	69.0	5.000	796.4	0.01296
				61.00	287.560	287.472	
6	8	7	0	45.0	3.000	1057.1	0.013
				61.00	841.712	840.971	
8	10	2	0	12.01	2.200	1097.3	0.013
				61.00	840.971	840.040	
10	11	10	0	69.0	5.000	796.4	0.01296
				61.00	287.280	287.192	
11	12	30	2	207.0	7.000	1188.0	0.01498
				122.00	287.472	287.245	
				0.0	200.0		
12	13	10	0	64.0	6.500	1157.8	0.01503
				122.00	287.245	287.143	

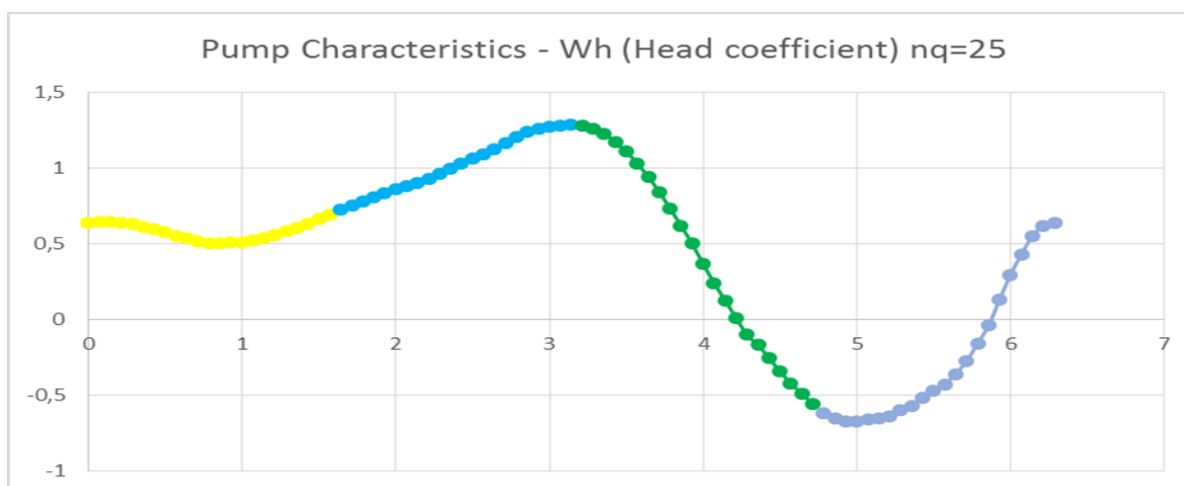
Prilozi

Prilog – P26 Suterove krive $W_h - W_m$ (Thorley, R. D. & Chaudry, A. (1996)) (Wylie. B. E. & Streeter. L. V. (1993)) – (Chaudhry. M. H. (1979))

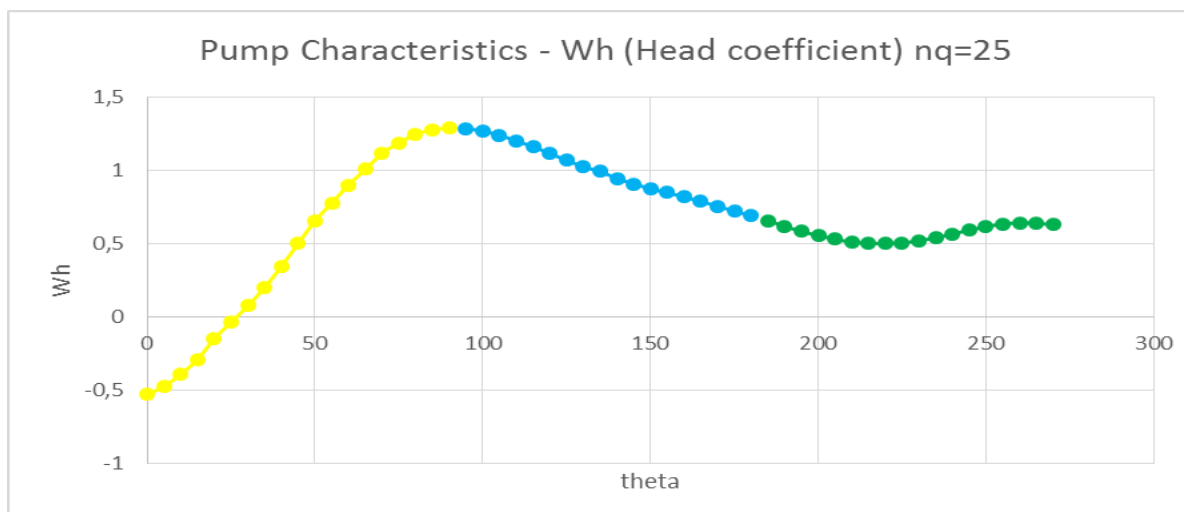
- Pumpa – $Kn=0,46 - nq=24,34 - W(h) -$ Thorley, R. D. & Chaudry, A. (1996)



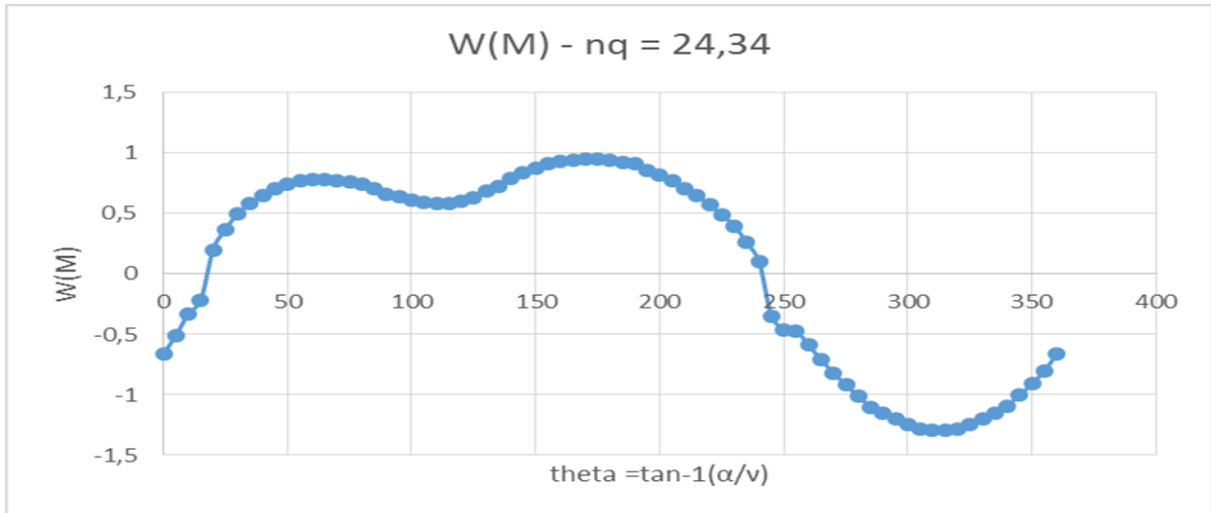
- Pumpa - $nq=35$ (25) – $W(h) -$ Wylie. E. B. & Streeter. V. L. (1993)



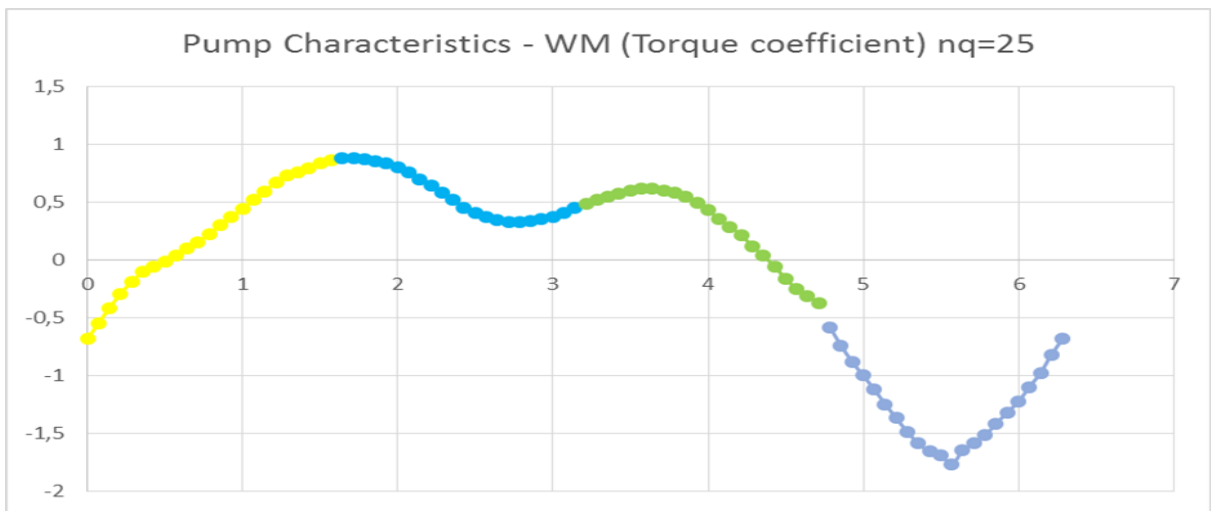
- Pumpa - $nq=35$ (25) – $W(h) -$ Chaudhry, M. H. (1979)



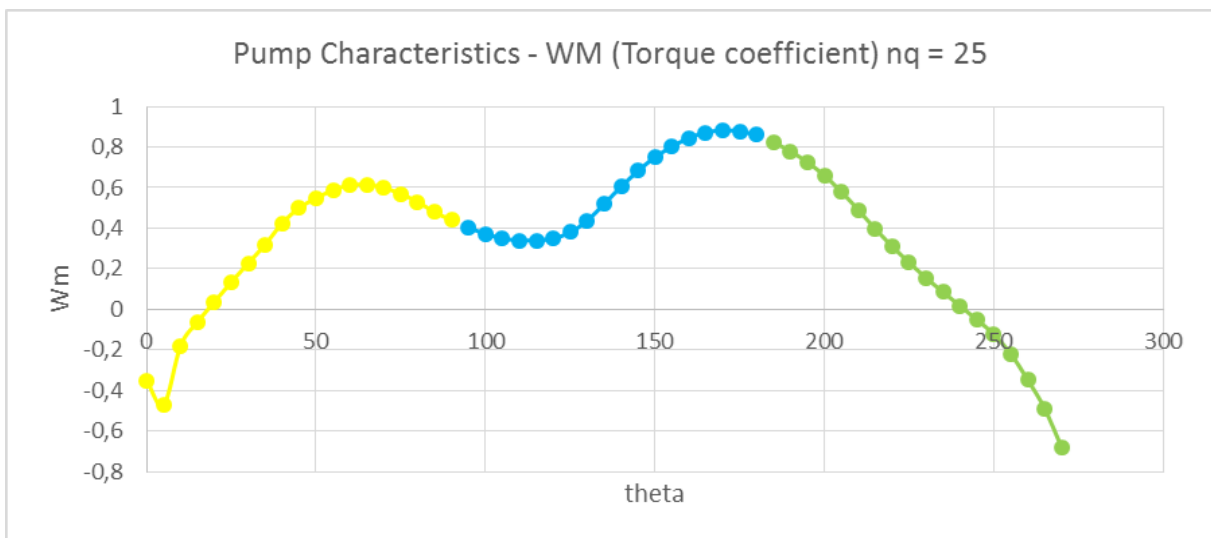
- **Pumpa – Kn=0,46 - nq=24,34 – W(m) - Thorley, R. D. & Chaudry, A. (1996)**



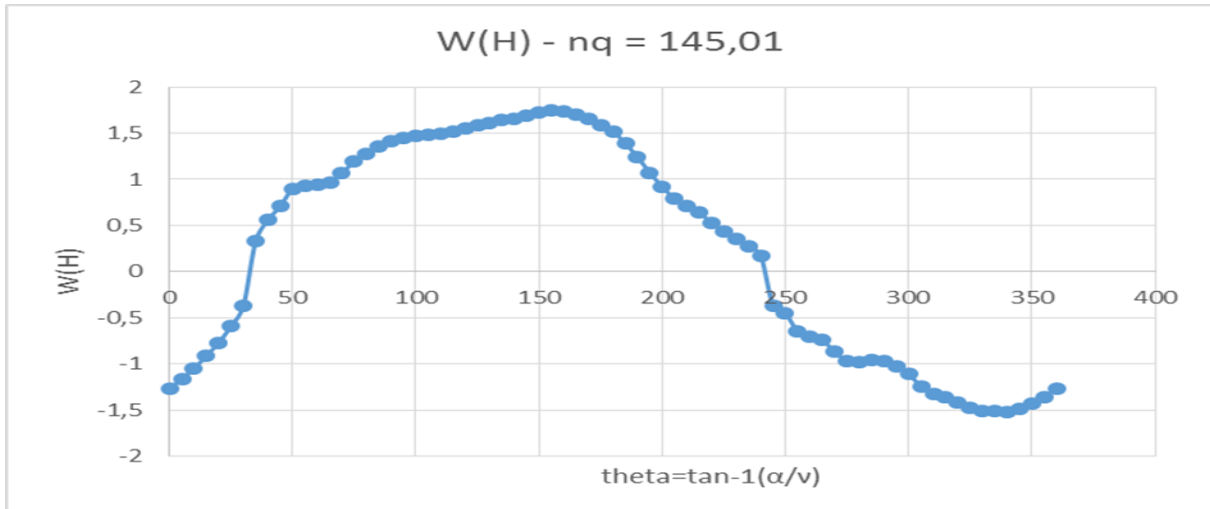
- **Pumpa - nq=35 (25) – W(m) - Wylie. E. B. & Streeter. V. L. (1993)**



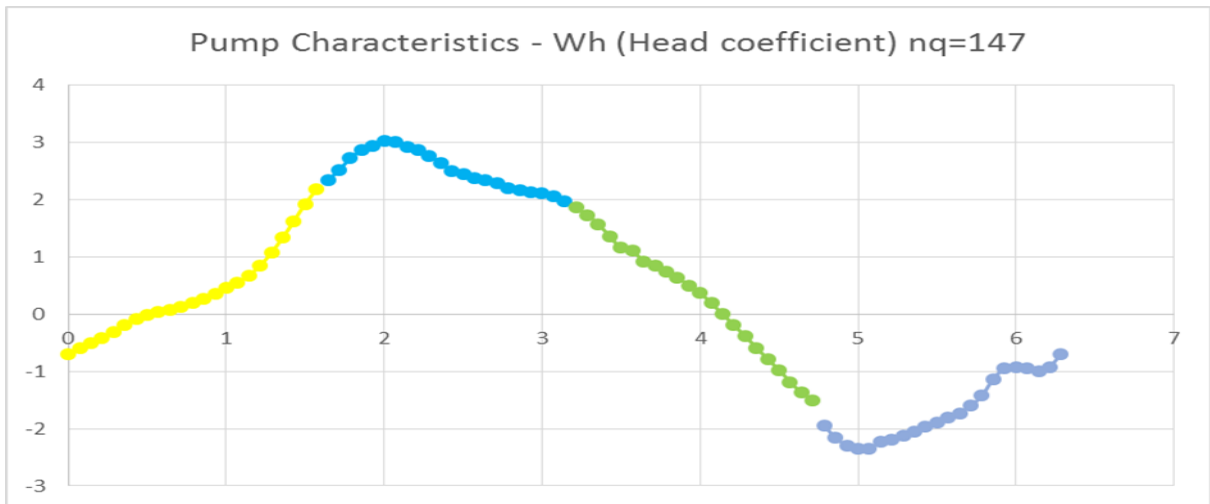
- **Pumpa - nq=35 (25) – W(m) - Chaudhry, M. H. (1979)**



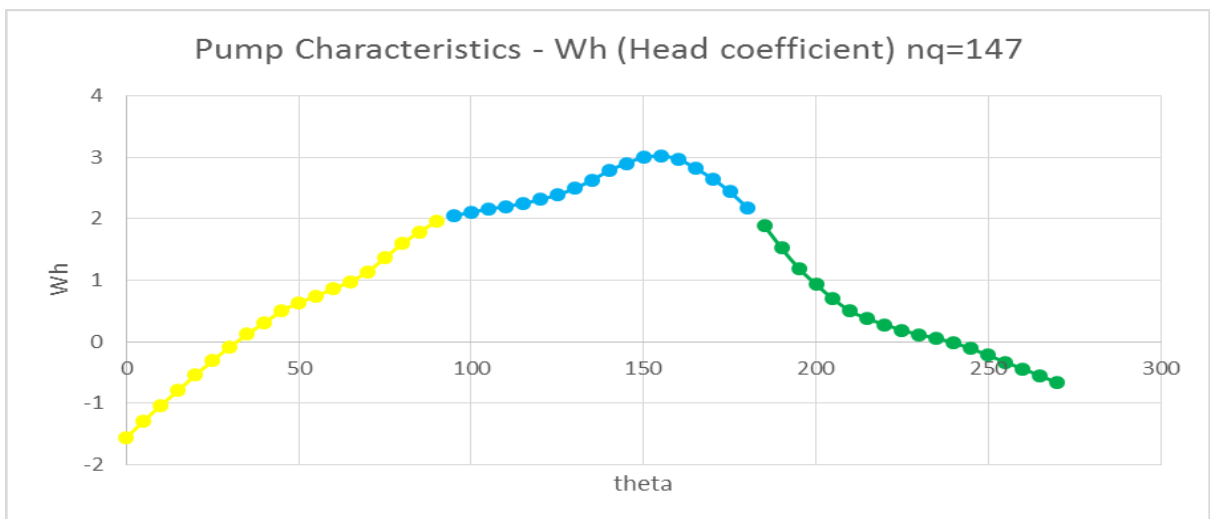
- **Pumpa – Kn=2,74 - nq=145,01 - W(h) - Thorley, R. D. & Chaudry, A. (1996)**



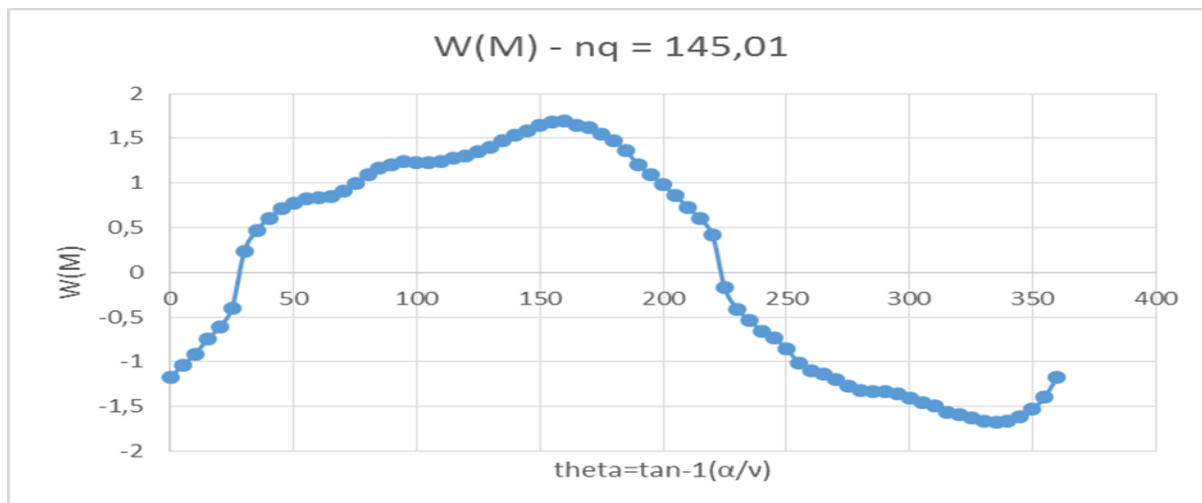
- **Pumpa - nq=147 – W(h) - Wylie. E. B. & Streeter. V. L. (1993)**



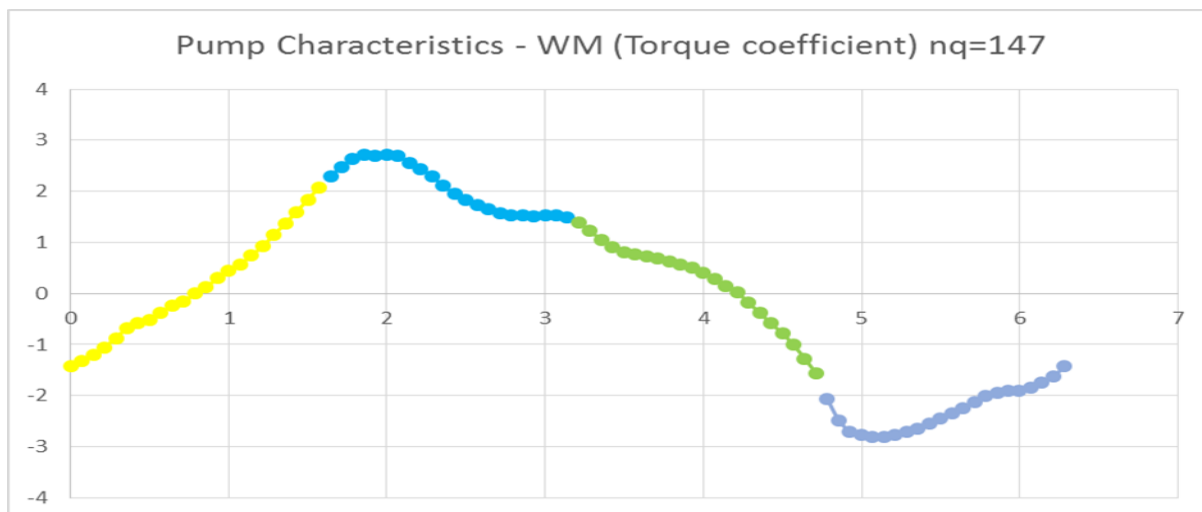
- **Pumpa - nq=147 – W(h) - Chaudhry, M. H. (1979)**



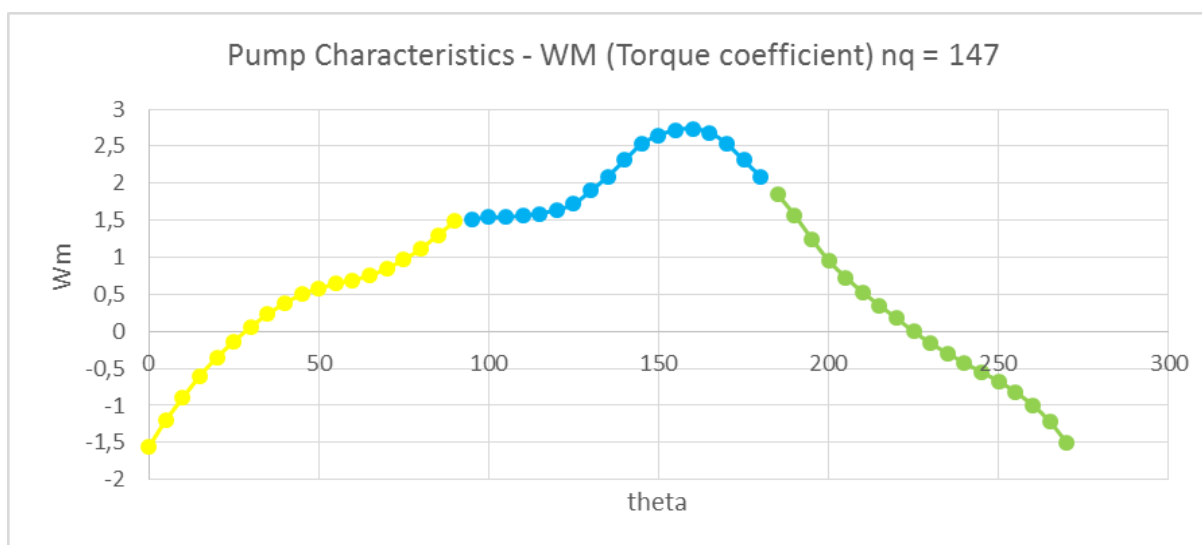
- **Pumpa – Kn=2,74 - nq=145,01 - W(m) - Thorley, R. D. & Chaudry, A. (1996)**



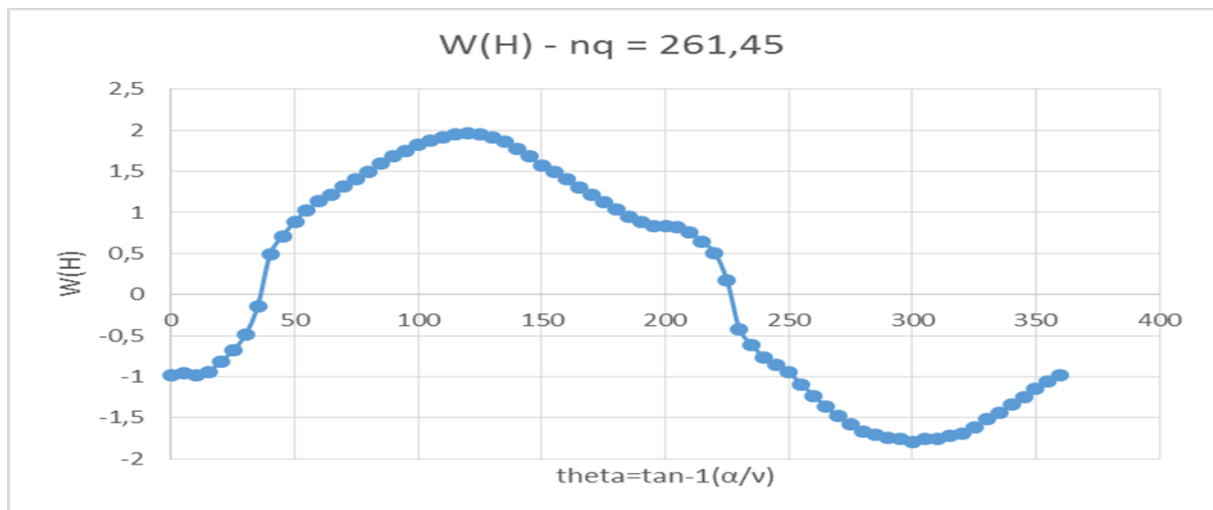
- **Pumpa - nq=147 – W(m) - Wylie. E. B. & Streeter. V. L. (1993)**



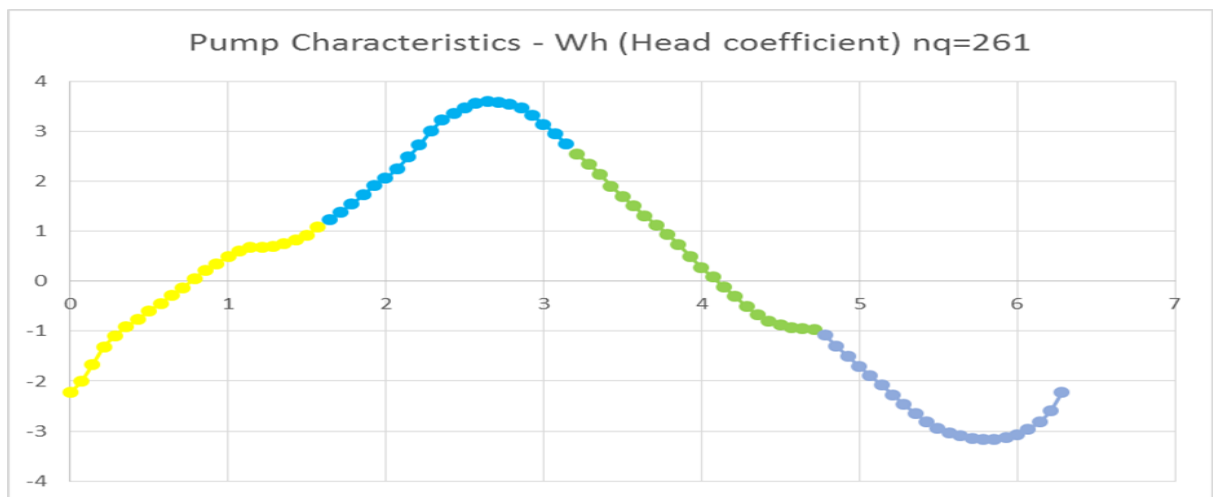
- **Pumpa - nq=147 – W(m) - Chaudhry, M. H. (1979)**



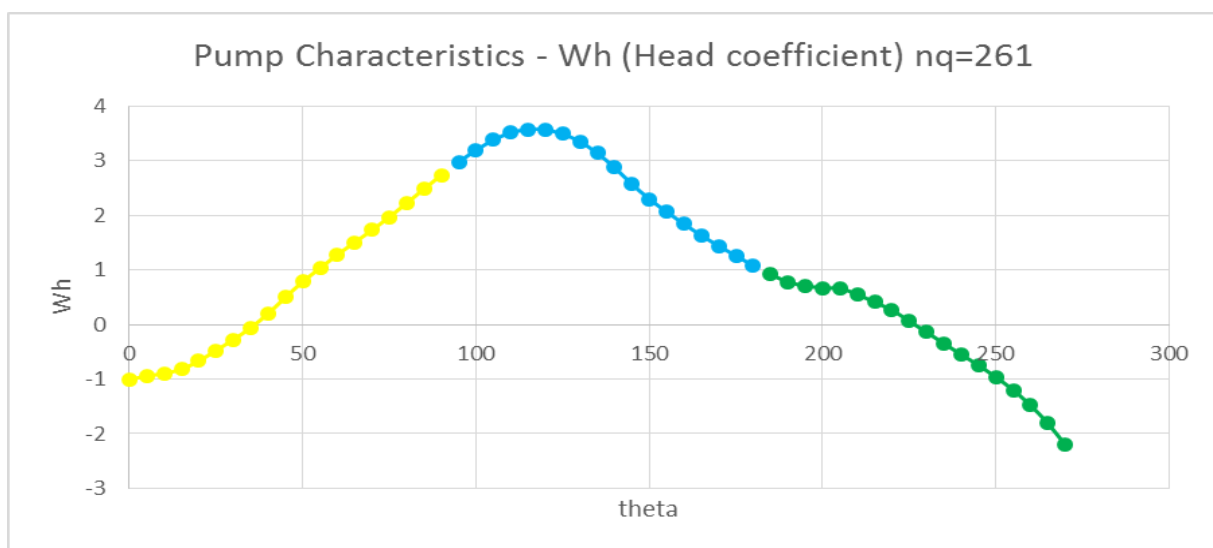
- **Pumpa – Kn=4,94 - nq=261,45 - W(h) - Thorley, R. D. & Chaudry, A. (1996)**



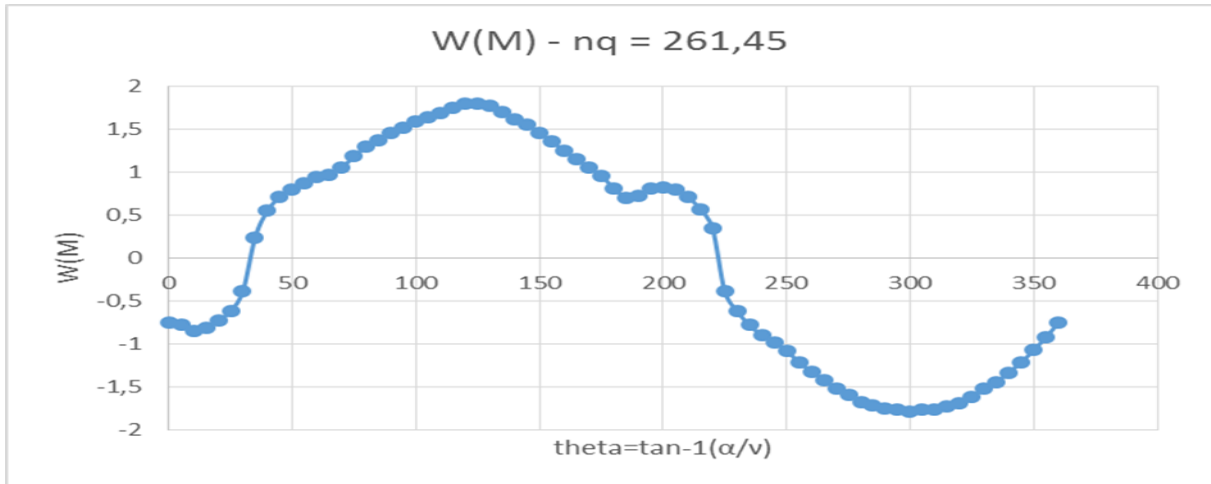
- **Pumpa - nq=261– W(h) - Wylie. E. B. & Streeter. V. L. (1993)**



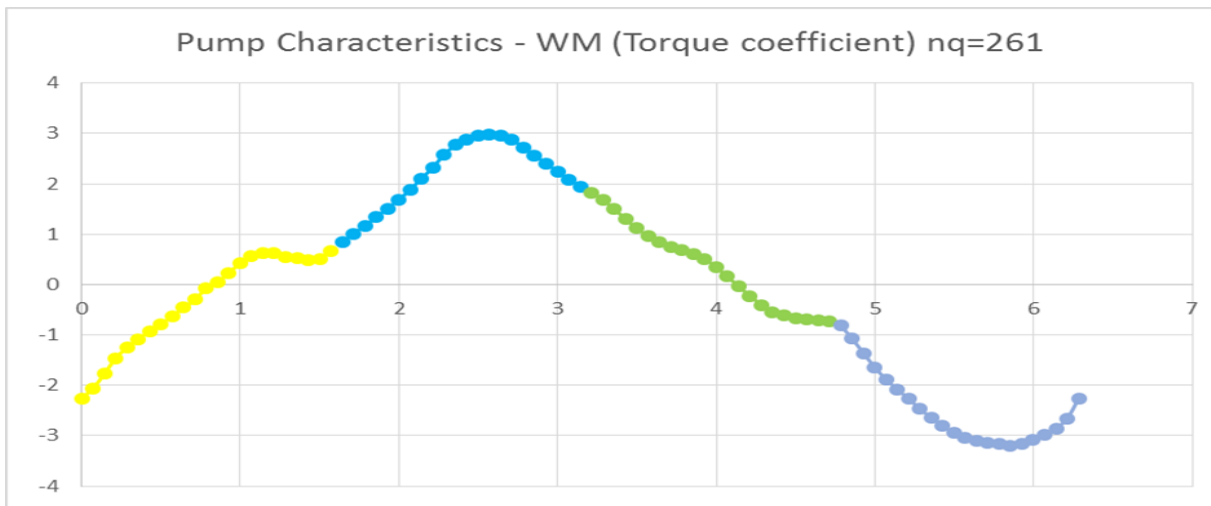
- **Pumpa - nq=261 – W(h) - Chaudhry, M. H. (1979)**



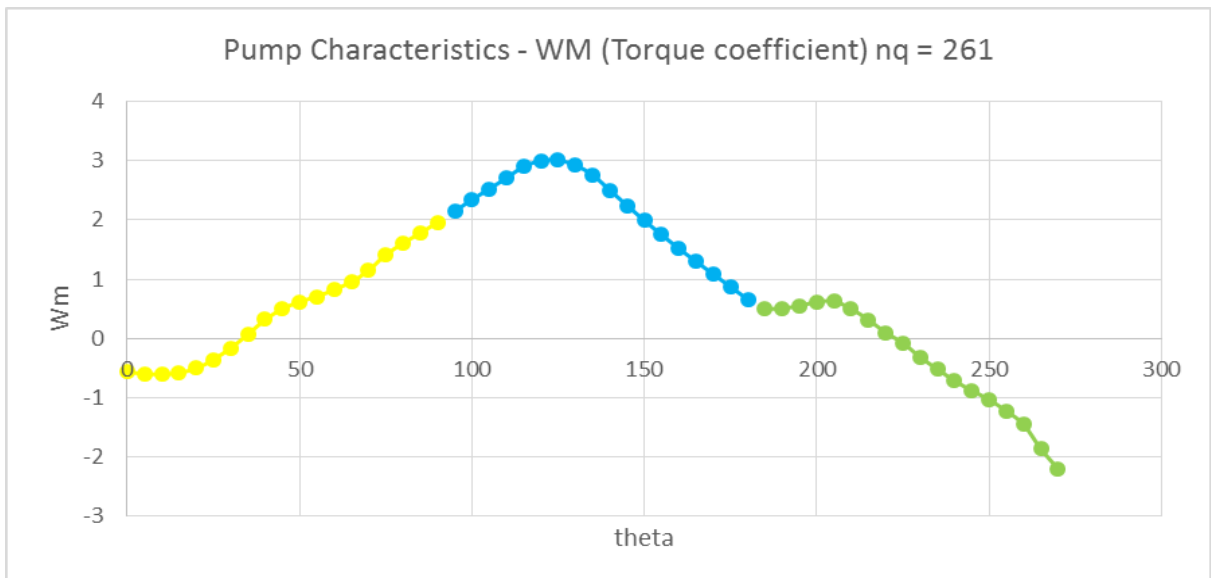
- **Pumpa – Kn=4,94 - nq=261,45 - W(m) - Thorley, R. D. & Chaudry, A. (1996)**



- **Pumpa - nq=261- W(m) - Wylie. E. B. & Streeter. V. L. (1993)**

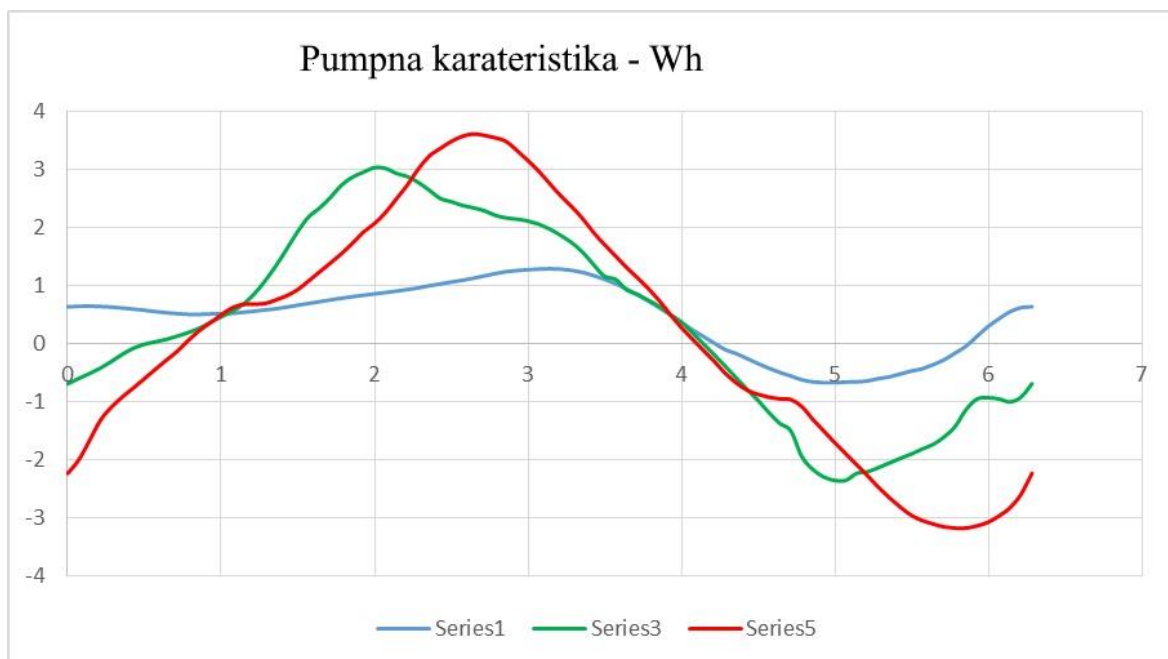


- **Pumpa - nq=261 – W(m) - Chaudhry, M. H. (1979)**



Prilozi

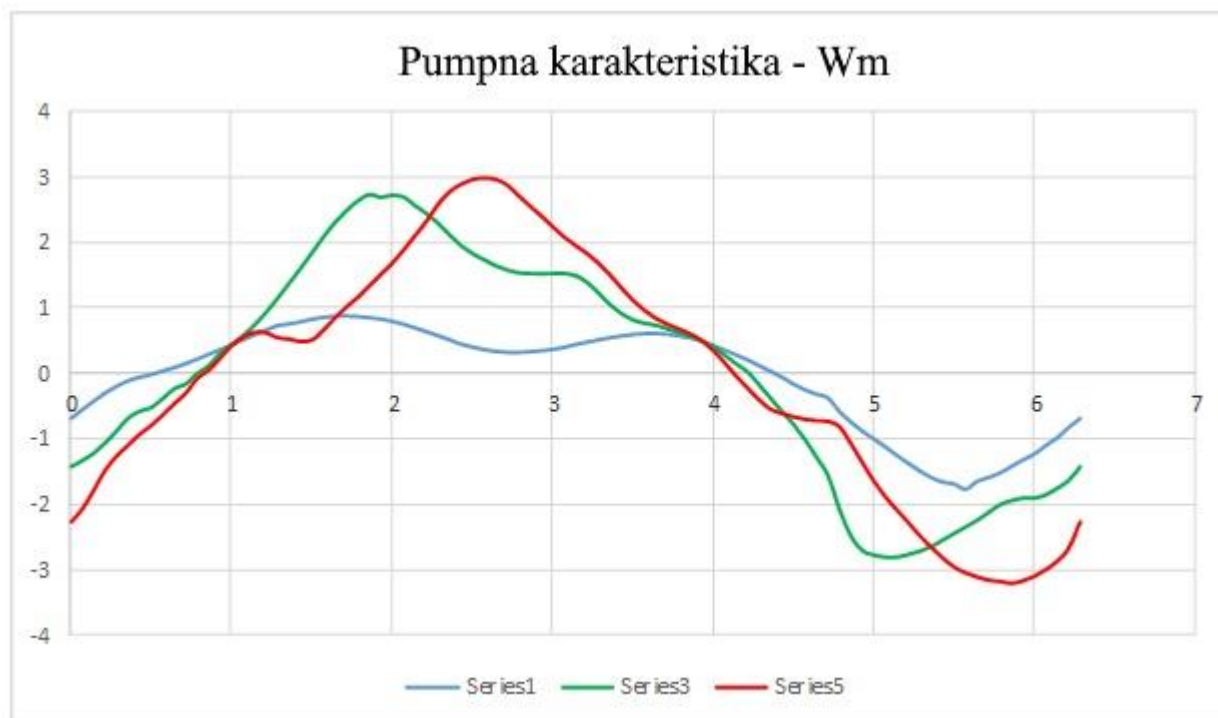
Prilog – P27 Suterove krive Wh – Wm (Wylie. E. B. & Streeter. V. L. (1993))



- Kriva - Series 1 – Wh - Wm - nq=25 - Pumpa

- Kriva - Series 3 – Wh - Wm - nq=147- Pumpa

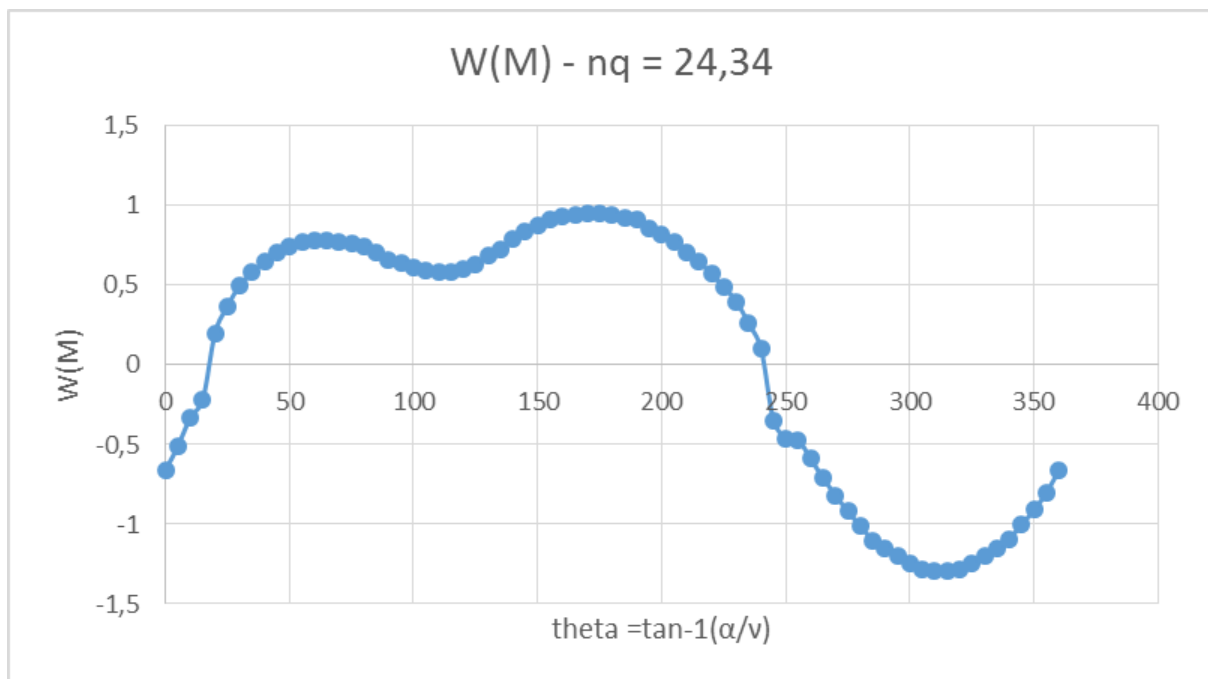
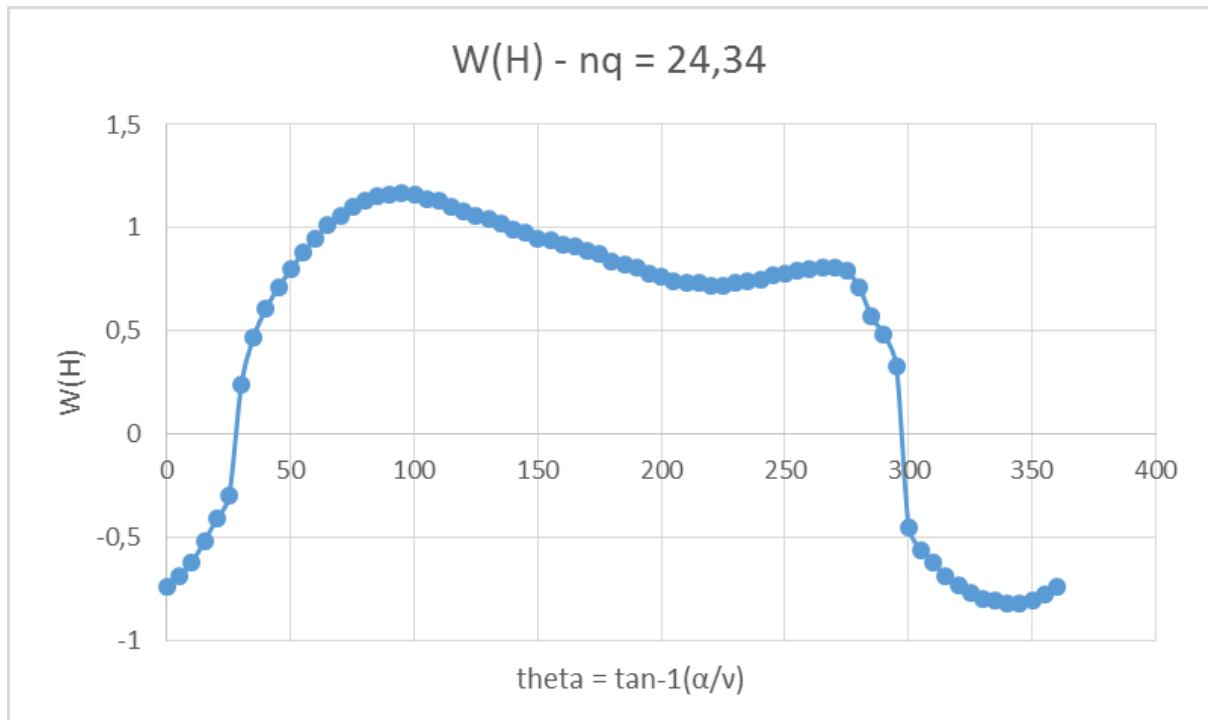
- Kriva - Series 5 – Wh - Wm - nq=261- Pumpa



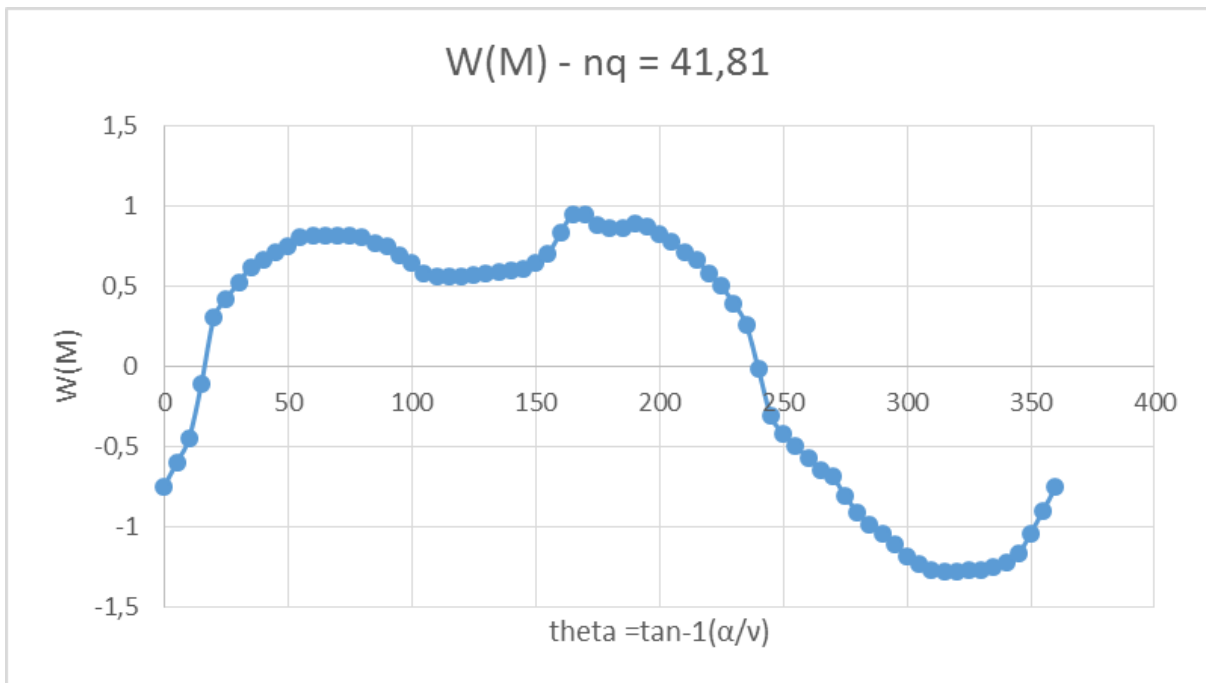
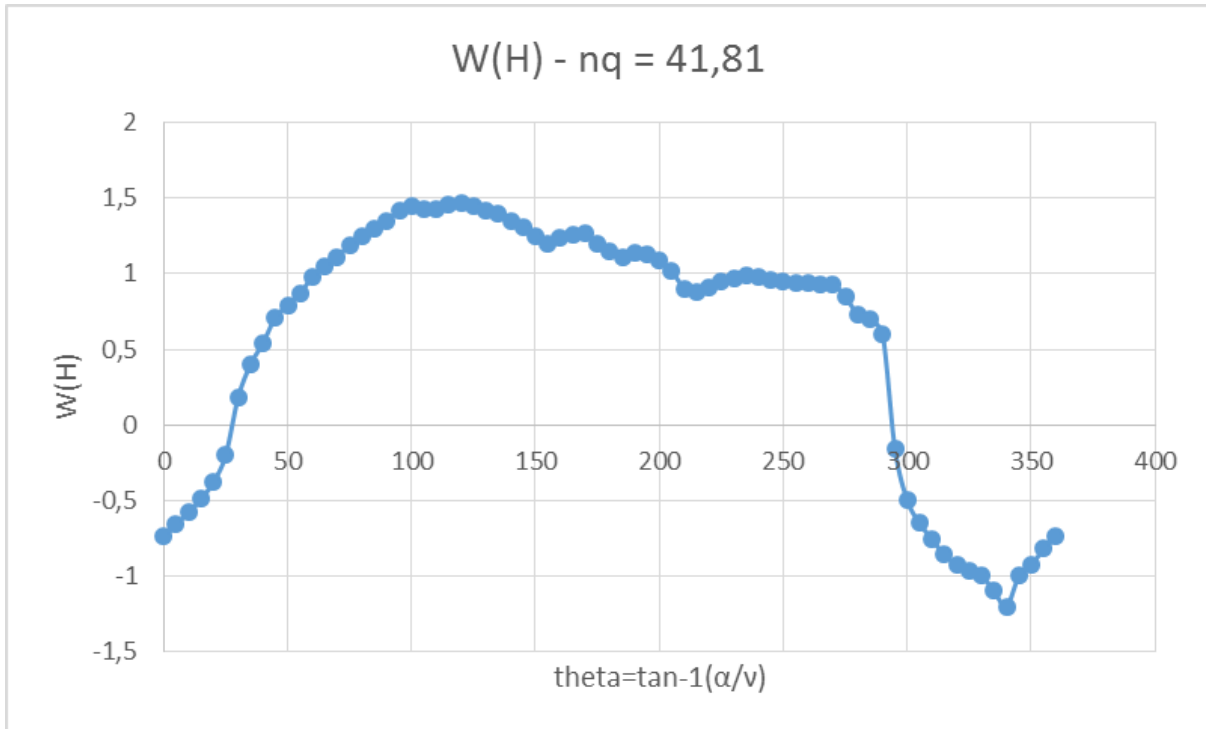
Prilozi

Prilog – P28 Suterove Krive Wh - Wm (Thorley, R. D. & Chaudry, A. (1996))

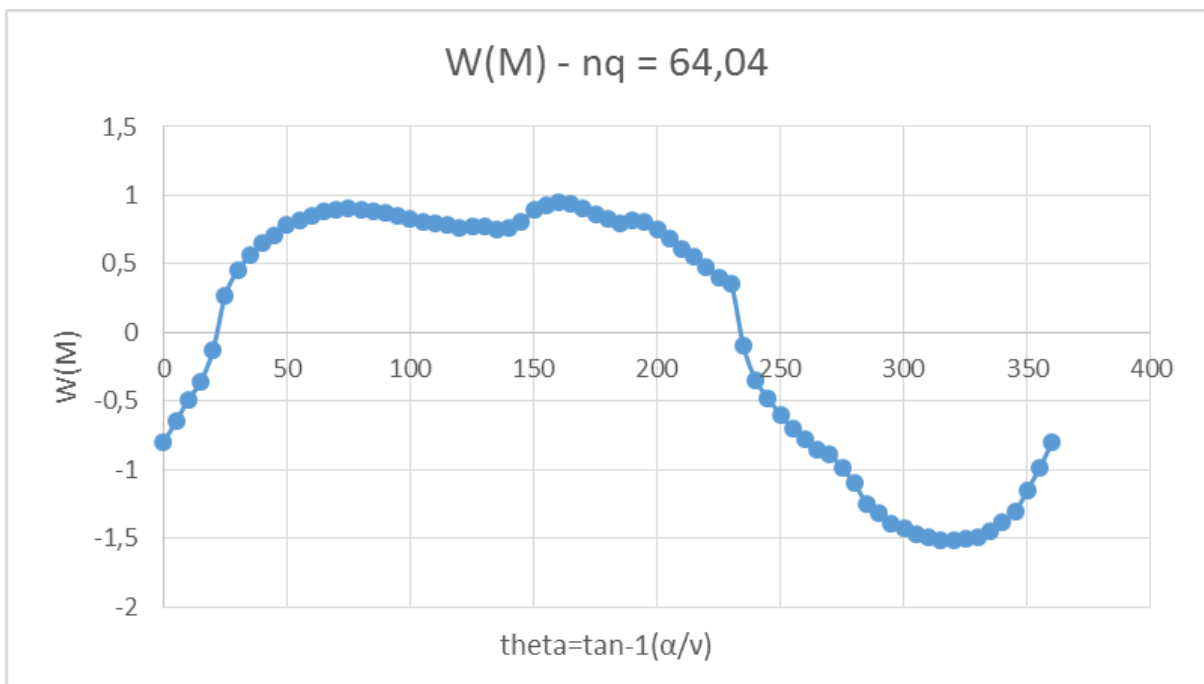
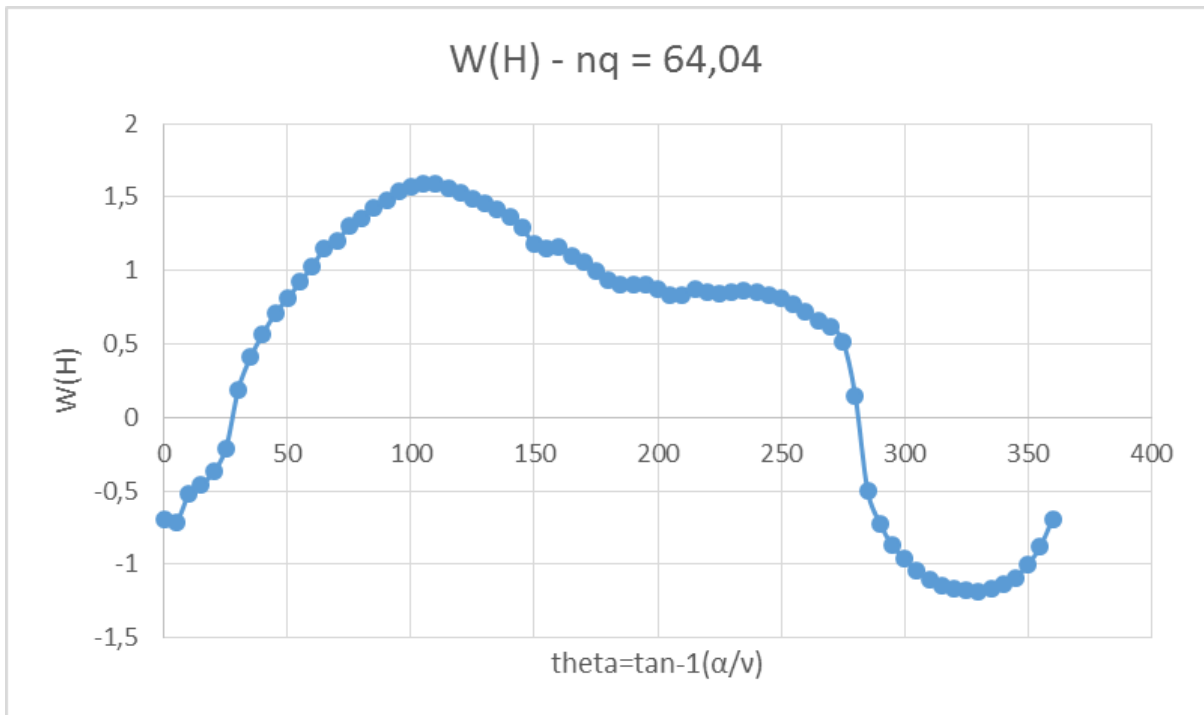
- Pumpa – Kn=0,46 - nq=24,34 – W(H), W(M)



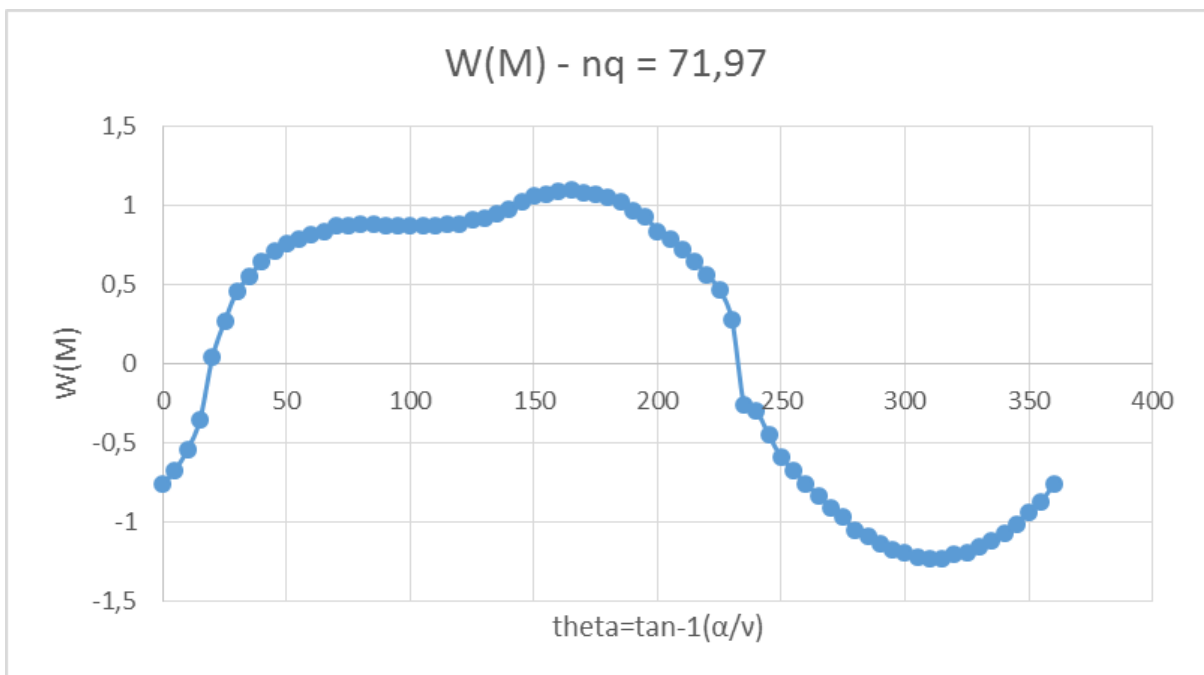
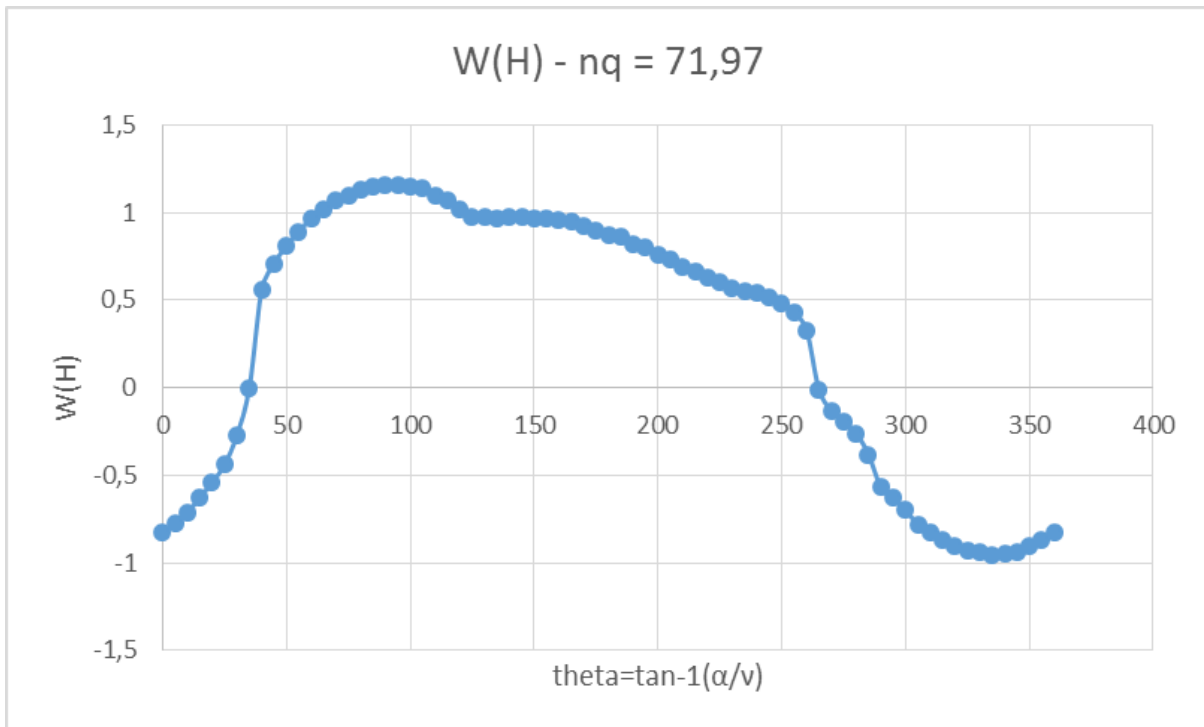
- **Pumpa – Kn=0,79 - nq=41,81 - W(H), W(M)**



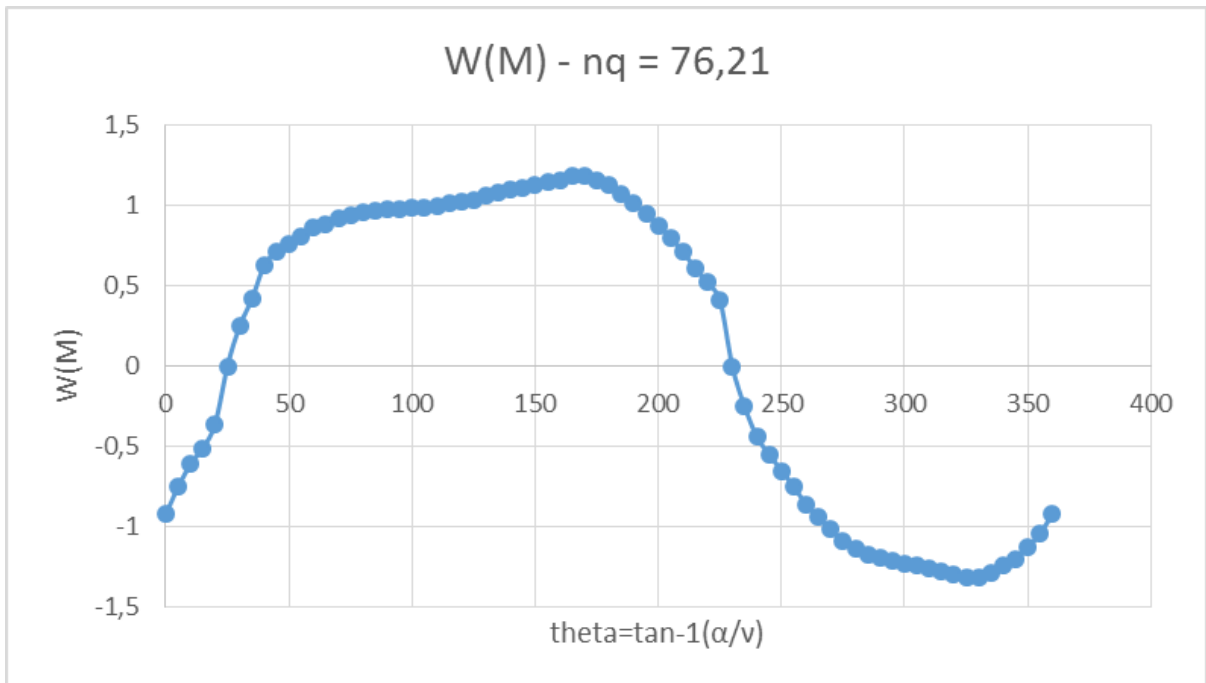
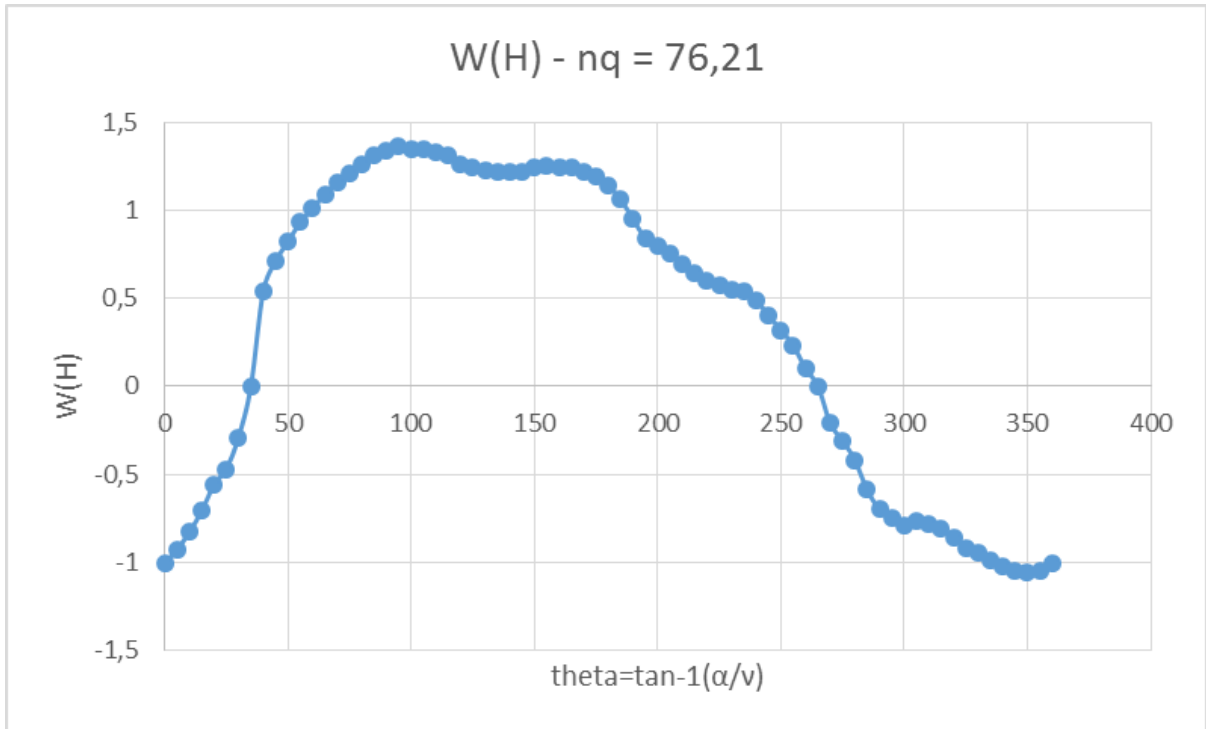
- **Pumpa – Kn=1,21 - nq=64,04 - W(H), W(M)**



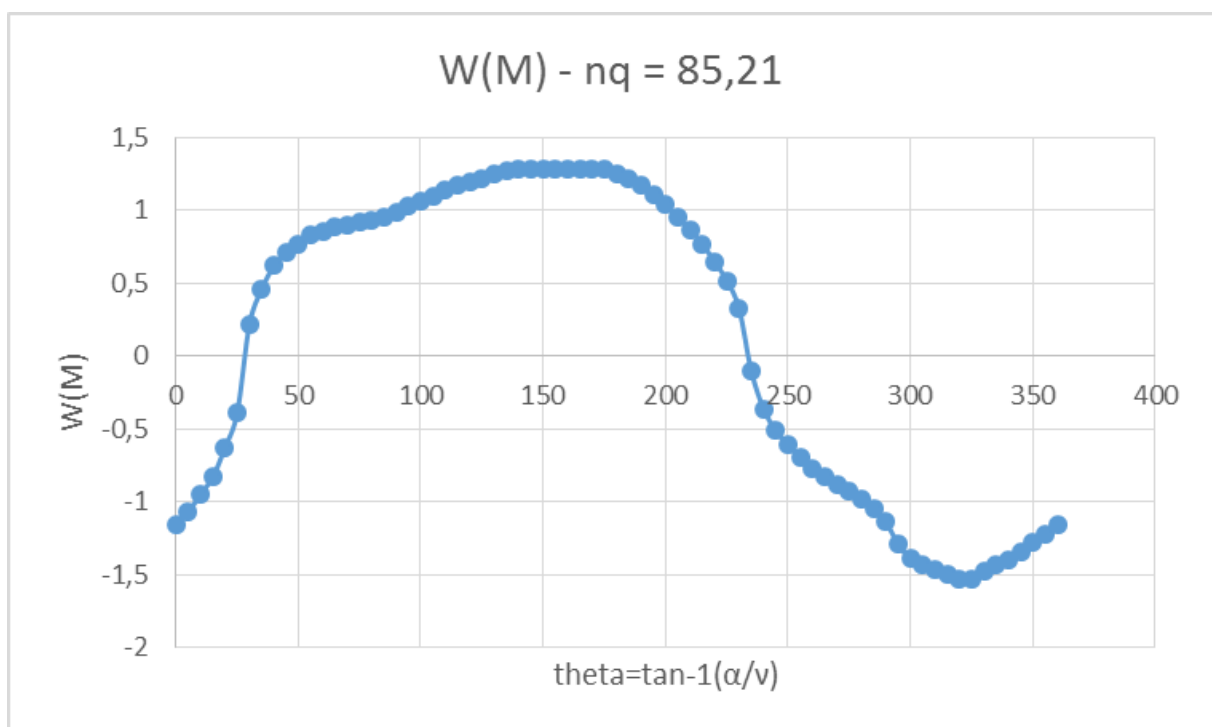
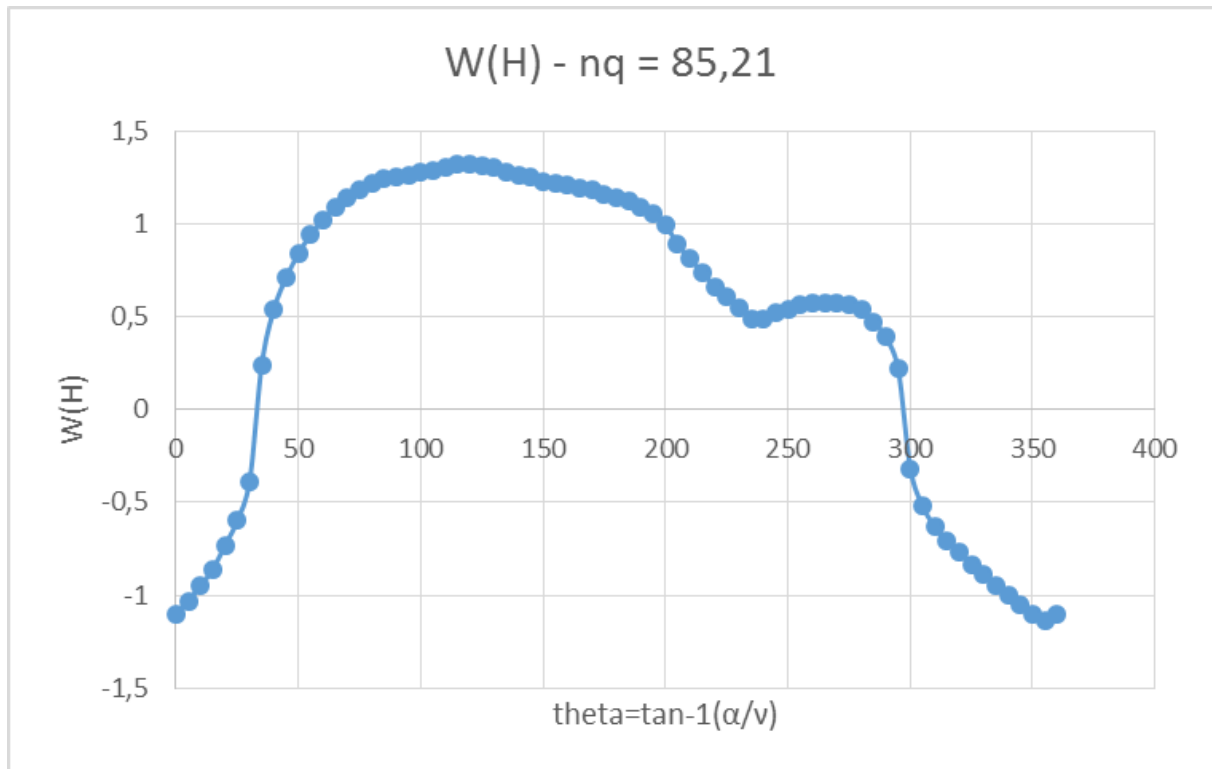
- Pumpa – Kn=1,36 - nq=71,97 - W(H), W(M)



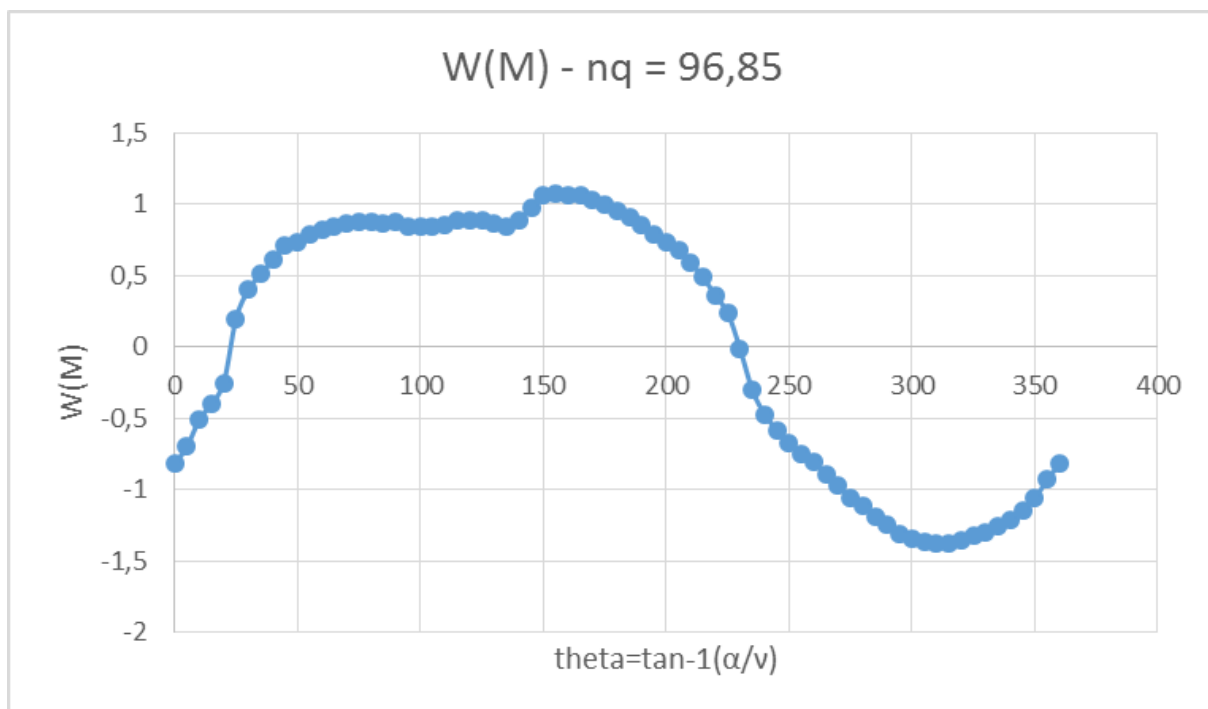
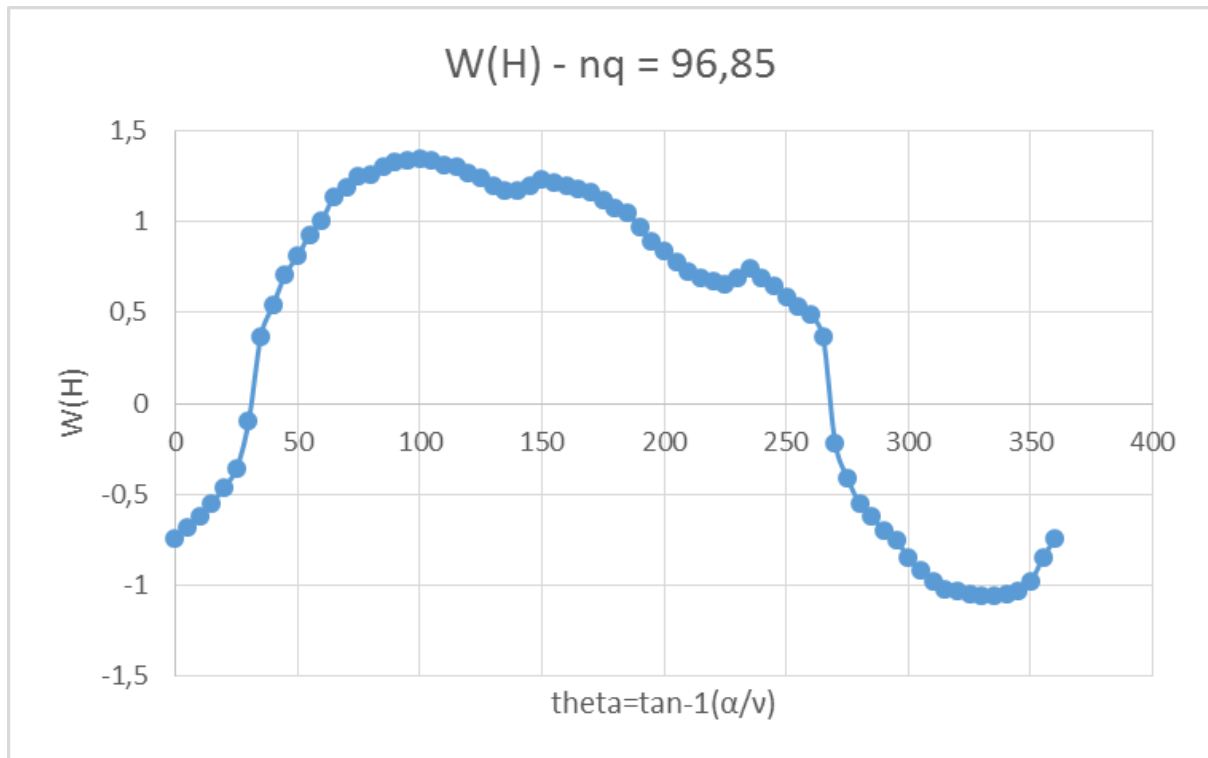
- Pumpa – Kn=1,44 - nq=76,21 - W(H), W(M)



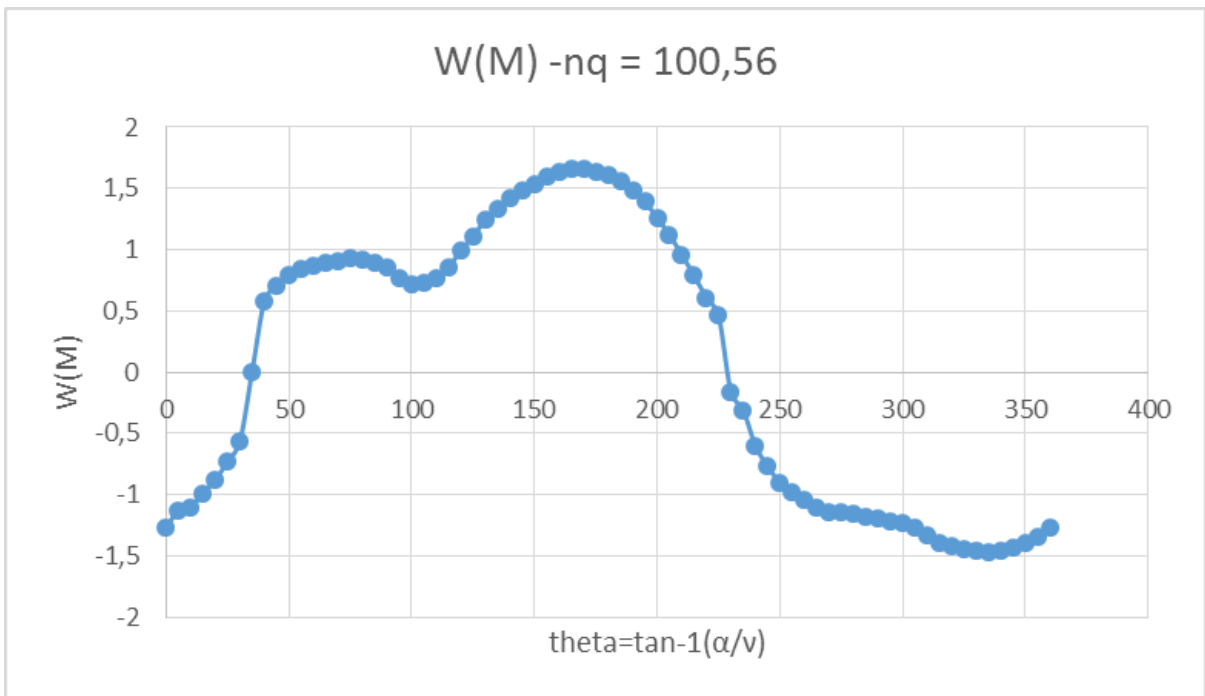
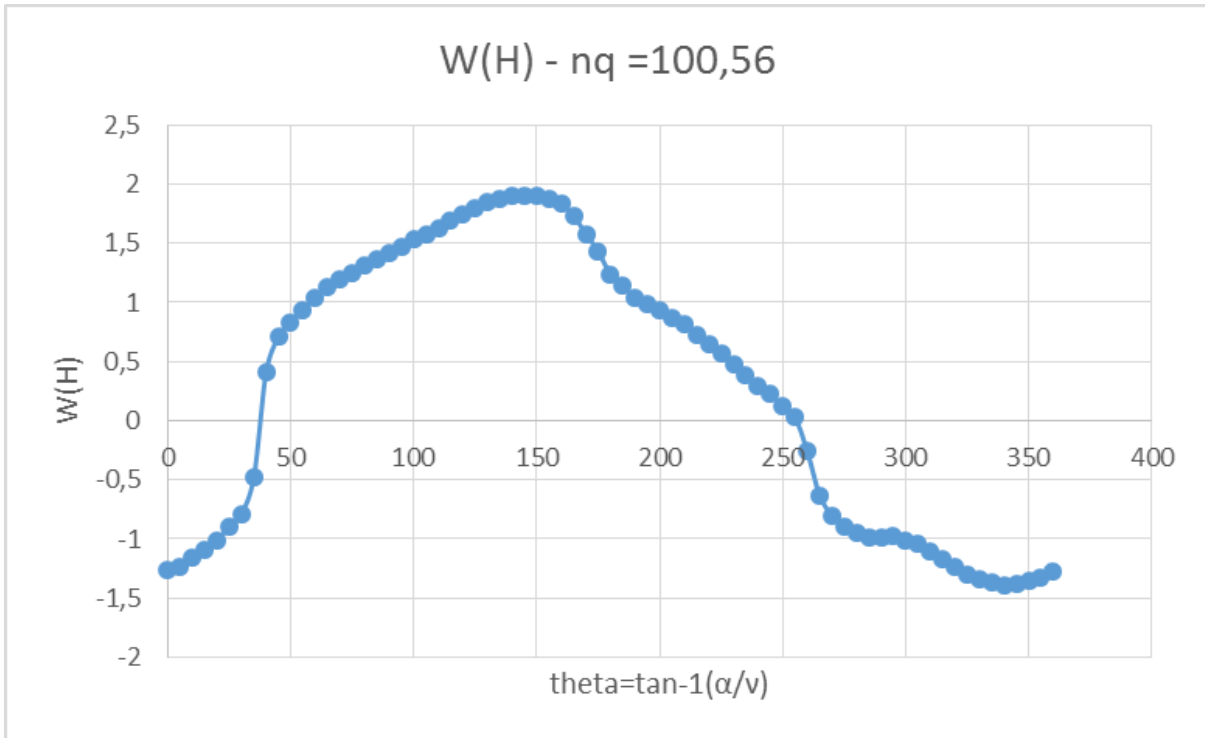
- Pumpa – Kn=1,61 - nq=85,21 - W(H), W(M)



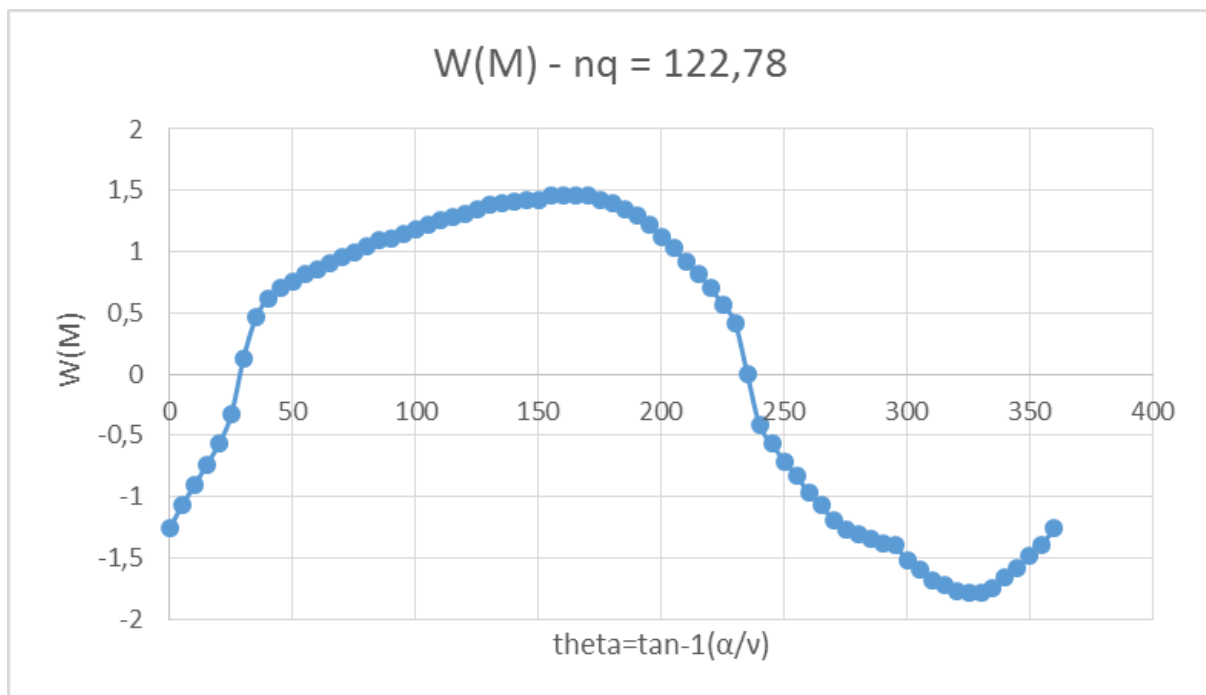
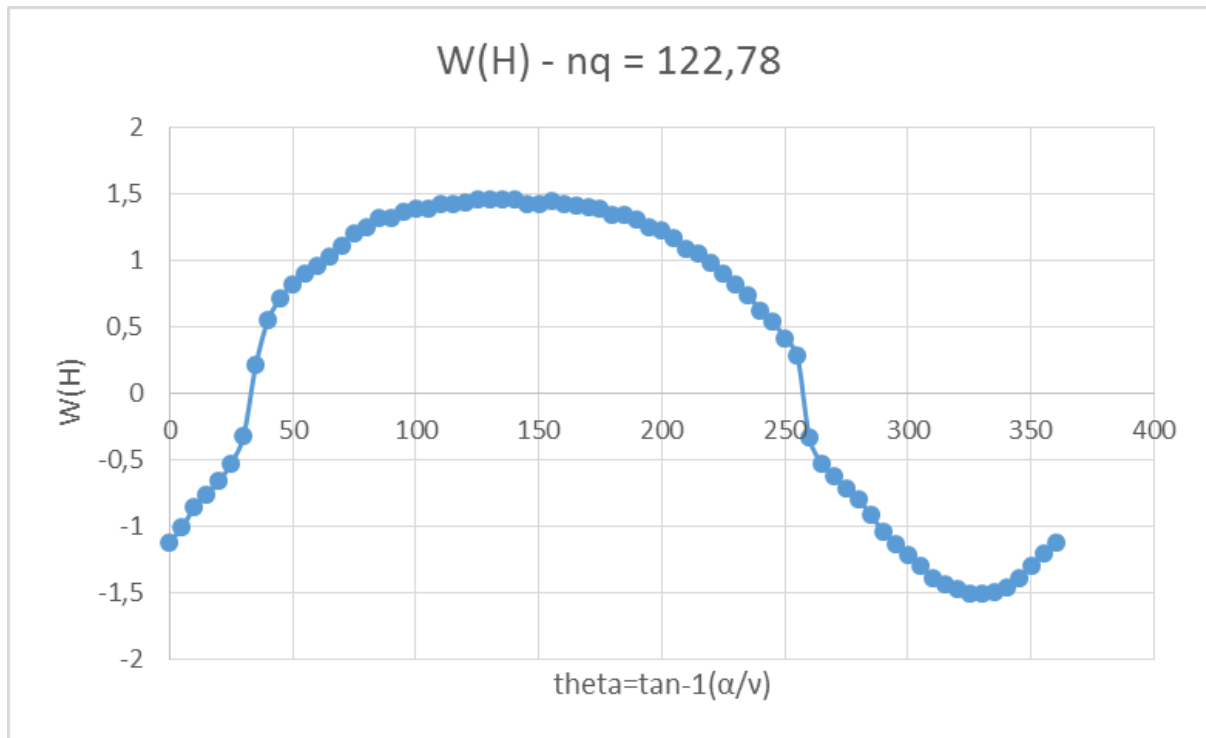
- **Pumpa – Kn=1,83 - nq=96,85 - W(H), W(M)**



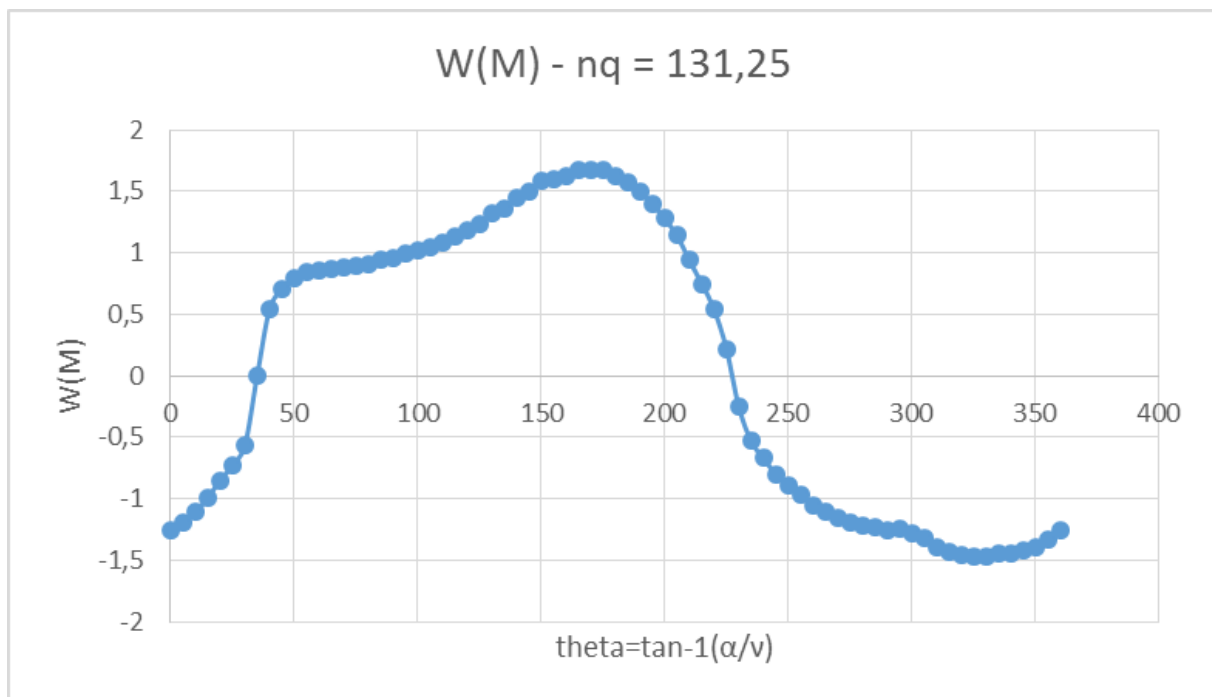
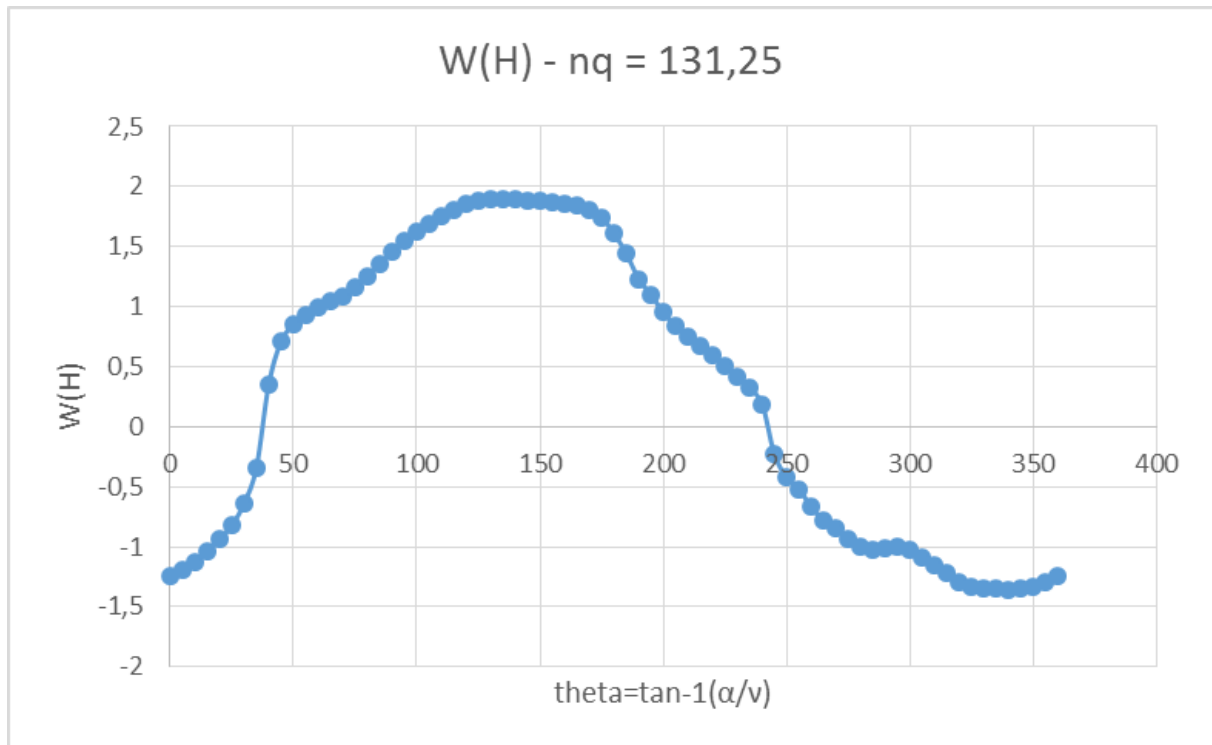
- **Pumpa – Kn=1,90 - nq=100,56 - W(H), W(M)**



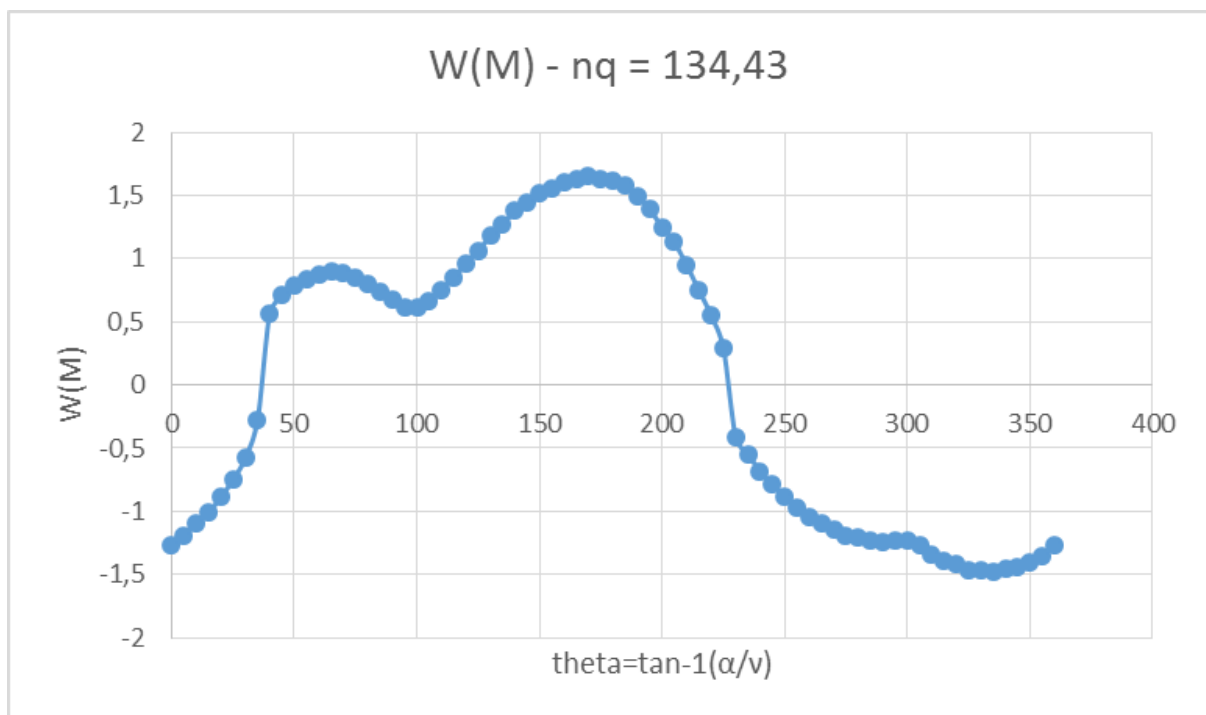
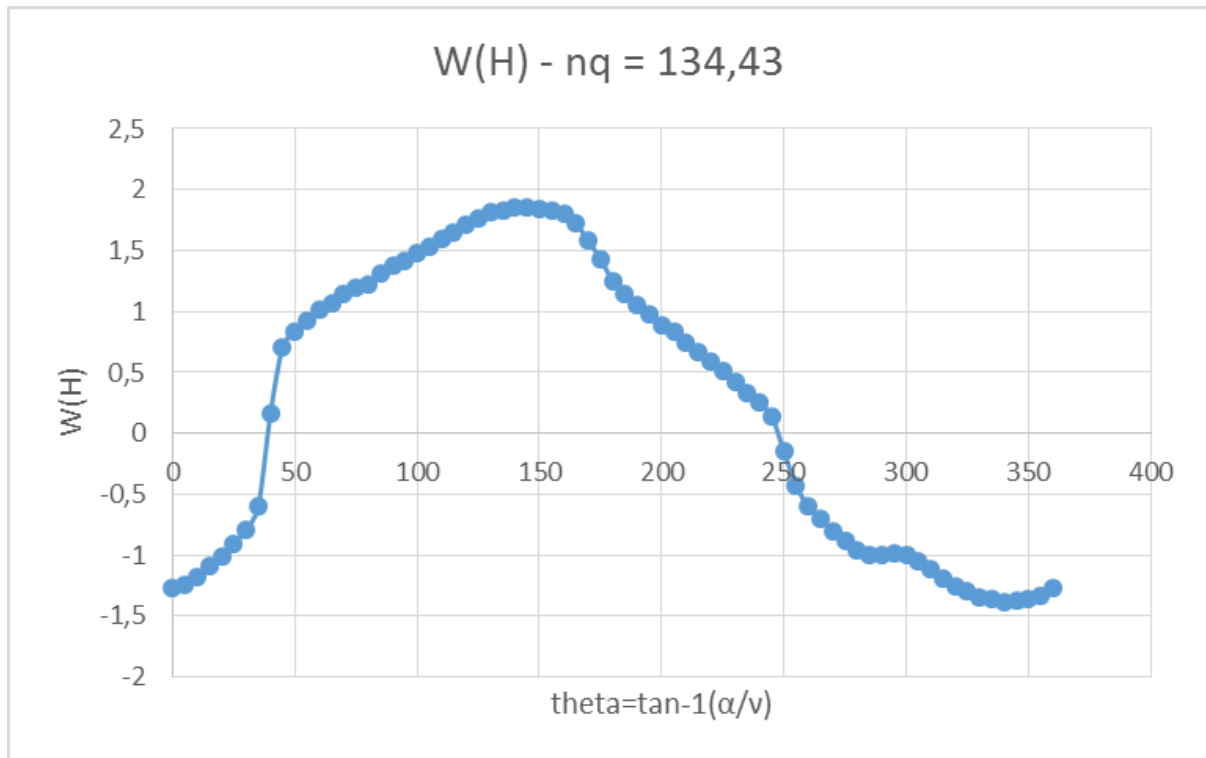
- Pumpa – $Kn=2,32$ - $nq=122,78$ - $W(H)$, $W(M)$



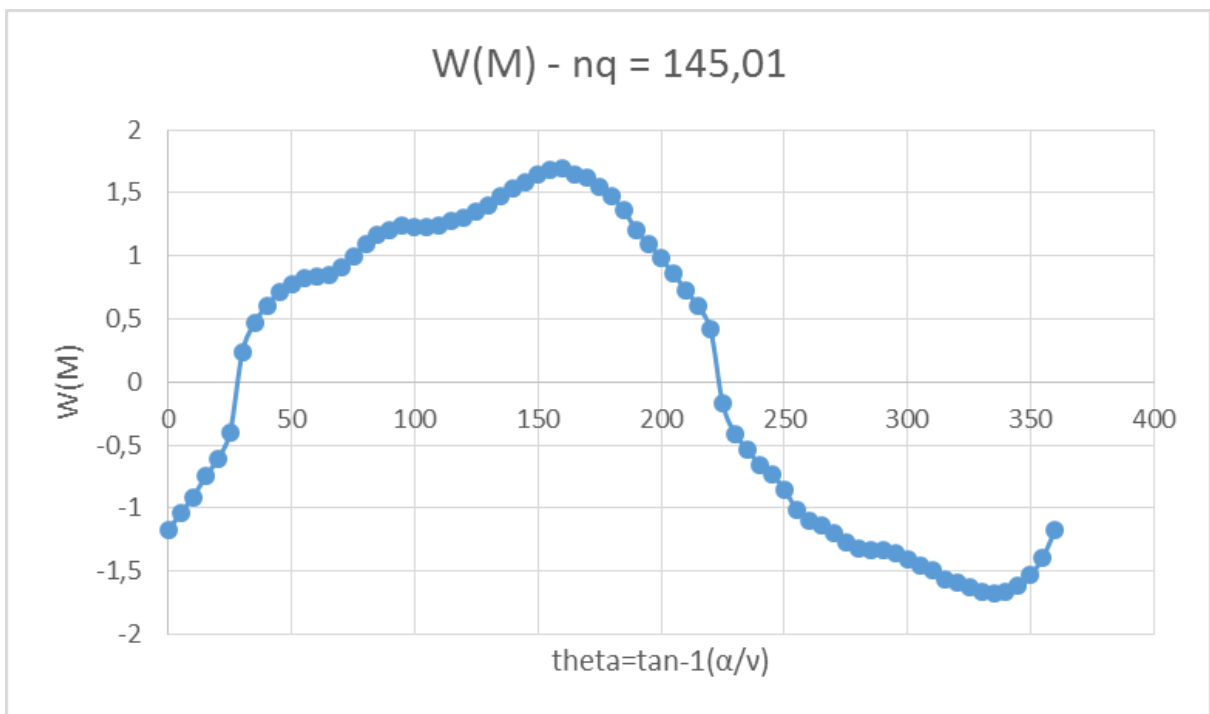
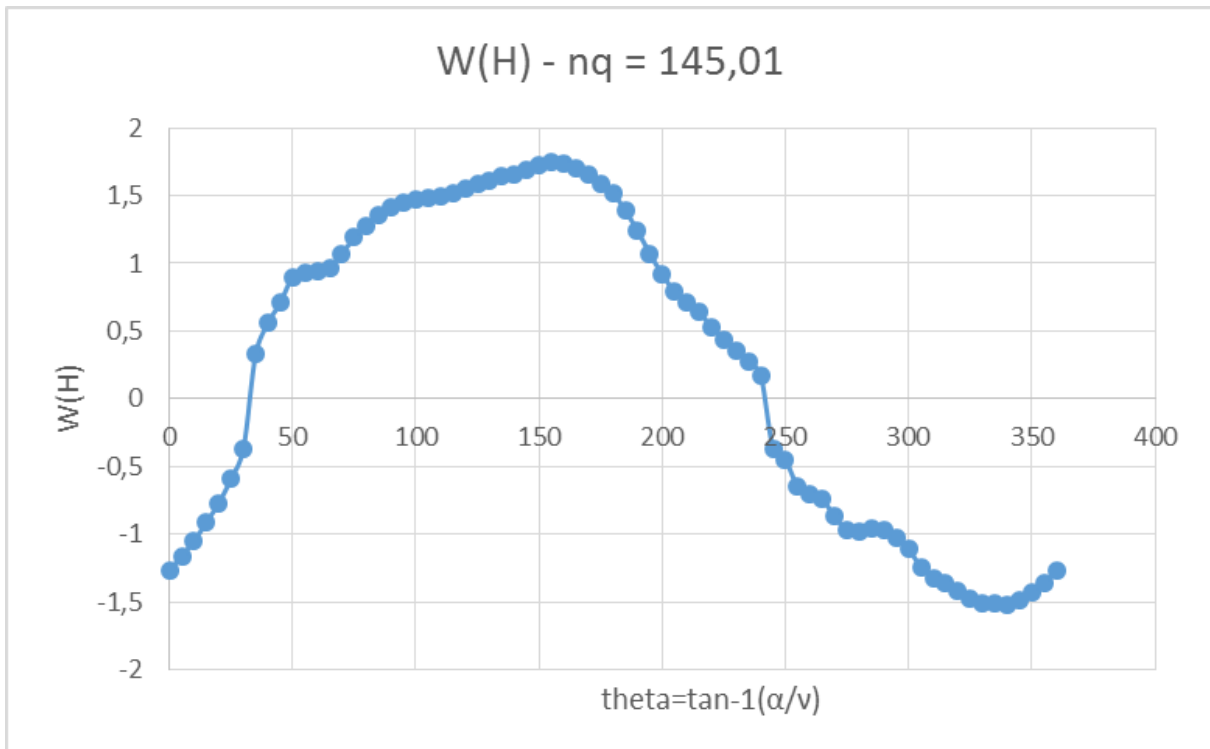
- **Pumpa – Kn=2,48 - nq=131,25 - W(H), W(M)**



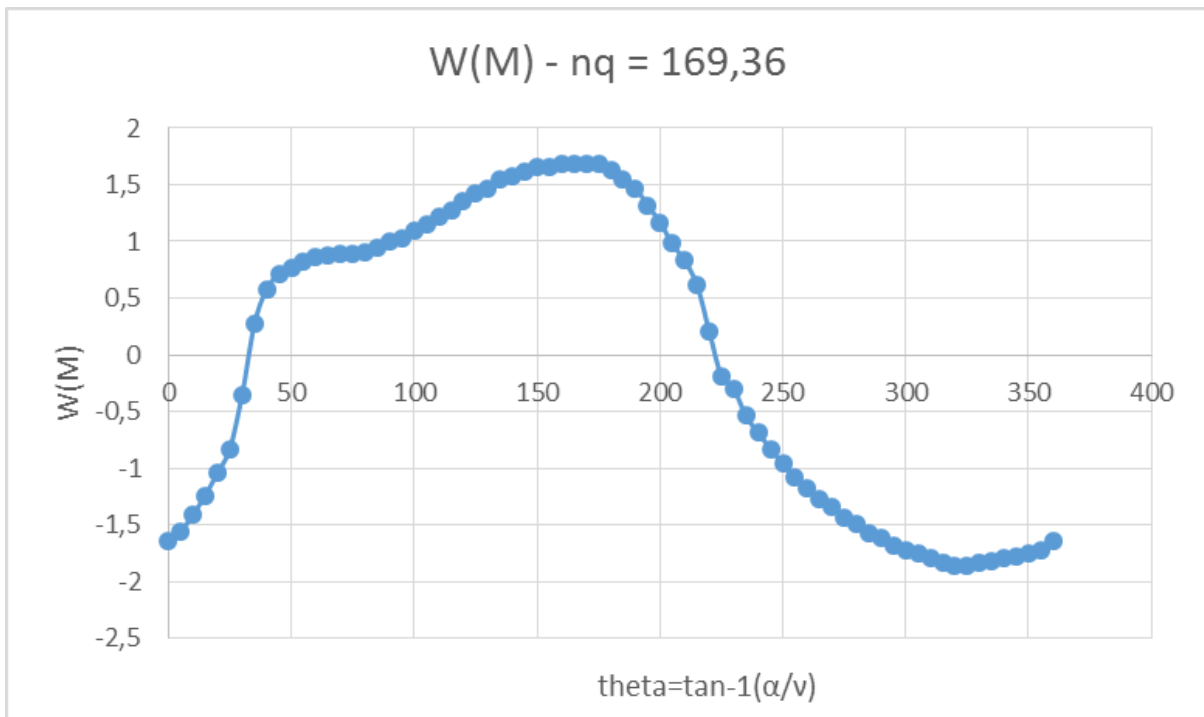
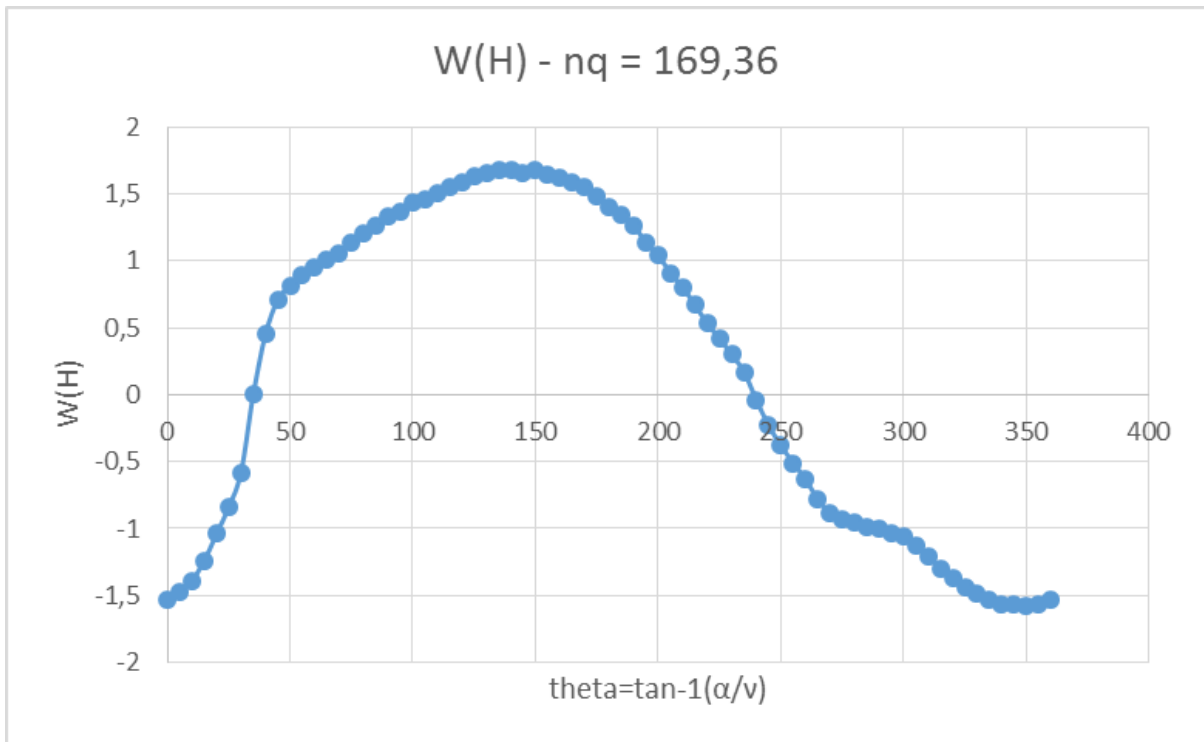
- **Pumpa – Kn=2,54 - nq=134,43 - W(H), W(M)**



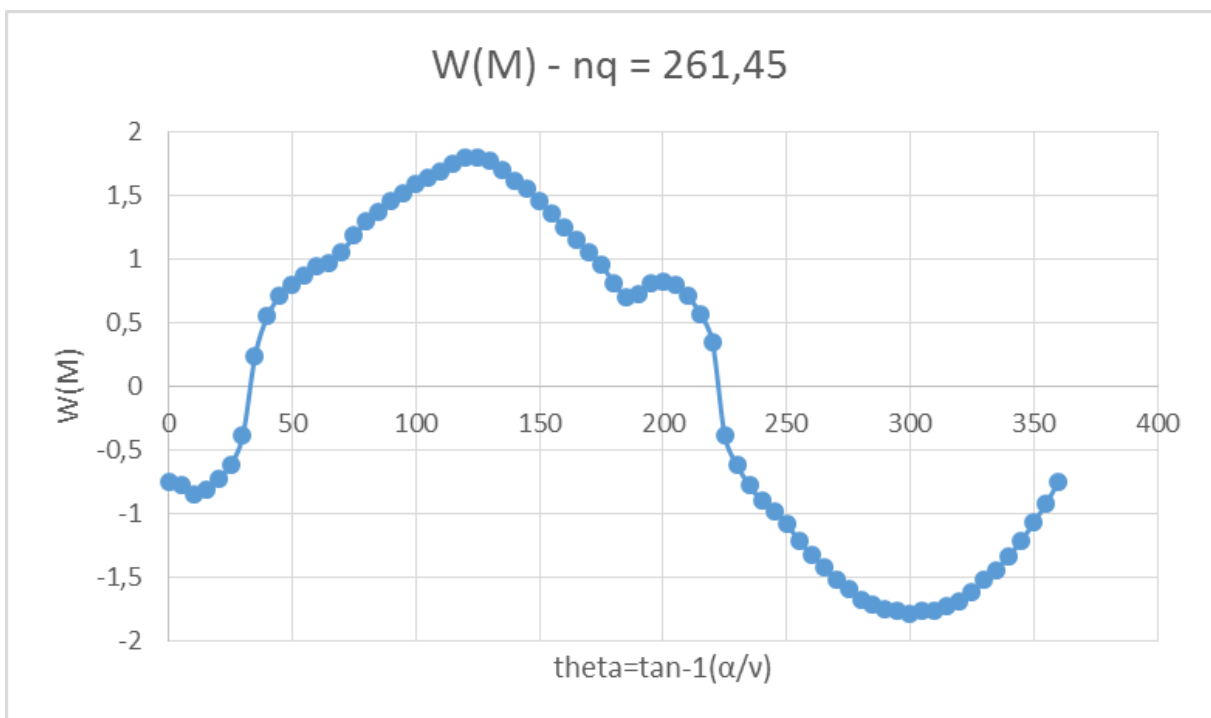
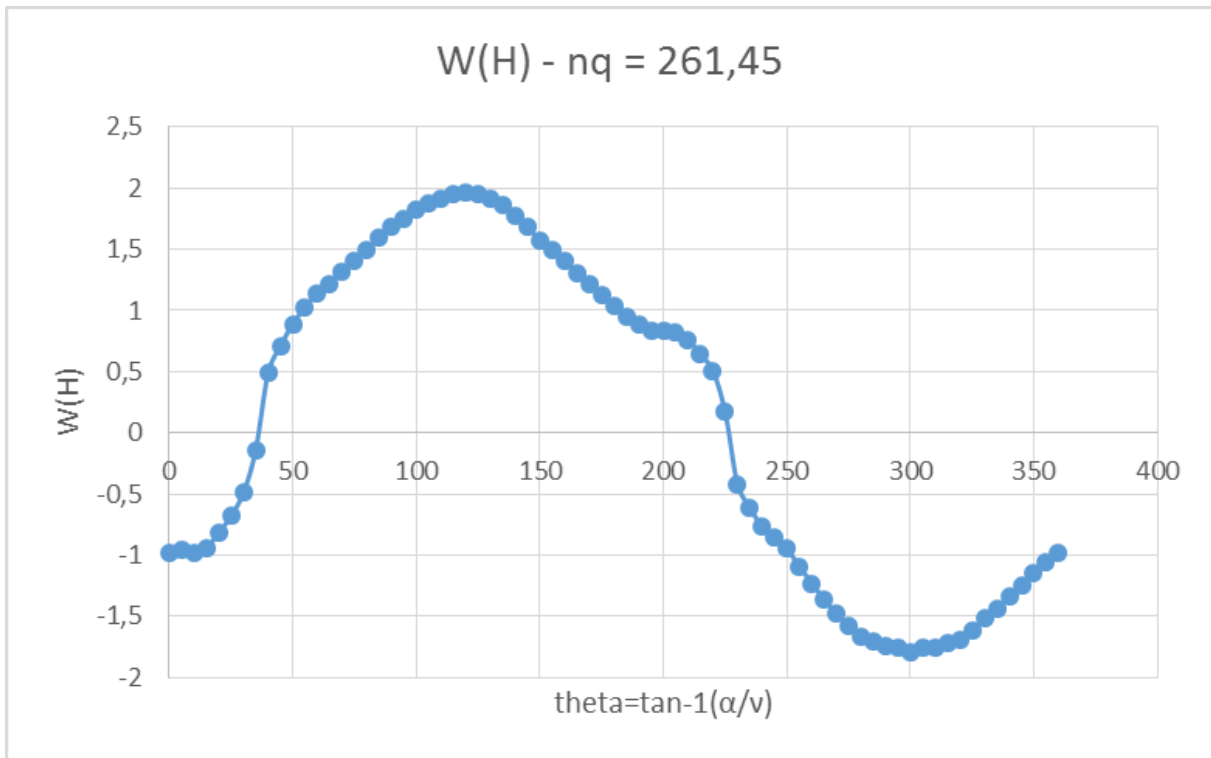
- **Pumpa – Kn=2,74 - nq=145,01 - W(H), W(M)**



- **Pumpa – Kn=3,2 - nq=169,36 - W(H), W(M)**



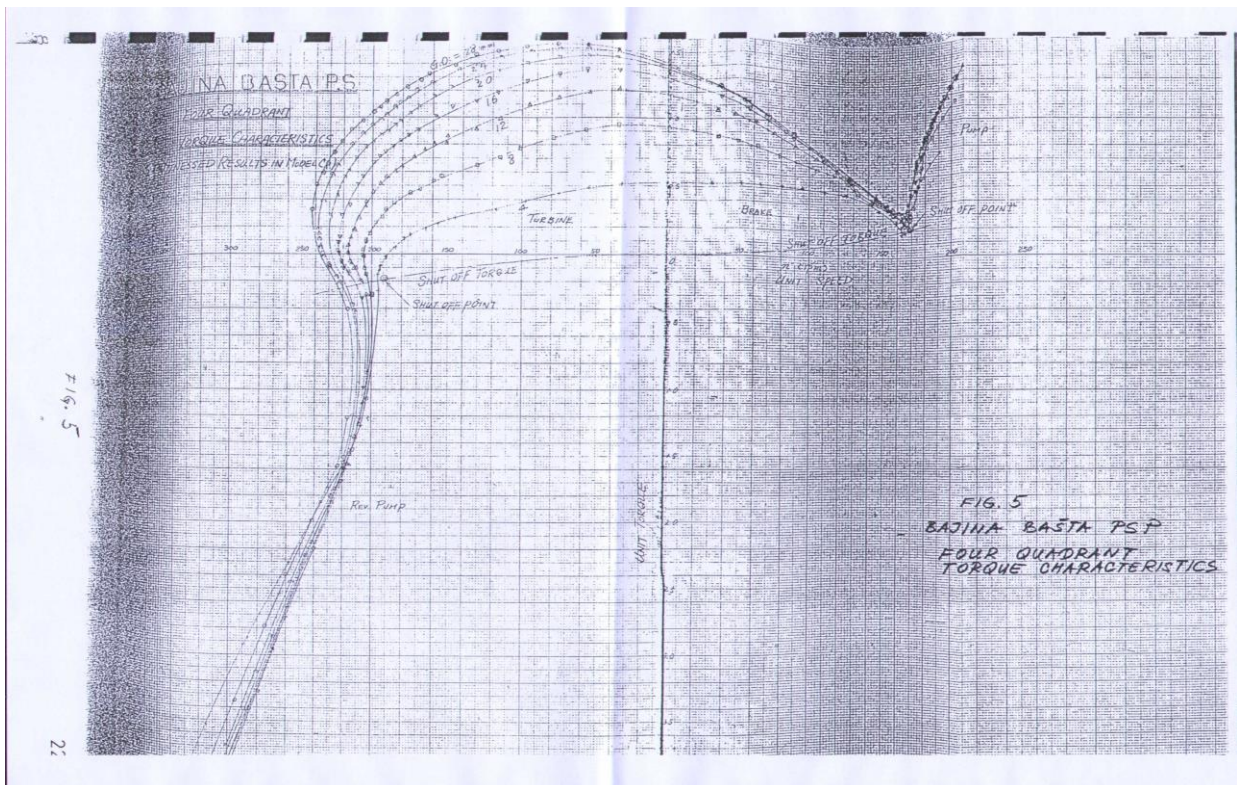
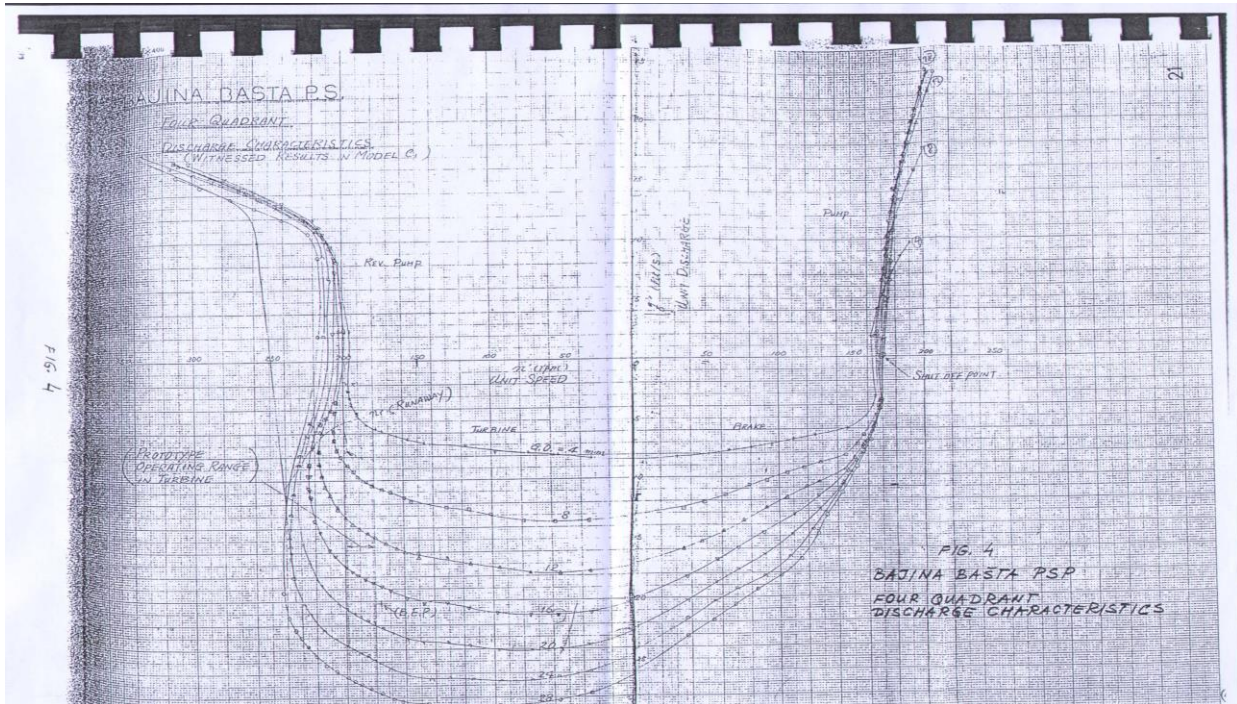
- **Pumpa – Kn=4,94 - nq=261,45 - W(H), W(M)**



Prilozi

Prilog – P29 Primjer - Četvorokvadrantne krive i Suterove krive Wh – Wm (RHE Bajina Bašta nq=27)

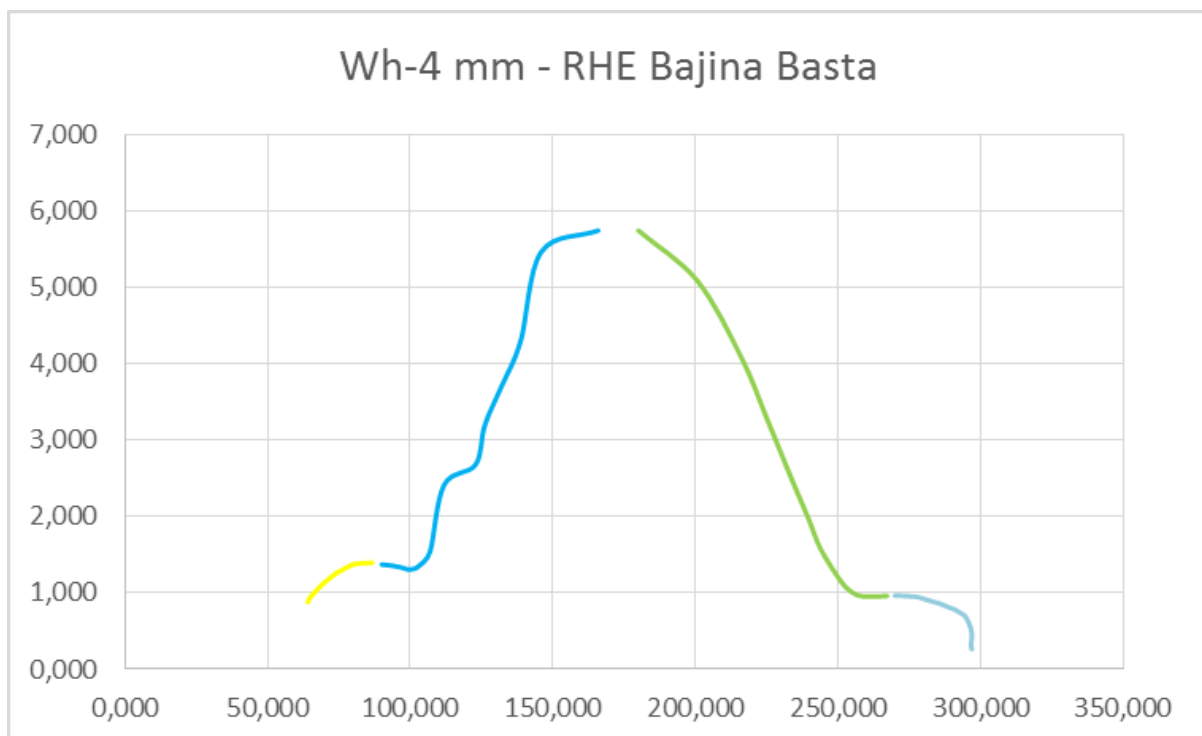
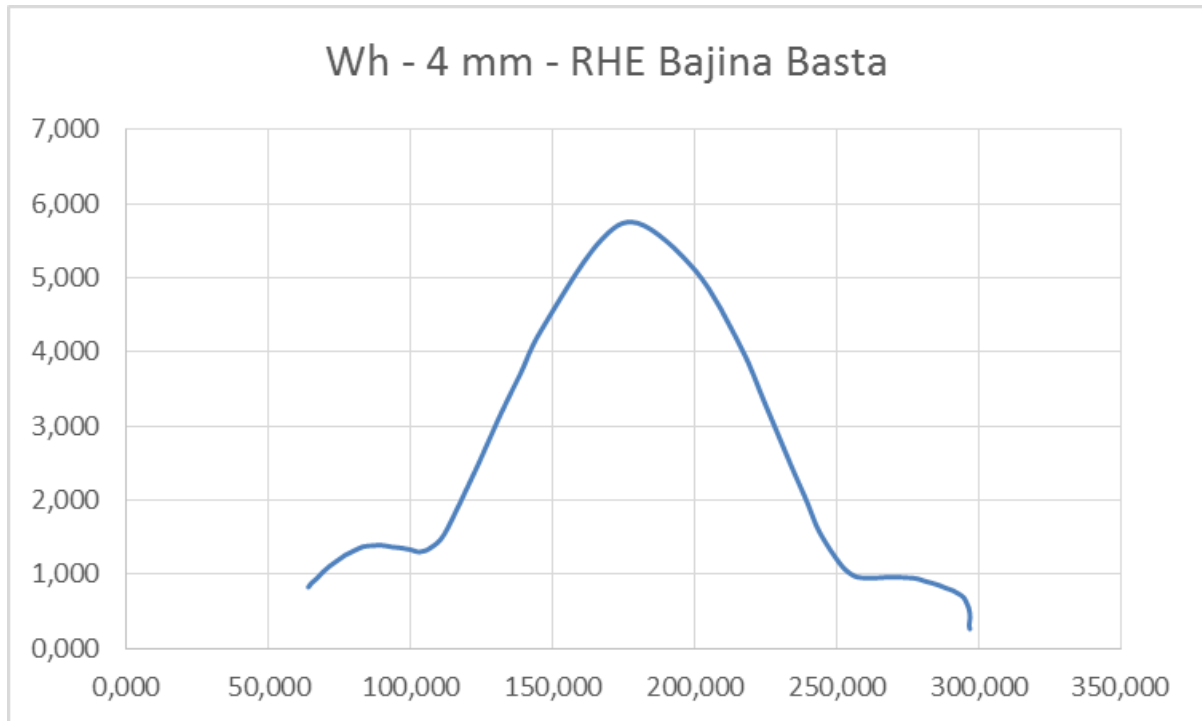
- Četvorokvadrantne krive - RHE Bajine Bašte



- **Suterove Krive – Wh (RHE Bajina Bašta nq=27)**

Za postupak preračunavanja Četvorokvadrantnih krivih - RHE Bajine Bašte u Suterove krive **Wh** koristio sam postupak koji je naveden u knjizi Wylie. E. B. & Streeter. V. L. (1993), a koji je detaljno objašnjen u seminarskom radu.

- **Pumpna turbina RHE Bajina Bašta nq=27 – Otvor lopatica sprovednog aparata 4mm Wh**



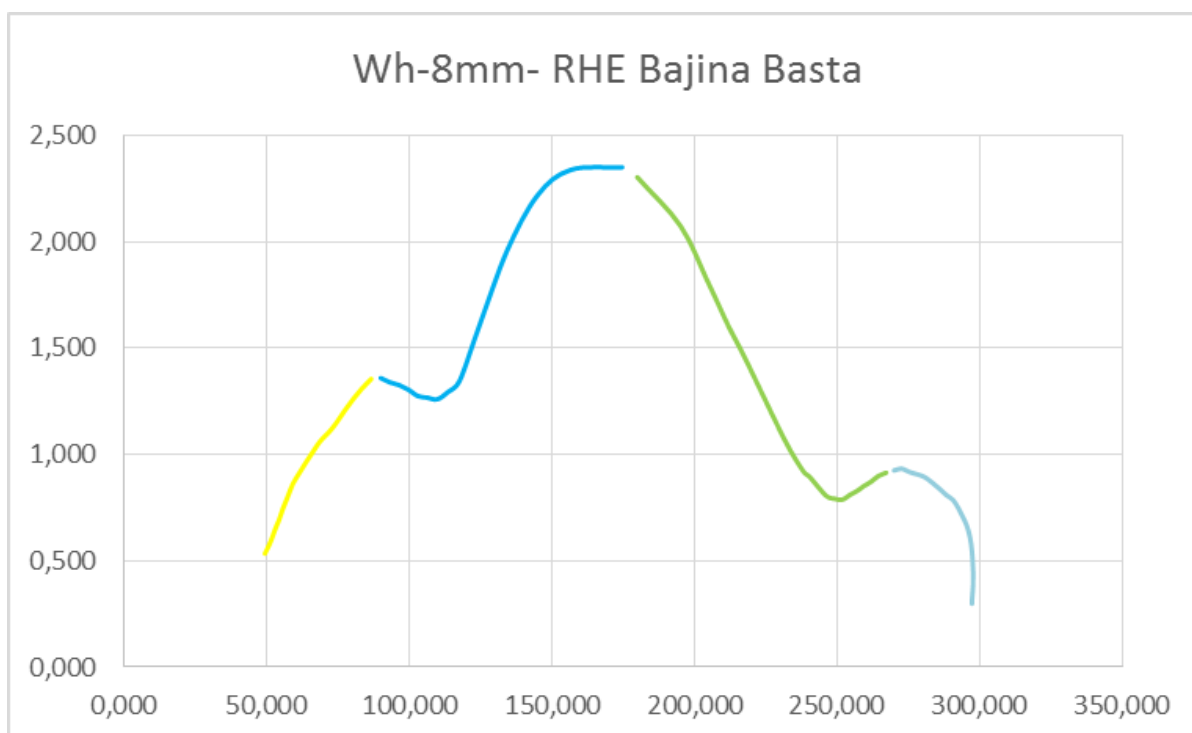
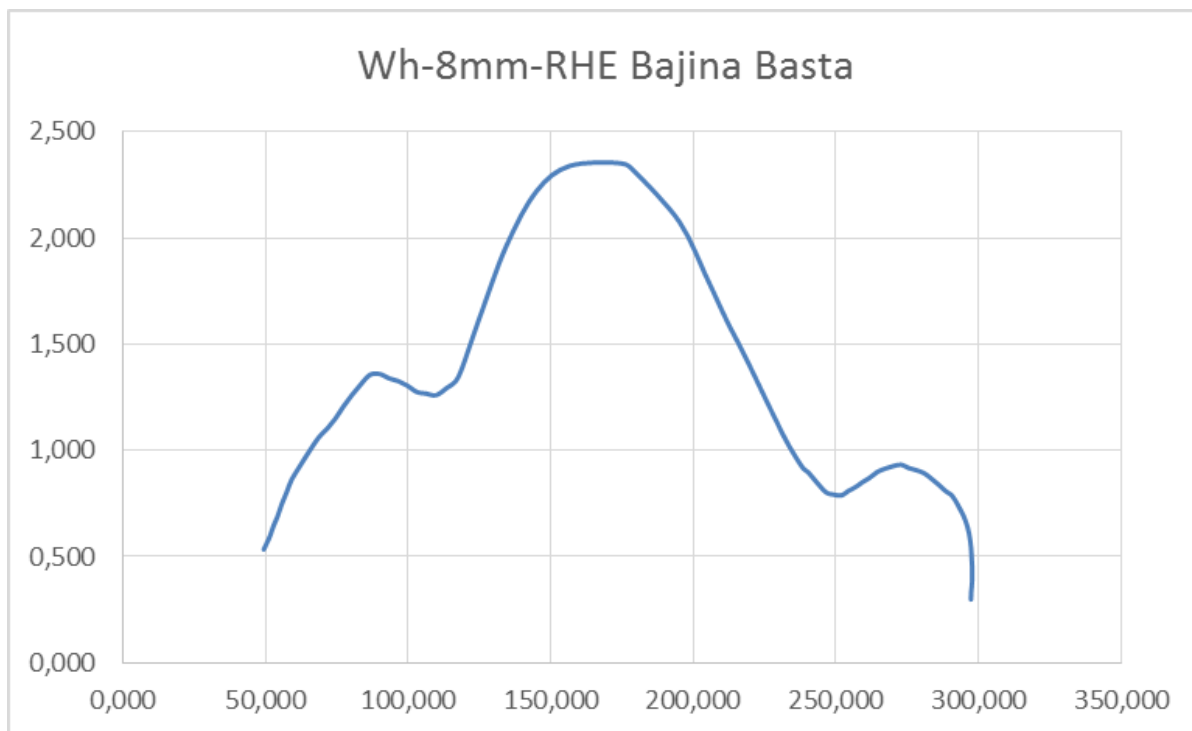
-Zuta linija – Pump Zone

-Tamno plava linija - Energy Dissipation Zone

-Zelena linija – Turbine Zone

-Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovednog aparata 8mm Wh



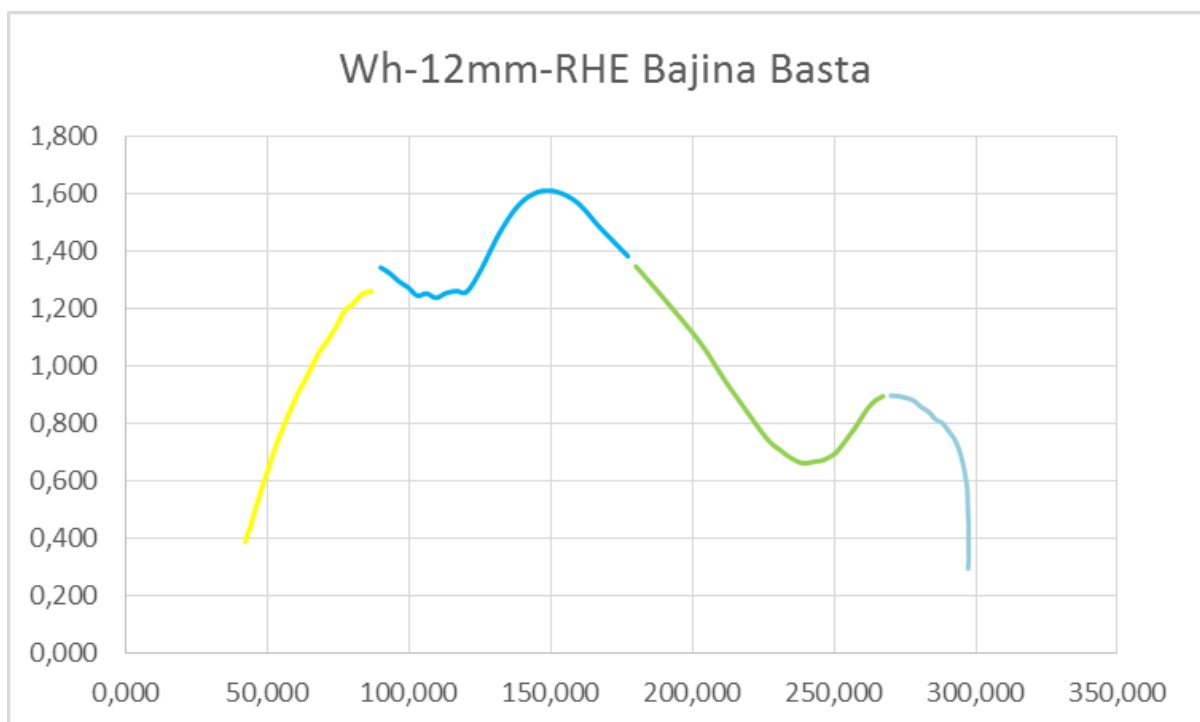
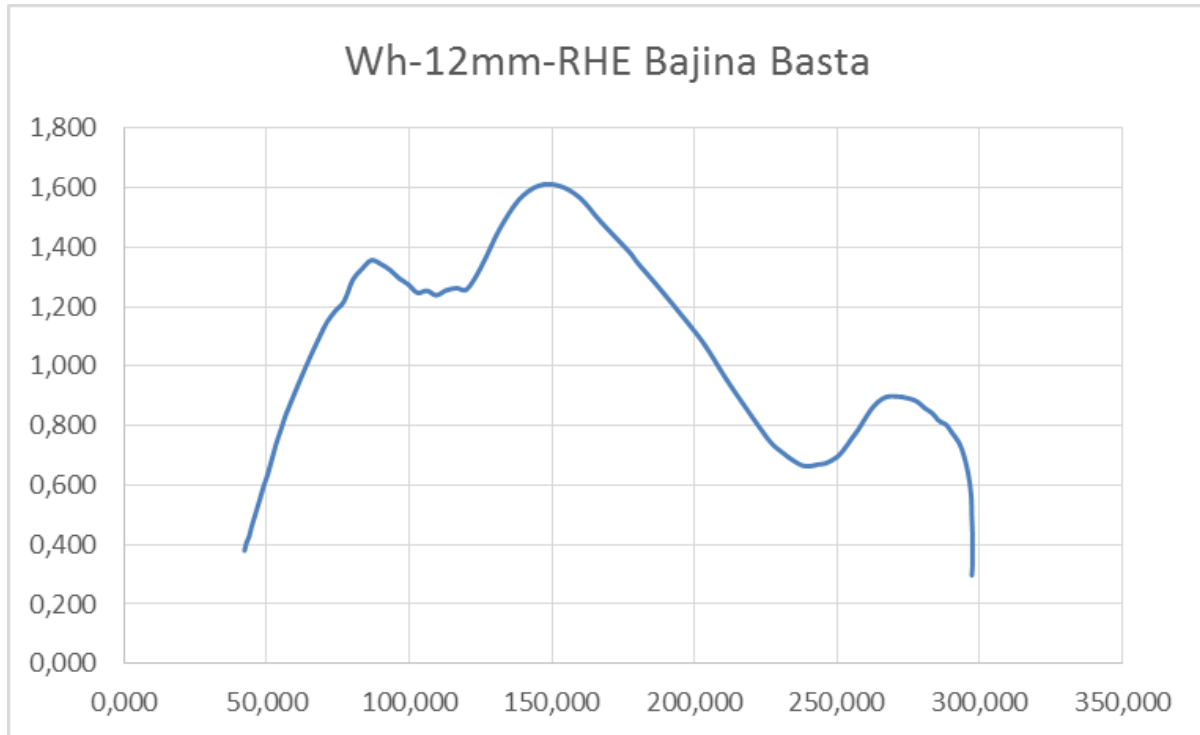
- Zuta linija – Pump Zone

- Tamno plava linija - Energy Dissipation Zone

- Zelena linija – Turbine Zone

- Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovodnog aparata 12mm Wh



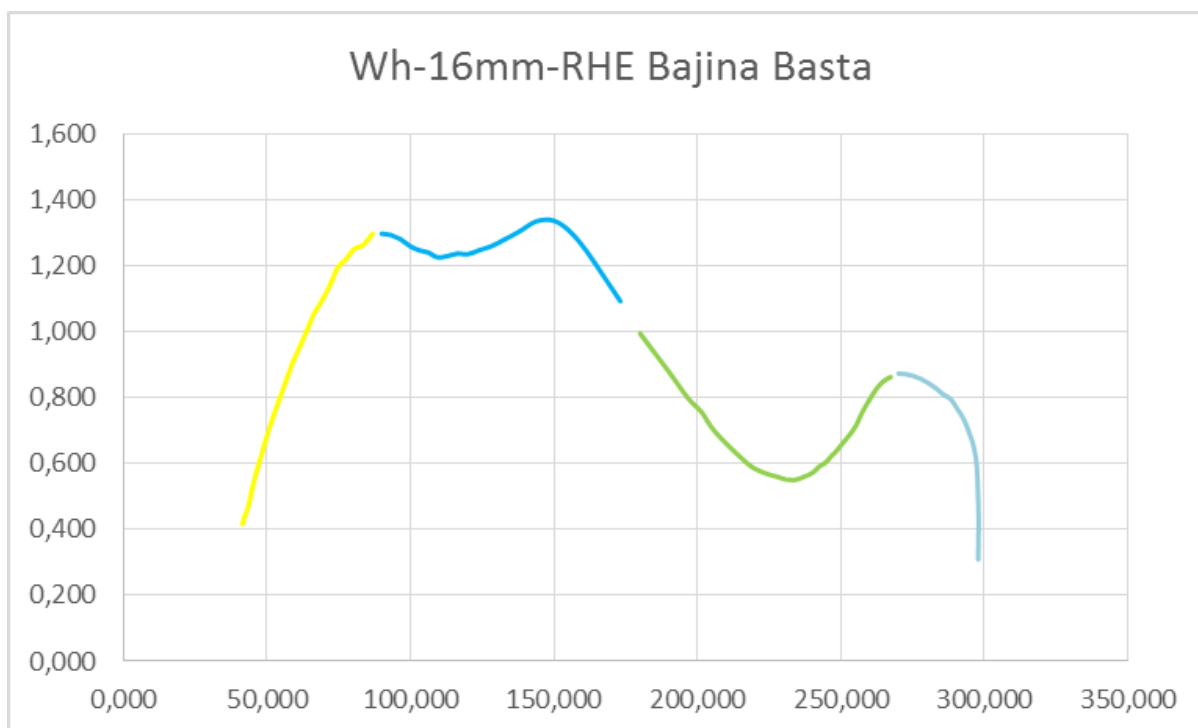
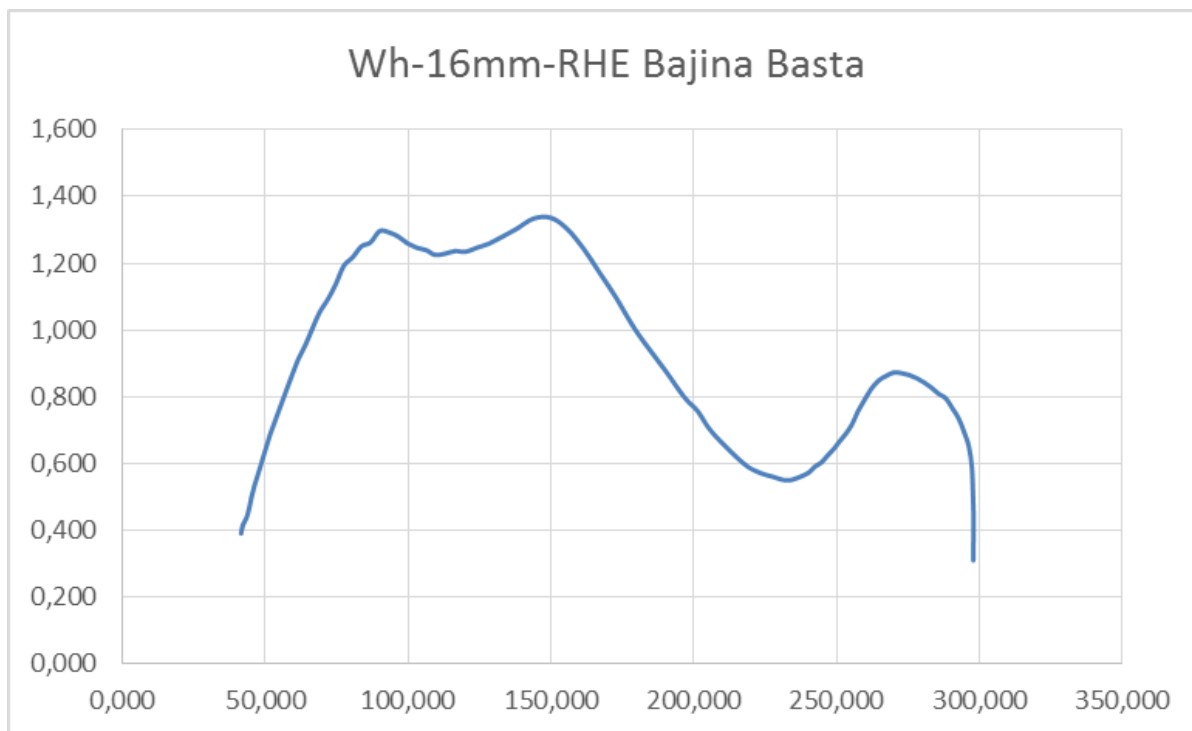
- Zuta linija – Pump Zone

- Tamno plava linija - Energy Dissipation Zone

- Zelena linija – Turbine Zone

- Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovodnog aparata 16mm Wh



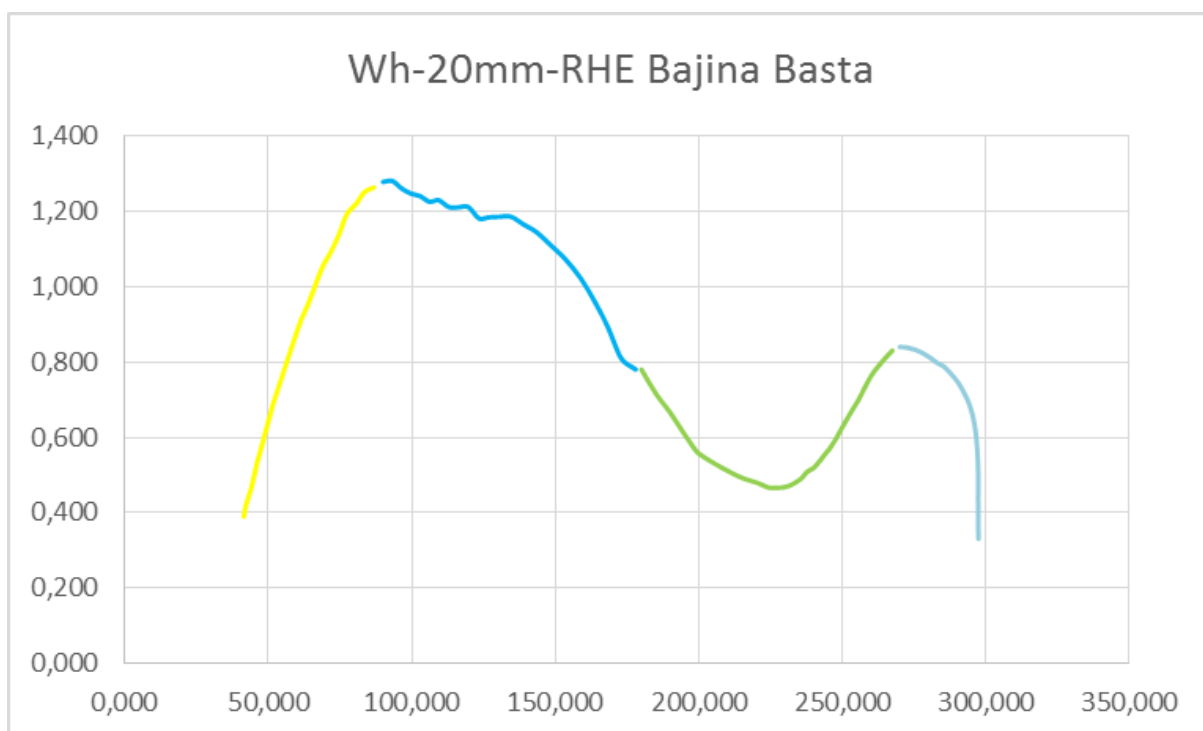
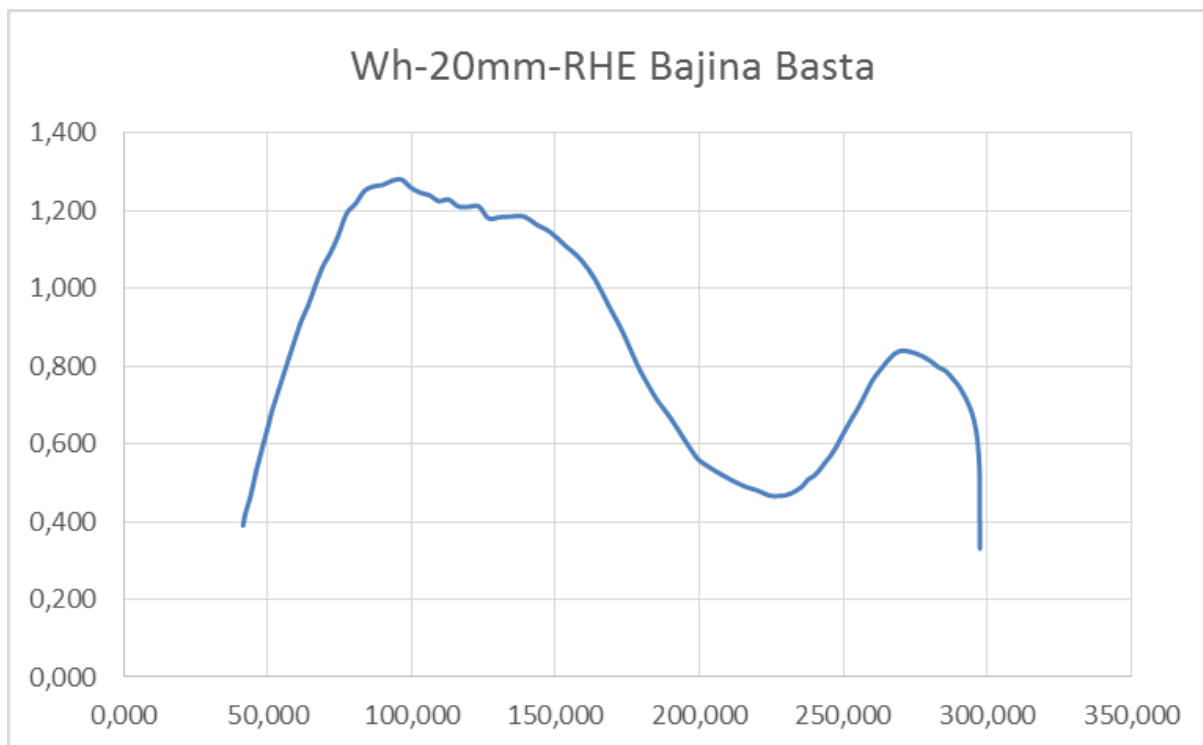
- Zuta linija – Pump Zone

- Tamno plava linija - Energy Dissipation Zone

- Zelena linija – Turbine Zone

- Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovodnog aparata 20mm Wh



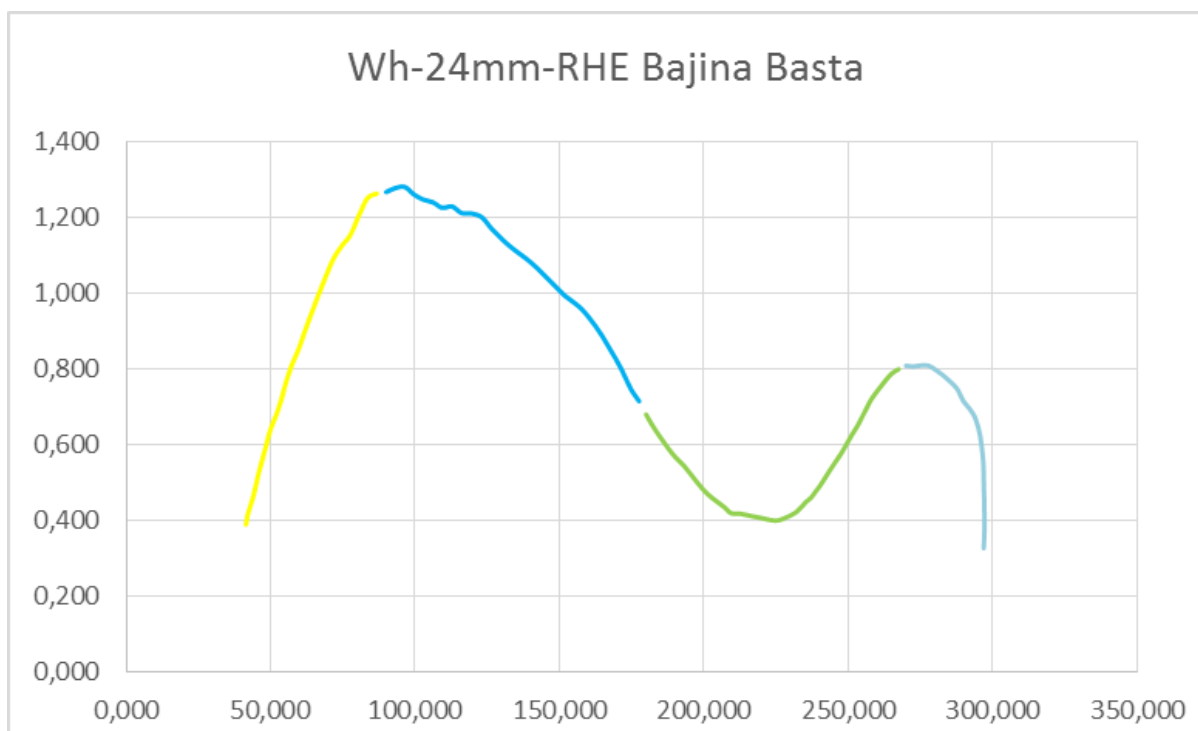
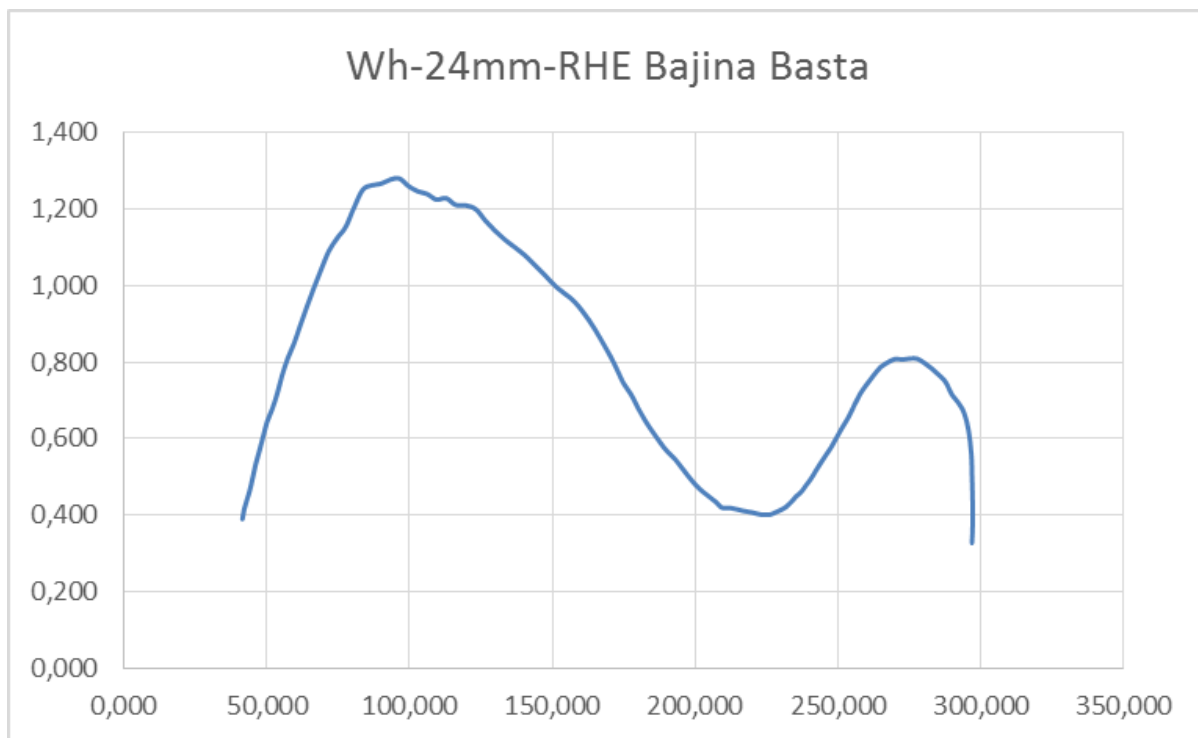
- Zuta linija – Pump Zone

- Tamno plava linija - Energy Dissipation Zone

- Zelena linija – Turbine Zone

- Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $\eta_q=27$ – Otvor lopatica sprovodnog aparata 24mm Wh



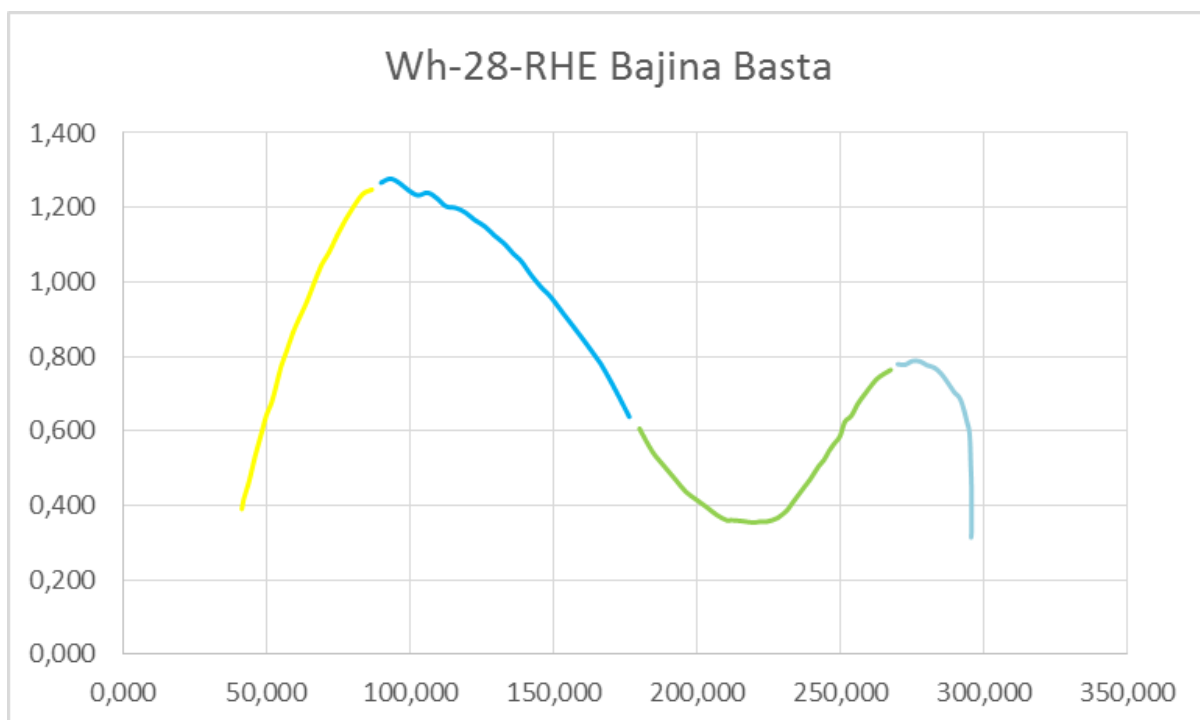
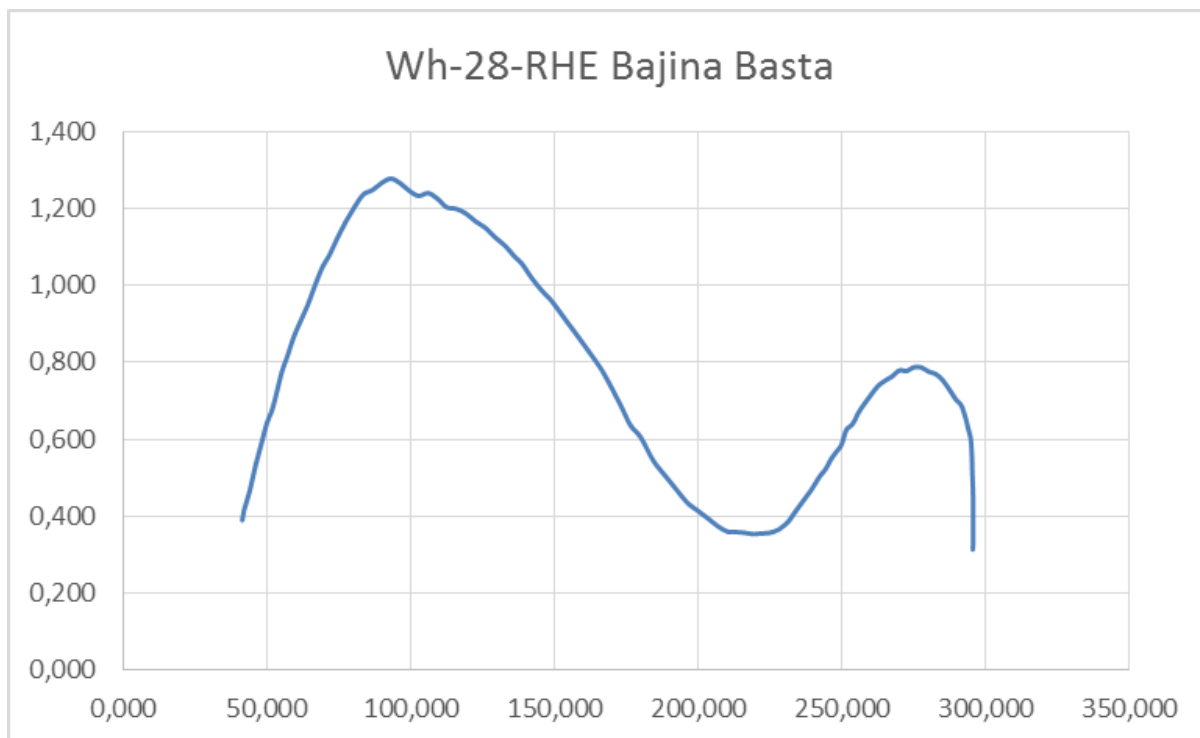
- Zuta linija – Pump Zone

- Tamno plava linija - Energy Dissipation Zone

- Zelena linija – Turbine Zone

- Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $nq=27$ – Otvor lopatica sprovednog aparata 28mm Wh



- Zuta linija – Pump Zone

- Tamno plava linija - Energy Dissipation Zone

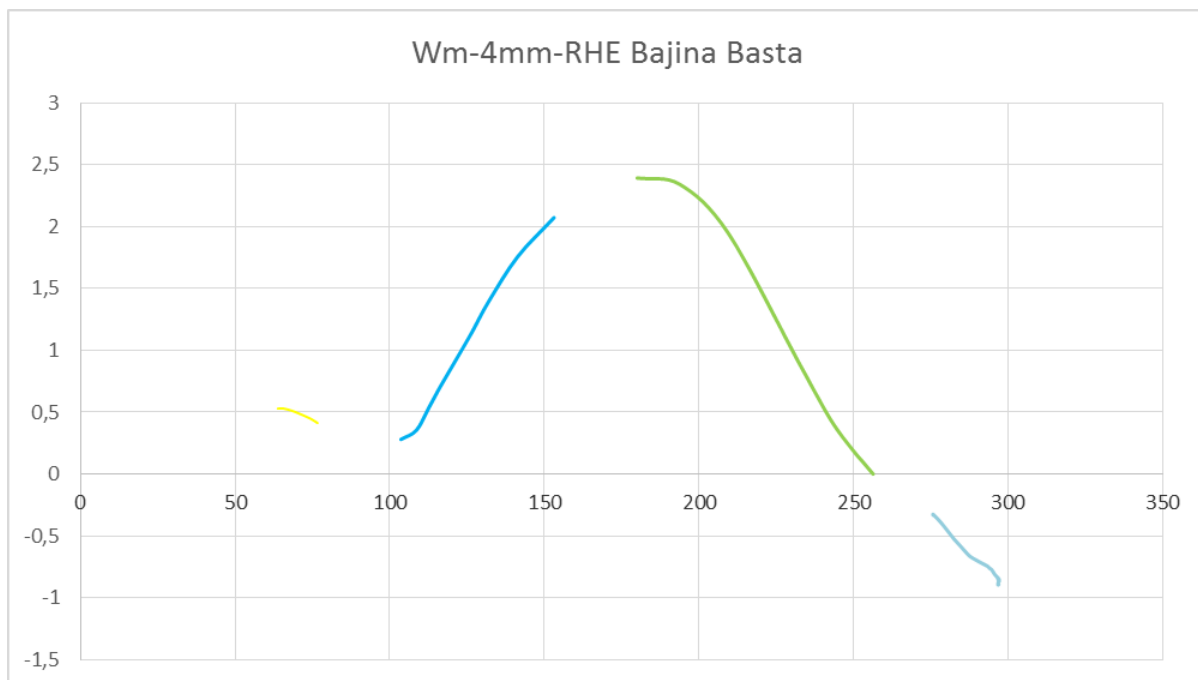
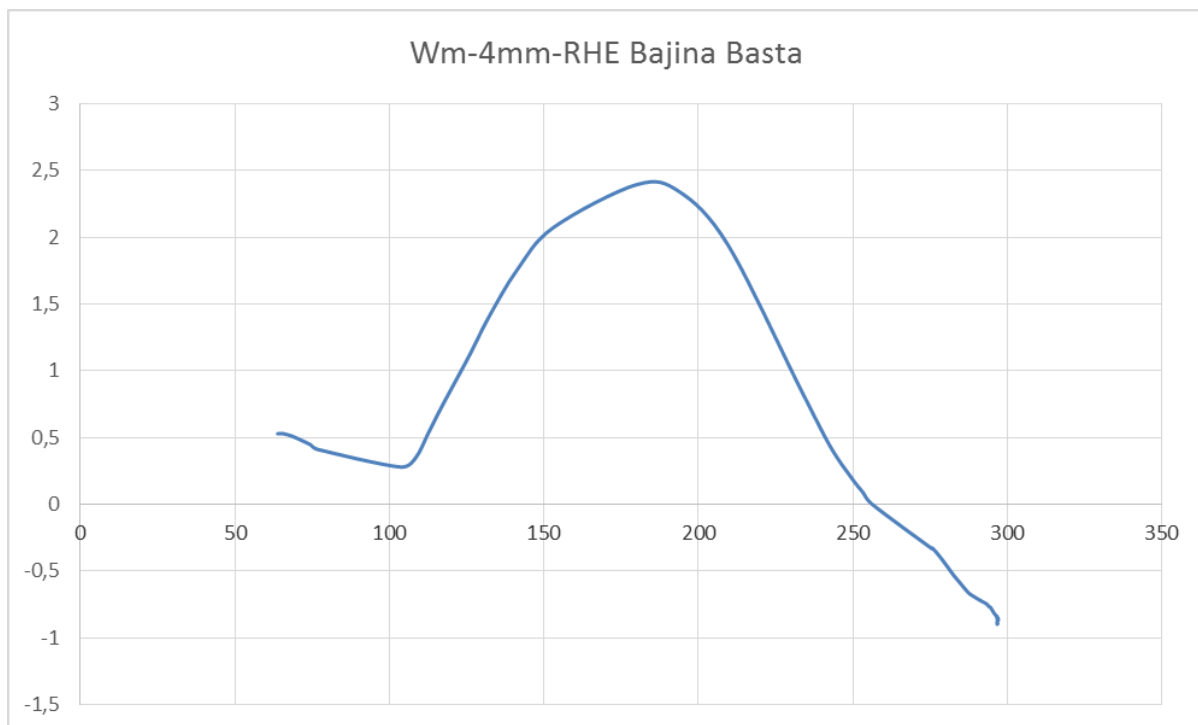
- Zelena linija – Turbine Zone

- Svijetlo plava linija - Reverse Pump

- **Suterove Krive – Wm (RHE Bajina Bašta nq=27)**

Za postupak preračunavanja Četvorokvadrantnih krivih - RHE Bajine Bašte u Suterove krive **Wm** koristio sam postupak koji je naveden u knjizi Wylie. E. B. & Streeter. V. L. (1993), a koji je detaljno objašnjen u ovom seminarskom radu.

- **Pumpna turbina RHE Bajina Bašta nq=27 – Otvor lopatica sprovednog aparata 4mm Wm**



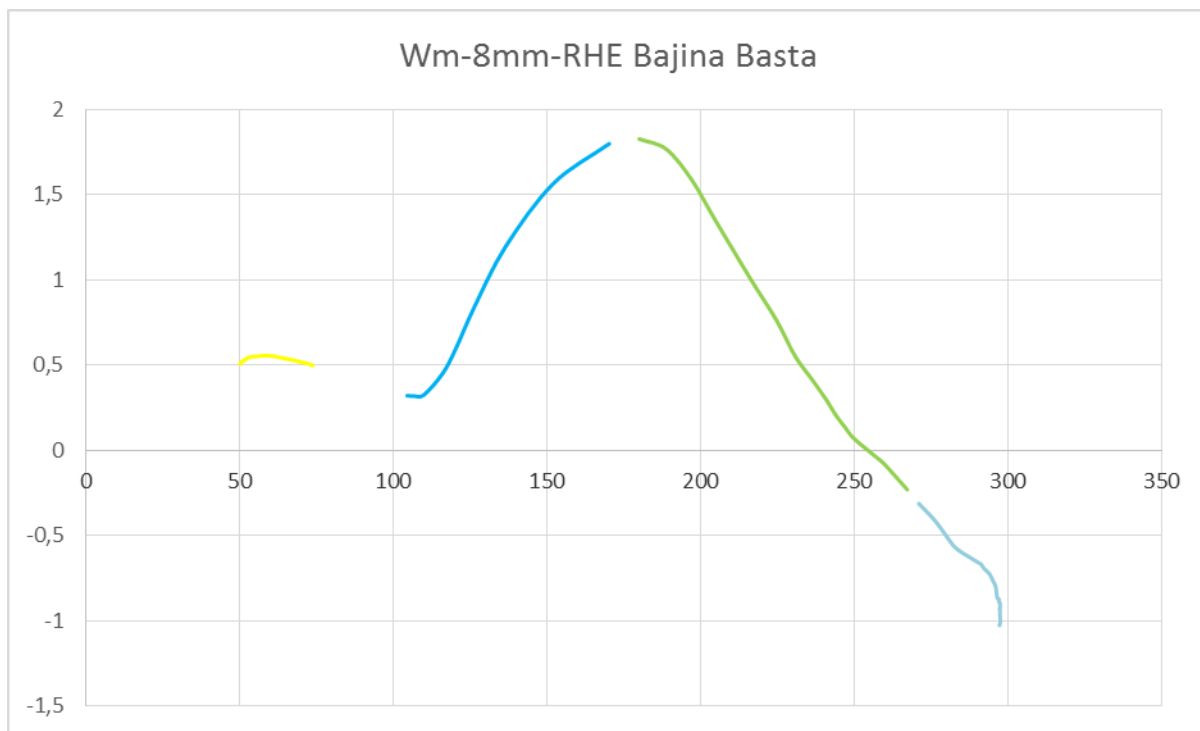
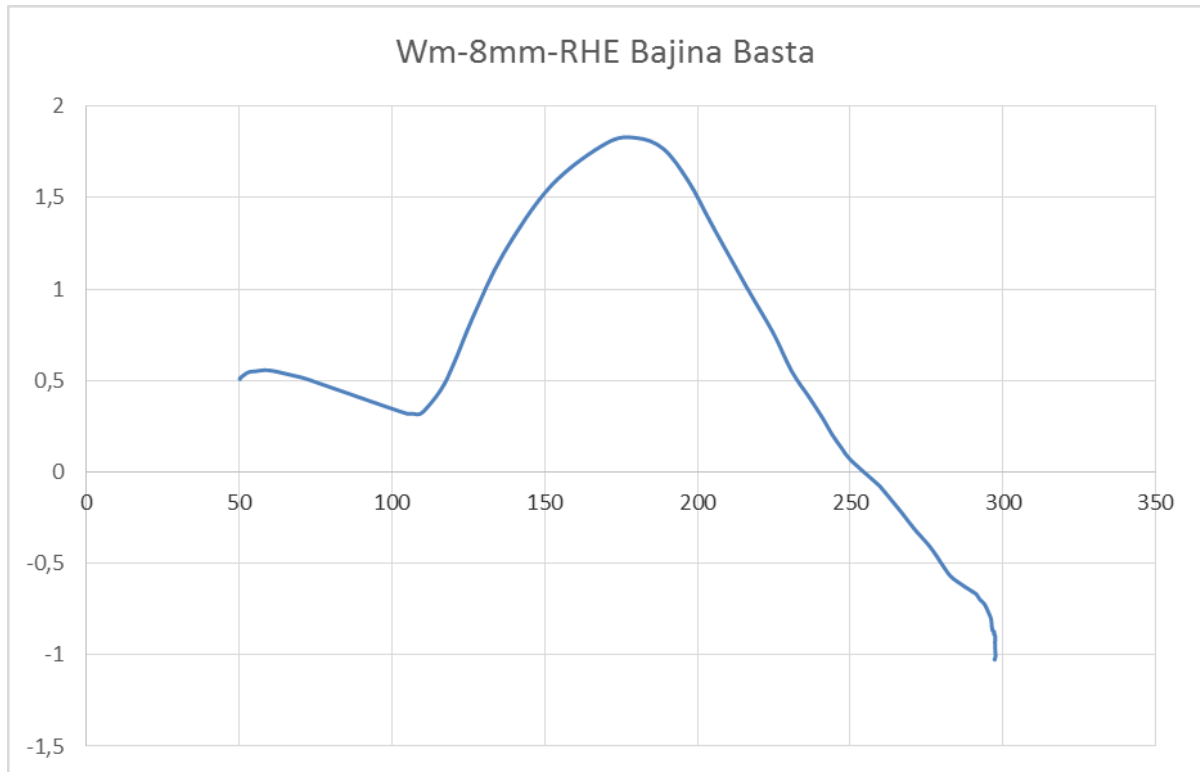
-Zuta linija – Pump Zone

-Tamno plava linija - Energy Dissipation Zone

-Zelena linija – Turbine Zone

-Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovednog aparata 8mm Wm



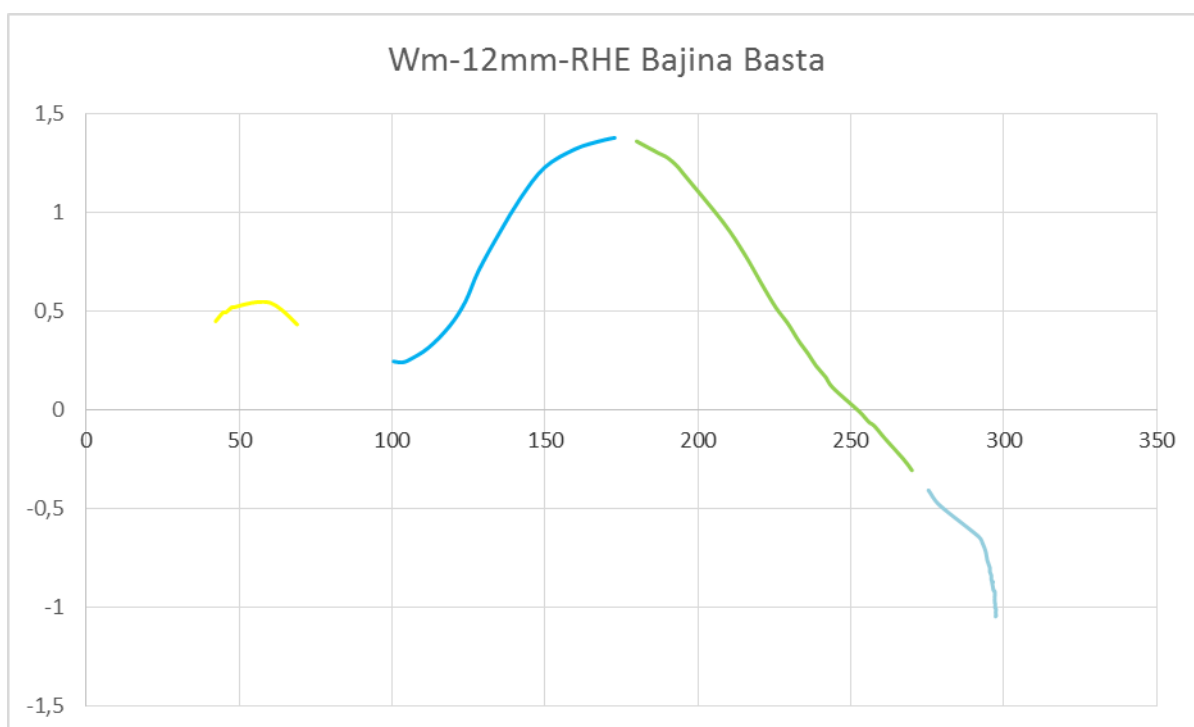
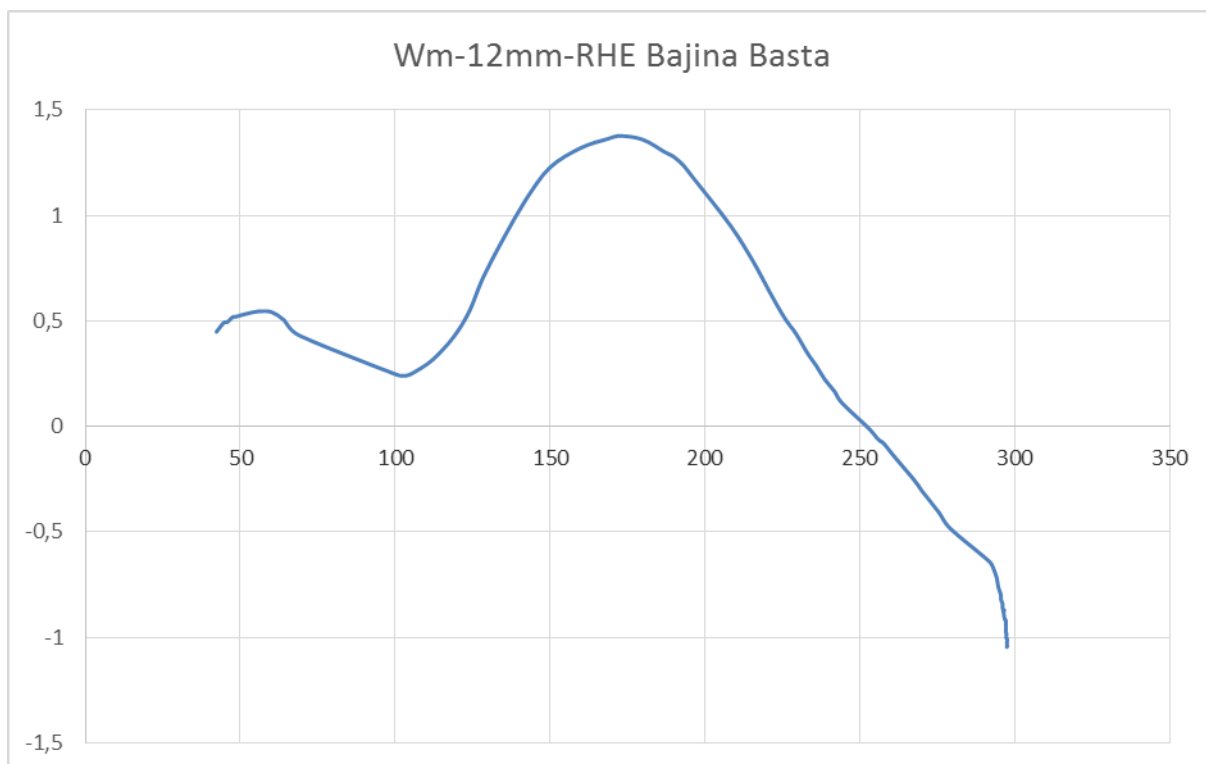
-Zuta linija – Pump Zone

-Tamno plava linija - Energy Dissipation Zone

-Zelena linija – Turbine Zone

-Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovednog aparata 12mm Wm



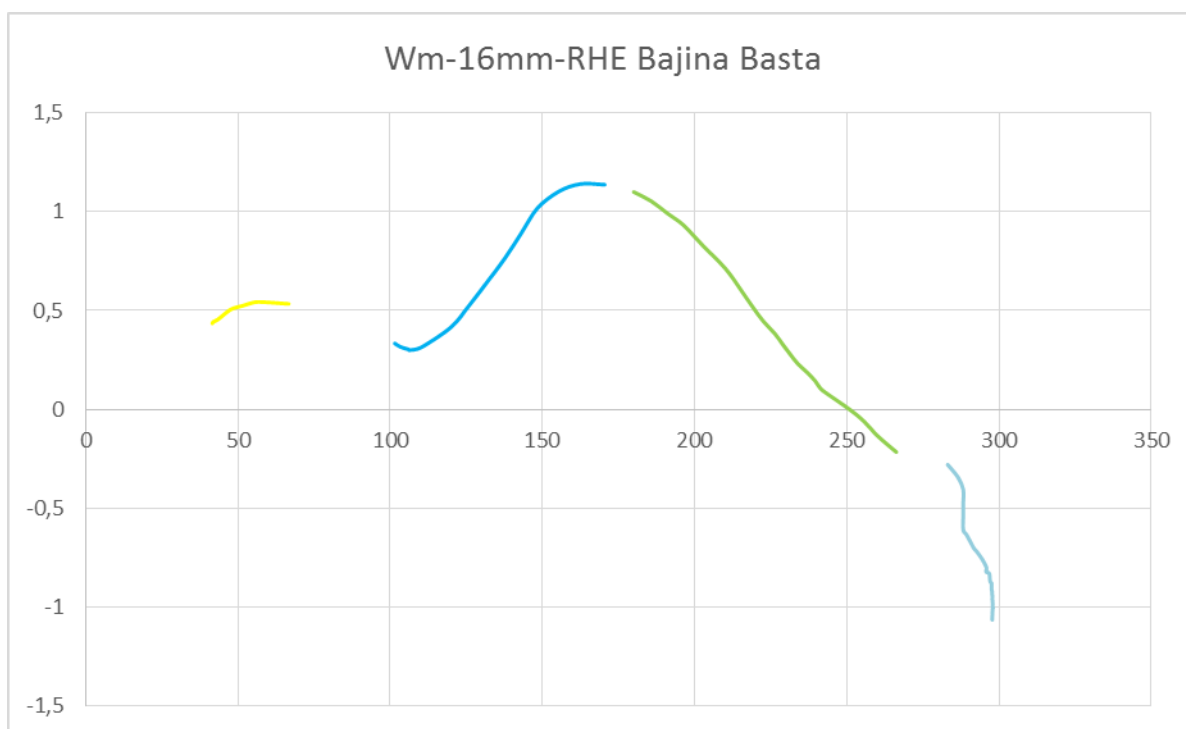
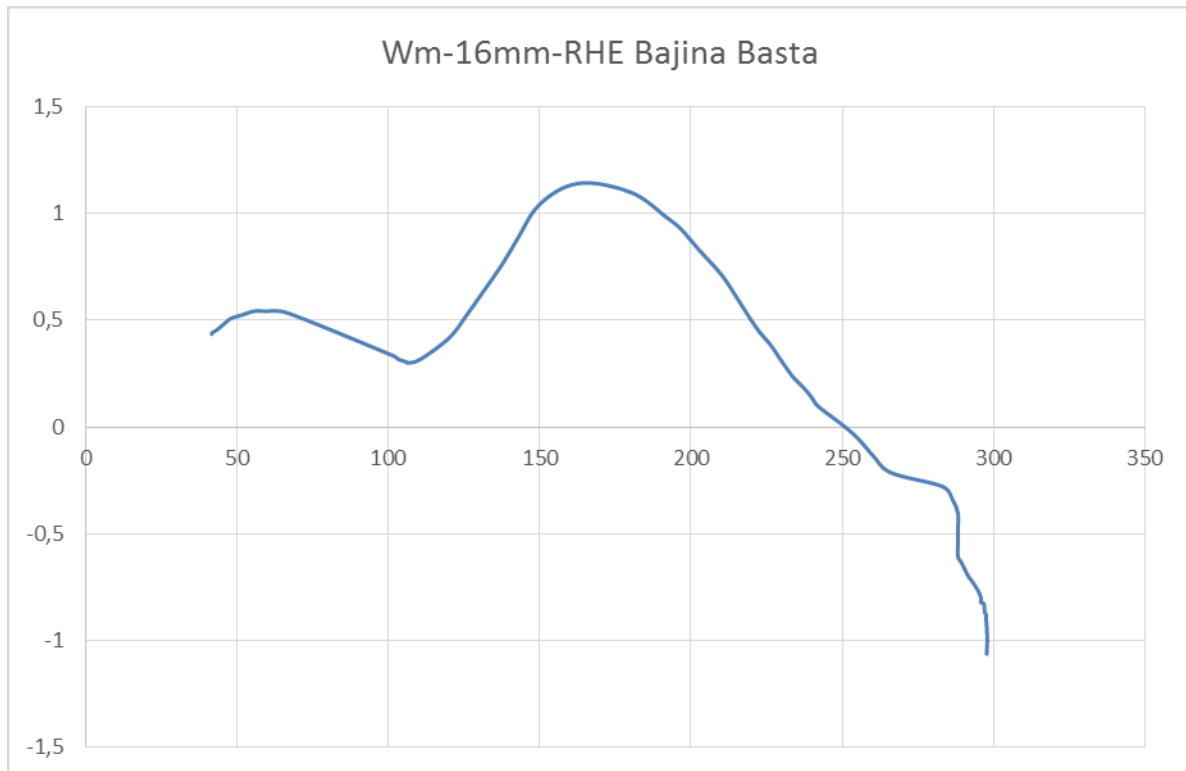
-Zuta linija – Pump Zone

-Tamno plava linija - Energy Dissipation Zone

-Zelena linija – Turbine Zone

-Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $\eta=27$ – Otvor lopatica sprovednog aparata 16mm Wm



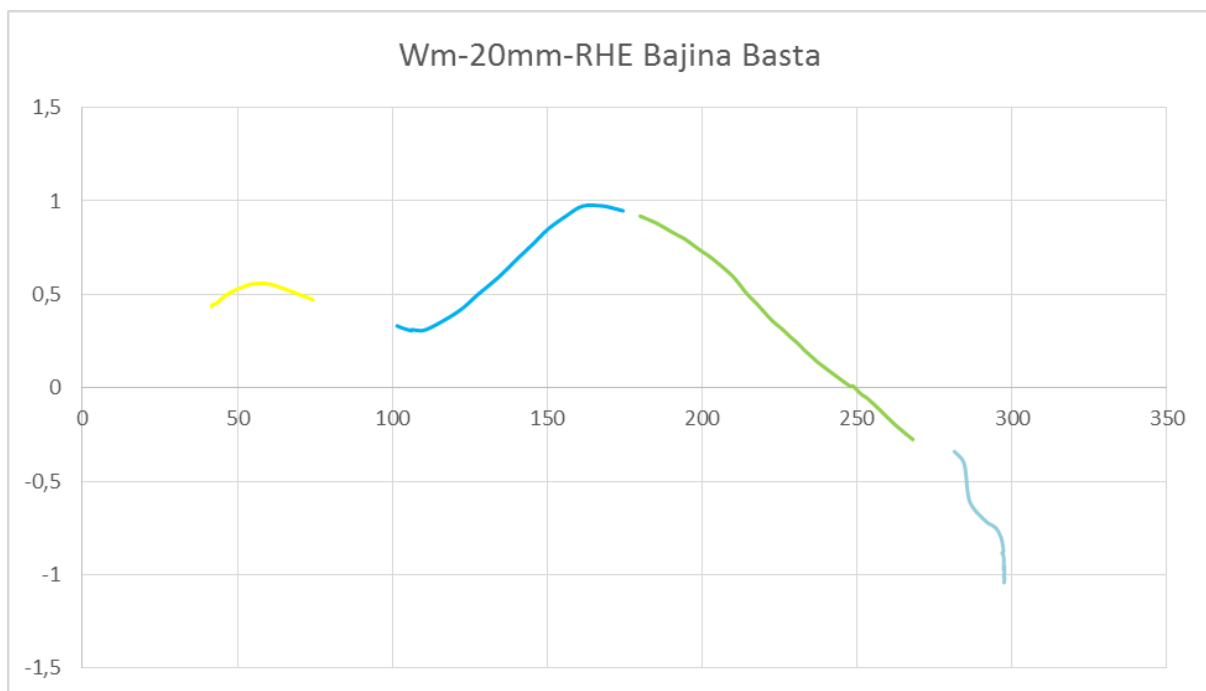
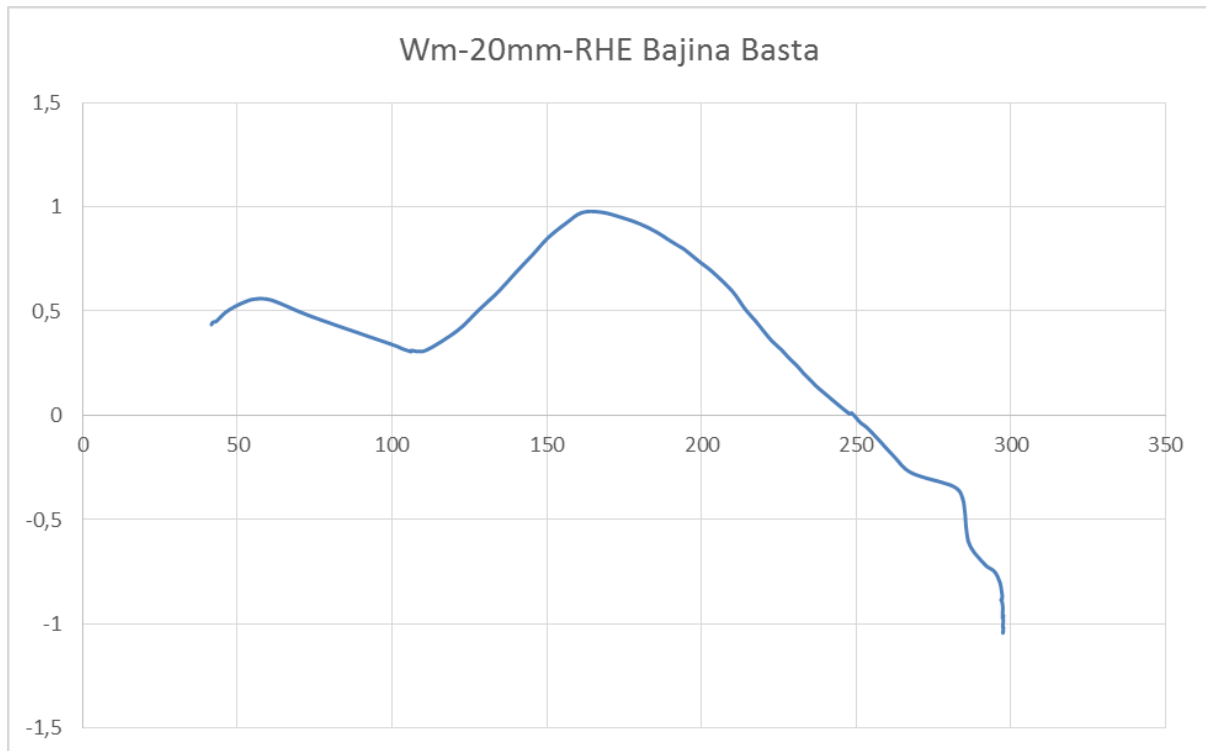
-Zuta linija – Pump Zone

-Tamno plava linija - Energy Dissipation Zone

-Zelena linija – Turbine Zone

-Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovednog aparata 20mm Wm



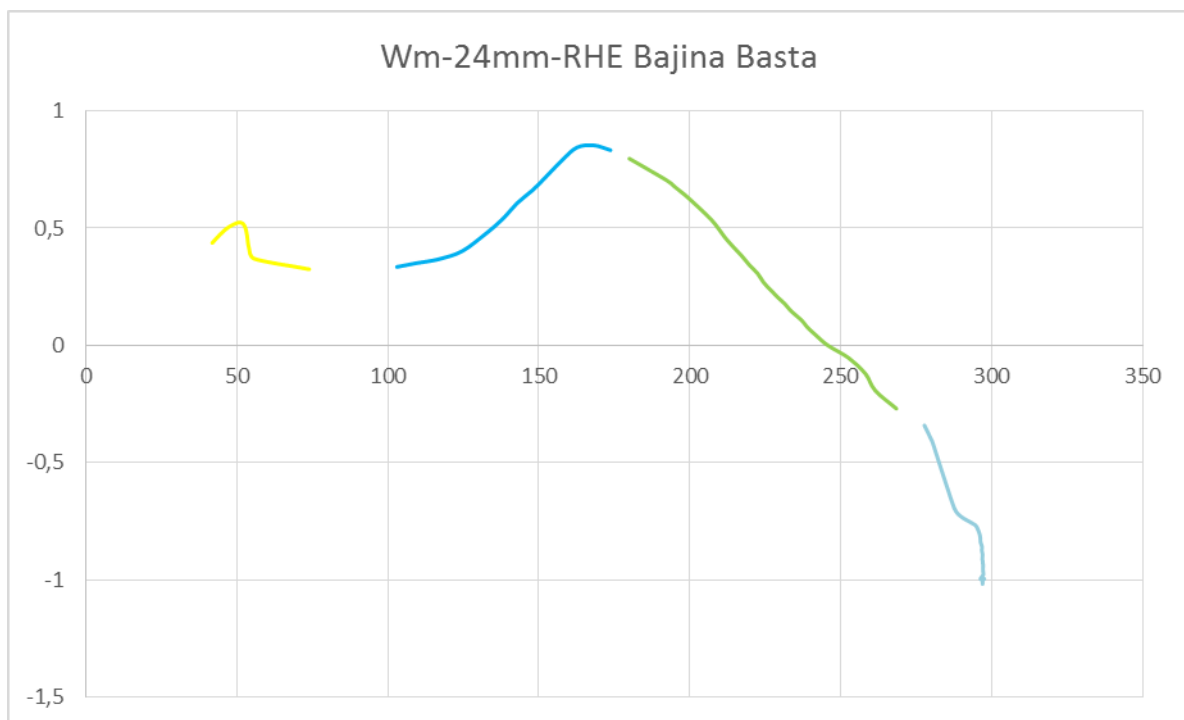
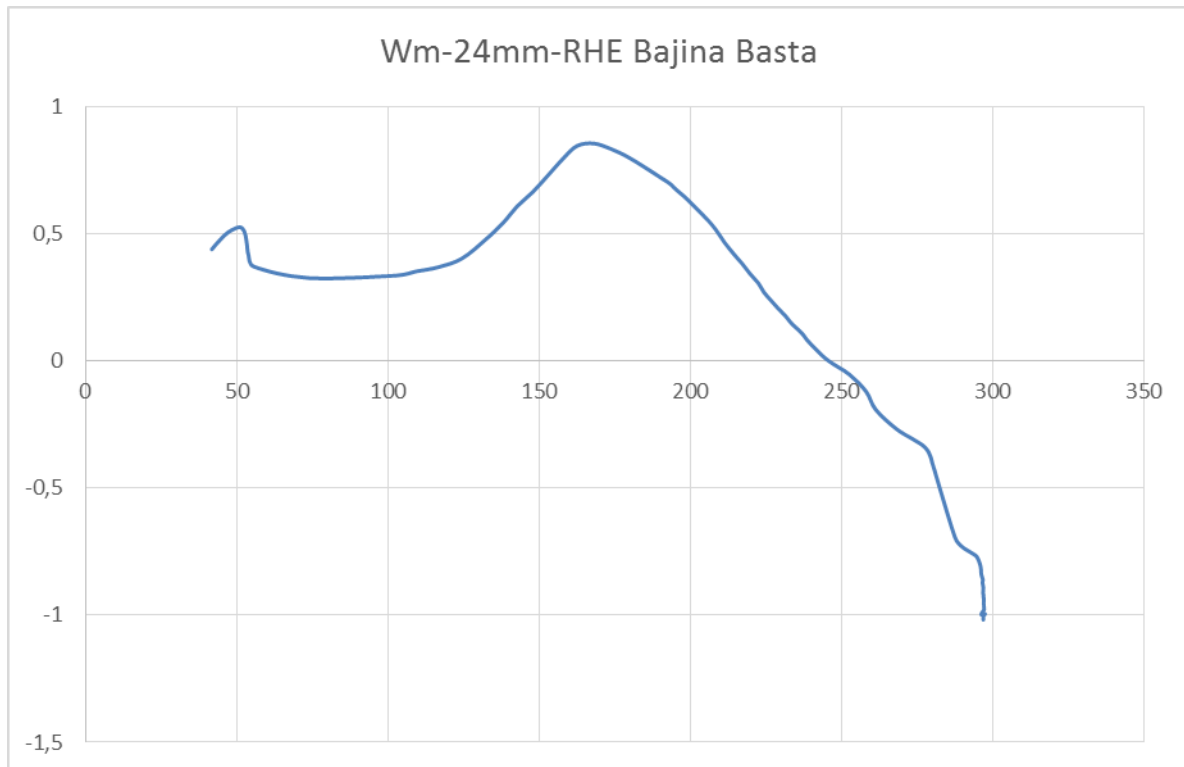
-Zuta linija – Pump Zone

-Tamno plava linija - Energy Dissipation Zone

-Zelena linija – Turbine Zone

-Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovednog aparata 24mm Wm



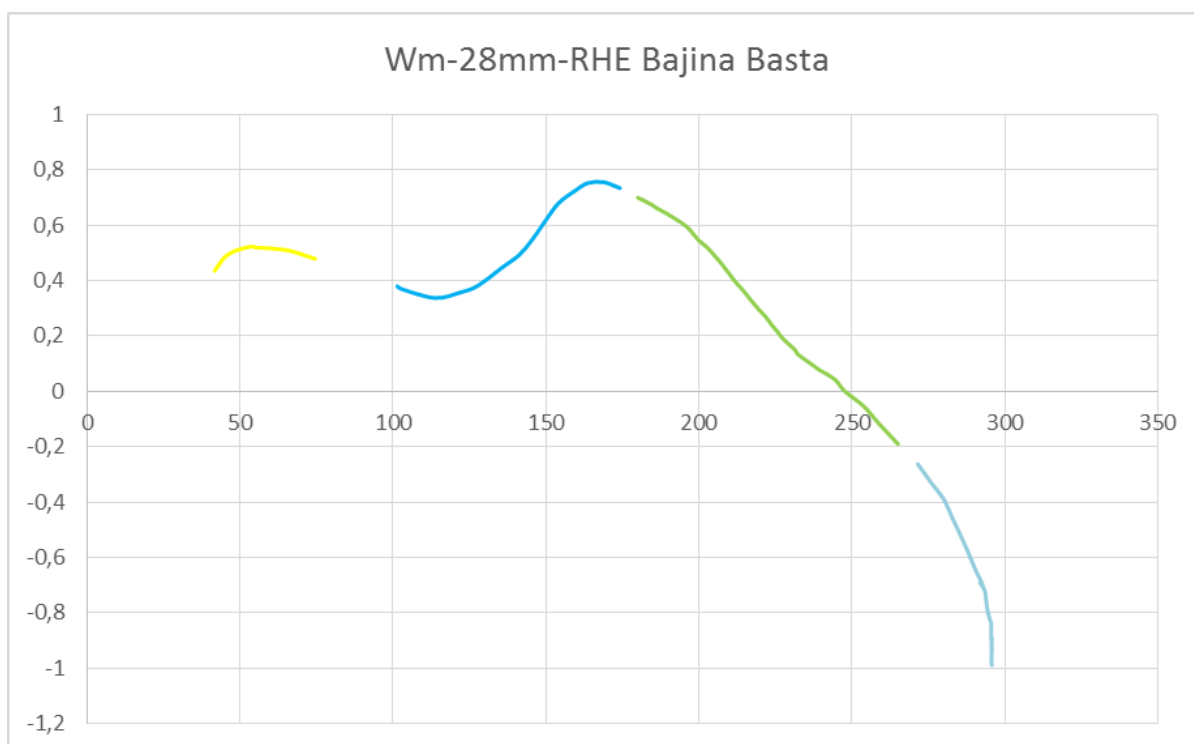
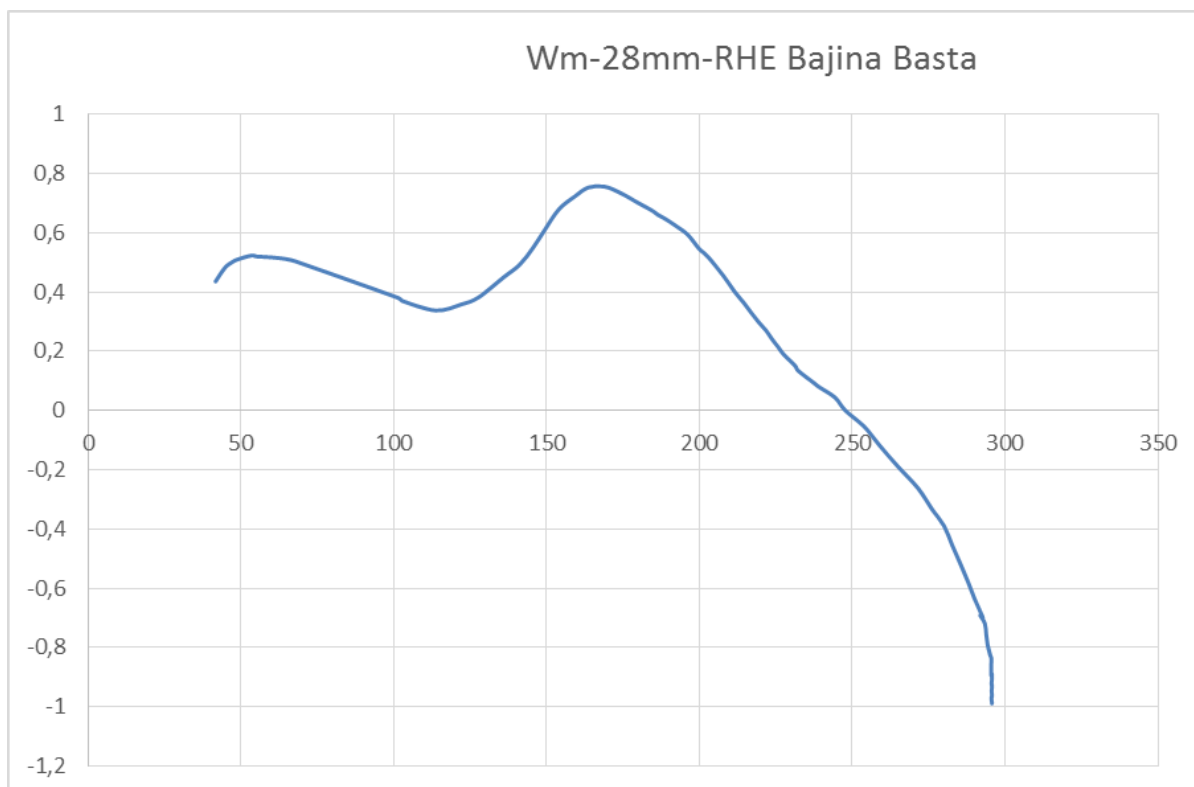
-Zuta linija – Pump Zone

-Tamno plava linija - Energy Dissipation Zone

-Zelena linija – Turbine Zone

-Svijetlo plava linija - Reverse Pump

- Pumpna turbina RHE Bajina Bašta $n_q=27$ – Otvor lopatica sprovednog aparata 28mm Wm



-Zuta linija – Pump Zone

-Tamno plava linija - Energy Dissipation Zone

-Zelena linija – Turbine Zone

-Svijetlo plava linija - Reverse Pump

Prilozi

Prilog – P30 Biografski prilozi

P30.1 Kandidat

P30.1.1 Biografija

Zdravko (Pavić) Giljen, mast.inž.maš. rođen je **15. septembra 1974. godine** u Nikšiću, Republika Crna Gora. Nakon završene osnovne škole upisao je Srednju mašinsku školu u Nikšiću, koju je završio kao učenik generacije, sa diplomskim radom "Proračun prese za probijanje i sečenje".

Na Mašinskom fakultetu u Podgorici Univerziteta Crne Gore 2002. godine završio je **Osnovne studije** u trajanju od pet godina (10 semestara) na odsjeku Primijenjena mehanika i dizajn. Diplomski rad pod nazivom "Proračun konstrukcije dizalice za transport jahti" odbranio je kod prof.dr Zorana Čulafića sa ocjenom 9 (devet). Dvogodišnje **master studije** upisao je 2009. godine na Mašinskom fakultetu u Podgorici Univerziteta Crne Gore na Odsjeku za energetiku i završio ih 2011. godine sa ocjenom 10 (deset). Magistarski rad pod nazivom "Modeliranje hidromehaničkih prelaznih režima HE Piva" odbranio je kod prof. Dr Petra Vukoslavčevića, akad. CANU, sa ocjenom 10 (deset).

Doktorske akademske studije upisao je oktobra 2012. godine na Mašinskom fakultetu Univerziteta u Beogradu, na Katedri za hidraulične mašine i energetske sisteme. Položio je sve ispite na doktorskim studijama. U cilju realizacije Programa usavršavanja, položio je sledeće obavezne i izborne predmete: • sem.1, ESPB 5 - Viši kurs matematike (prof. dr Slobodan Radojević), obavezni, ocena 10, • sem.1, ESPB 5 - Numeričke metode (prof. dr Miodrag Spalević), obavezni, ocena 10, • sem.1, EPSB 5 - OMNIRiK (prof. dr Miloš Nedeljković), obavezni, ocena 10, • sem.1, EPSB 10 – Istraživanje i publikovanje I (prof. dr Miloš Nedeljković), obav./izb., ocena 10, • sem.2, ESPB 5 - Odabrana poglavlja iz mehanike fluida (prof. dr Svetislav Čantrak, obavezni, ocena 9, • sem.2, ESPB 5 - Fenomeni strujanja u turbomašinama – projektovanje rešetki i lopatica radnih kola (prof.dr Miloš Nedeljković), izborni, ocena 9, • sem.2, ESPB 5 - Strujno-tehnička merenja (v.prof. Dejan Ilić), izborni, ocena 10, • sem.2, EPSB 15 – Istraživanje i publikovanje II (prof. dr Miloš Nedeljković), obav./izb., ocena 10, • sem.3, EPSB 5 – Numerička mehanika višefaznih strujanja (prof.dr Vladimir Stevanović), izborni, ocena 10, • sem.3, ESPB 5 - Modelska i prototipska ispitivanja hidrauličnih mašina (prof. dr Miroslav Benišek), • sem.3, ESPB 5 - Fenomeni strujanja u turbomašinama – numerička mehanika fluida (prof.dr Miloš Nedeljković), izborni, ocena 9, • sem.3, EPSB 20 – Istraživanje i publikovanje III (prof. dr Miloš Nedeljković), obav./izb., ocena 10, • sem.4, EPSB 8 – Istraživanje i publikovanje IV (prof. dr Miloš Nedeljković), obav./izb., ocena 10, • sem.4, EPSB 22 – Projekat ideje doktorske disertacije (prof. dr Miloš Nedeljković, prof. dr Miroslav Benišek, prof.dr Aleksandar Gajić i drugi članovi Katedre), obav./izb., ocena 10.

Kandidat Zdravko Giljen je na Doktorskim studijama položio 4 (četiri) obavezna i 5 (pet) izbornih predmeta (svaki vredi po 5 ESPB) čime je ostvario ukupno 45 ESPB, kroz Istraživanja i publikovanja I-IV ostvario je još 53 ESPB, a takođe je uspešno napisao Projekat ideje doktorske disertacije, i odbranio ga pred Komisijom Katedre i time stekao još 22 ESPB. Dakle, u skladu sa Pravilnikom o Doktorskim studijama Mašinskog fakulteta u Beogradu, kandidat je ostvario ukupno 120 ESPB, čime je ispunio osnovni uslov da prijavi doktorsku disertaciju.

P30.1.2 Stečeno naučno istraživačko iskustvo

Zaposlen u Elektroprivredi Crne Gore od 2004. do 2019. godine. U periodu jul 2004 – mart 2010. radio je na rekonstrukciji i modernizaciji HE Piva, gdje postoje tri Francis generatora snage 3 po 117 MW. U 2009. godini učestvovao je i radio na kompleksnim ispitivanjima i mjerenjima koja su vršena na kompletnoj mašinskoj, hidromehaničkoj i elektromehaničkoj opremi HE Piva svih agregata u trajanju od 3 mjeseca. Takođe je radio na projektovanju i reviziji sledećih projekata za HE Piva: Inspection report – Rehabilitation of Hydro Power Plant Piva; Final report Piva HPP Turbine Site Testing Unit 1; Final test reports of the equipment Hydro Power Plant Piva Unit 1; Final test reports of the equipment Hydro Power Plant Piva Unit 2, Unit 3; Consultant's report on testing of mechanical, hydromechanical and electrical equipment Piva HPP; Final report on the preparatory phase Piva HPP; Final Study on Possible Operation of Machines Hydro Power Plant Piva; Final Study of Possible Capacity Increasing Hydro Power Plant Piva; Final Study on Remaining Life of Equipment Hydro Power Plant Piva; Preliminary Design and Feasibility Study, Rehabilitation and Modernization of HPP Piva; Procurement of Selected Equipment – Turbine Governor HPP Piva; Tender Documents for Electromechanical Equipment.

U periodu od **marta 2010. do juna 2014. godine** radio je na rekonstrukciji HE Piva i HE Perućica. U HE Perućica ugrađeno je sedam Peltonovih turbina, prvih pet agregata su 5x40MW, šesti i sedmi agregati su po 60MW. U 2010. godini učestvovao je i radio na kompleksnim mjerenjima i ispitivanjima sistema otvorenih dovodnih kanala, kompletne mehaničke, hidromehaničke i elektromehaničke opreme u trajanju od dva mjeseca. U aprilu 2012. učestvovao je u mjerenju stepena efikasnosti Pelton turbinskog agregata A3 – HE Perućica, mjerenja su obavljena u skladu sa standardom IEC 60041. Takođe u julu 2012. godine učestvovao je u mjerenju stepena efikasnosti agregata. Pelton turbine A3 – HE Perućica, mjerenja su izvršena termodinamičkom metodom. Takođe je radio na projektovanju i reviziji sledećih projekata za HE Perućica: Final Report on In-Site Measuring Campaign (pressurized system – Units 1-7) at Hydro Power Plant Perucica; Final Report on In-Situ Measuring Campaign (open channel system) at Hydro Power Plant Perucica; Study on non – steady flow phenomena in the upstream system, Hydro Plant Perucica; Study on the capacity of the tailrace system, Hydro Power Plant Perucica; Study on the phenomena observed during the operation, Hydro Power Plant Perucica; Studies on Removal and Disposal of Floating Debris Hydro Power Plant – Perućica; Appraisal of environmental and socio-economic impacts and risks Hydro Power Plant Perucica; Draft Final Report on the Study of Phase II Measures and Works Hydro Power Plant Perucica; Report efficiency test Pelton turbine performed according to standard IEC 60041 - Hydro Power Plant Perućica Unit 3; Report efficiency test Pelton turbine performed by thermodynamic method at Hydro Power Plant Perućica Unit 3 and Unit 5.

U periodu **jul 2004 - jun 2014. godine** analizirao je kompletnu dokumentaciju HE Piva i HE Perućica, koja je nastala tokom izgradnje i puštanja u rad hidroelektrana Piva i Perućica, kao i kompletnu dokumentaciju koja je nastala tokom rada hidroelektrana do danas. Na osnovu svega navedenog, stekao je zavidna znanja i iskustva iz oblasti hidroelektrana, prelaznih procesa, kavitacije, vibracija i drugih hidrauličkih pojava koje se javljaju u hidroturbinama, cevovodima, vodostajima, odvodnim tunelima, derivacionim kanalima, koja je prikazao u magistarskom radu gde je modelirao hidromehaničke prelazne procese na Francis turbini HE Piva.

U periodu **jun 2014. - april 2019. godine** radi na novim projektima: HE Risan (instalirana snaga 292 MW, 2 agregata Francis po 146 MW); HE Komarnica (instalirana snaga 96 MW, 2 agregata Francis po 48 MW); MHE Otilovići (instalirana snaga 3 MW, 2 agregata Francis po 1,5 MW). Radio na projektovanju i reviziji sledećih projekata: Generalni projekat Hidroelektrane Risan;

Projektni zadatak za izradu Studije izvodljivosti sa idejnim projektom izgradnje hidroelektrane Komarnica; Konsultacije za tendersku dokumentaciju za MHE Otilovići.

U periodu **april 2019 - avgust 2020. godine**, radi u inostranstvu na montaži nove opreme u HE-Karuma 612 MW – Uganda, Afrika (šest Francis agregata po 102 MW). Na ovom projektu radi u Konsultantskoj kući – AF Consultant, Baden, Švajcarska, (uz Energoprojekt–Beograd, Srbija), na poziciji glavnog mašinskog inženjera za kontrolu i nadzor ugradnje turbinske i generatorske opreme HE–Karuma. Radi na odgovornim i složenim poslovima montaže, ispitivanja i merenja na kompletnoj mehaničkoj, hidromehaničkoj i elektromehaničkoj opremi HE-Karuma (Francisove turbine, generatori, ulazni ventili, dovodni cevovodi, predturbinski ventili, sifonski ventili, i druga oprema) agregata A1, A2, A3, A4, A5, A6 – na 16 mjeseci.

U periodu **avgust 2020 - maj 2021 godine** radi u inostranstvu na zameni stare i ugradnji nove opreme u HE- Nurek 3000 MW – Tadžikistan, Centralna Azija (9 Francis agregata – 8 po 335 MW, 1 od 320 MW). Na ovom projektu radi za konsultantsku kompaniju Stucki Consultant – Renens (Lozana), Švajcarska, na poziciji glavnog mašinskog inženjera za kontrolu i nadzor demontaže stare elektro-mašinske opreme i ugradnje nove elektro i mašinske opreme. oprema turbina i generatora HE–Nurek i složeni radovi montaže, ispitivanja i merenja na kompletnoj mehaničkoj, hidromehaničkoj i elektromehaničkoj opremi HE-Nurek agregata A1-A9 – na 10 mjeseci.

U periodu **maj 2021 - jun 2024 godine** radi u inostranstvu na montaži nove opreme u HE-GERD 5200 MW – Etiopija, Afrika (trinaest Francis agregata po 400 MW). Na ovom projektu radi u Konsultantskoj kući - ELC-Electroconsult SpA, Milano, Italija, na poziciji glavnog elektro-mašinskog inženjera za kontrolu i nadzor montaže turbinske i generatorske opreme za HE-GERD. Radi na odgovornim i složenim poslovima montaže, ispitivanja i merenja na kompletnoj mehaničkoj, hidromehaničkoj i elektromehaničkoj opremi HE– GERD postrojenja (Francisove turbine, generatori, ulazni pločasti zatvarači za brzo zatvaranje imaju ulogu predturbinskih zatvarača, snabdevanje cevovode, sifonske ploče i drugu opremu) agregati A1-A13 – na 36 mjeseci.

U Državnoj ključnoj laboratoriji za nauku o vodnim resursima i hidroenergetici – Univerzitetu Vuhan, Kina – boravio je u zvaničnoj poseti **od 29.02.2016. do 29.03.2016.godine** na poziv prof. dr. Yongguang Cheng-a direktora, Sekcija za istraživanje bezbednosti hidroenergetskog sistema. Poseta Državnoj ključnoj laboratoriji je od neprocenjive važnosti za izradu predmetne doktorske disertacije, pošto je predstavljala jedinstvenu priliku za analizu rezultata merenih tokom stacionarnog stanja i prelaznih procesa na dva modela pumpnih turbina instaliranih u ovoj laboratoriji, kao i proceduru transformacije podataka sa četvorokvadrantnih karakterističnih krivih turbina pumpe na Suterove krive. Posebno se ističe analiza koju je kandidat uradio na problemu dinamičkih karakteristika u S-regiji tokom prelaznog stanja – pobege pumpne turbine.

Oktobra 2012. godine boravio je u zvaničnoj petodnevnoj poseti Institutu za energetske sisteme i termodinamiku – Tehnički univerzitet u Beču na poziv prof. dr-inž. Kristijana Bauera, Katedra za strujne mašine. Tokom posete Institutu učestvovao je u veoma složenim pumpno-turbinskim ispitivanjima u laboratoriji za hidraulične turbine, gde je stekao dragocena znanja i iskustva iz oblasti hidrauličnih turbina i prelaznih procesa.

Tokom 2012. godine imao je zvaničnu posetu fabrici hidrauličnih turbina Voith Hydro u Sent Peltenu, Austrija, tri dana, na poziv dr-inž. Leopolda Heningera, glavnog izvršnog direktora kompanije Voith Hydro. Tokom posete upoznao se sa kompletnim pogonom fabrike u kome se

proizvodi oprema za hidraulične turbine (turbinska i hidromehanička oprema) i stekao značajno iskustvo i znanje iz oblasti hidrauličnih turbina i prelaznih procesa.

Takođe, **tokom 2011. godine** bio je u zvaničnoj poseti Laboratoriji za ispitivanje hidrauličnih turbina ALSTOM – Grenobl Francuska u trajanju od 4 dana. Prisustvovao je ispitivanjima modela Kaplanove turbine, gde je stekao veoma važno profesionalno iskustvo. Tokom ove posete imao je zapaženo učešće u analizi kavitacije i donjeg vodostaja Francisove turbine HE Piva sa Alstom inženjerima.

Na osnovu stečenih znanja iz oblasti hidroturbina i tranzicionih procesa, kroz rad na domaćim (rekonstrukcija i modernizacija HE-Piva i HE-Perućica) i inostranim projektima (izgradnja novih hidroelektrana HE–Karuma, Uganda, Afrika, HE–GERD Etiopija, Afrika; rekonstrukcije i modernizacija HE–Nurek Tadžikistan, Centralna Azija), i učešće u složenim laboratorijskim ispitivanjima hidroturbina, autor je i koautor određenog broja radova, na domaćim i međunarodnim konferencijama i simpozijumima. Član Inženjerske komore Crne Gore, licenca za izradu projekata mašinskih instalacija i dozvola za nadzor u toku izvođenja radova na mašinskim instalacijama. Vojni rok služio je u periodu od decembra 2001. Do septembra 2002. godine, kao mornarički oficir za vezu Vojske SCG. Oženjen i otac troje dece, dva sina i jedne ćerke. Posедуje vozačku dozvolu B kategorije.

Poznavanje stranih jezika: Engleski jezik – čita i govori.

Poznavanje rada na računaru: Microsoft Office (Word, Excel, PowerPoint), Matlab, Fortran.

Istraživačke oblasti: Nestacionarni i stacionarni procesi u hidroelektranama, pumpnim turbinama, turbinama, hidromehaničkoj opremi, energijske, kavitacijske i eksploatacione karakteristike hidroenergetskih postrojenja

P30.1.3 Radovi

Na osnovu prethodno navedenih stručnih znanja koje je kandidat stekao iz oblasti hidroturbine i prelaznih procesa kroz rad na projektima rekonstrukcije i modernizacije HE – Piva, HE - Perućica, HE - Nurek, i izgradnje novih hidroelektrana HE – Karuma, HE - GERD i učestvovanja na složenim laboratorijskim ispitivanjima hidroturbina, kandidat je autor i ko-autor nekoliko naučnih radova iz oblasti prelaznih režima na Francisovoj turbini, pumpnoj-turbini, pumpi, i iz oblasti kavitacije, pulzacija pritiska u sifonu Francis turbine, razvijanja Univerzalne Jednačine za W_h i W_m karakteristike, na domaćim i međunarodnim savjetovanjima, simpozijumima i časopisima. Kao rezultat istraživanja kandidat je objavio 15 radova u časopisima i na skupovima međunarodnog i nacionalnog značaja, ovdje prikazani obrnuto hronološki:

- Giljen Z, Nedeljkovic M, Cheng YG (2024). The Influence of Pump-Turbine Specific Speed on Hydraulic Transient Processes. *Strojniški vestnik – Journal of Mechanical Engineering*. (Accepted for publication).

- Giljen Z, Nedeljkovic M (2023). Universal Form of Radial Hydraulic Machinery Four-Quadrant Equations for Calculation of Transient Processes. *Energies* **2023**, 16, 7736. <https://doi.org/10.3390/en16237736>

- Giljen Z, Nedeljkovic M (2018). Radial hydraulic machinery four-quadrant performance curves dependent on specific speed and applied in transient calculations. Proc. 29th *IAHR Symposium on Hydraulic Machinery and Systems*, Kyoto, Japan. PaperNo224, pp.1-10. <https://iopscience.iop.org/article/10.1088/1755-1315/240/4/042002>

- Giljen Z, Nedeljkovic M, Cheng YG (2018). Analysis of four-quadrant performance curves for hydraulic machinery transient regimes. Proc.17th *International Conference on Fluid Flow Technologies*, Budapest, Hungary. PaperNo98, pp.1-8.
- Giljen Z, Nedeljkovic M, Heninger L, Bauer C (2018). Complex testing on the installation of the radial pump turbine model determination of four-quadrant characteristics. Proc. *International Conference Energy and Ecology Industry*, Belgrade, Serbia. ISBN978-86-7466-751-4. PaperNo1.3, pp.1-8.
- Giljen Z (2017). Pressure oscillations in Piva Hydro Power Plant draft tube –case studies. Proc. 29th *Symposium Fluid Machinery ASME-2017 Fluids Engineering Division Summer Meeting*. Waikoloa, Hawaii, U.S.A. PaperNo FEDSM2017-69218, pp.1-8.
- Giljen Z (2017). Cavitation of Francis Turbine HPP Piva and applied methods for reducing negative impact. Book of abstracts. *AFM/SHF Conference on Hydraulic Machines and Cavitation, November 8 -9th ENSAM Paris, France*.
- Giljen Z, Nedeljkovic M, Cheng GY (2016). Pump-turbine characteristics for analysis of unsteady flows. Book of abstracts. 28th *IAHR Symposium on Hydraulic Machinery and Systems*, Grenoble, France. AbstractNo195, pp.51.
- Giljen Z (2015). Analiza oscilacija pritiska u sifonu francis turbine HE-Piva uslijed prelaznih procesa, *Zbornik radova IV Savjetovanje CIGRE*, Igalo, Crna Gora. pp. 42, <http://cigre.me/page.php?id=189>
- Giljen Z (2014). Numerical and field tests of hydraulic transients at Piva powerplant. Proc. 27th *IAHR Symposium on Hydraulic Machinery and Systems*, Montreal, Canada. PaperNo2.3.5,pp.1-9. *IOP Conf. Ser.: Earth Environ. Sci.* 22(2013) 042010. <https://doi.org/10.1088/1755-1315/22/4/042010>
- Starinac, D. Žugić, D. Vojt, P. Dimitrijević, M. Giljen, Z. Gajić, A. (2014). On-site measurements in pressurized system of high head hydropower plant, 27th *IAHR SYMPOSIUM Hydraulic Machinery and Systems*, Montreal, Canada. pp. 76, Print ISSN: 1755-1307, <http://iopscience.iop.org/1755-1315/22/>
- Giljen,Z. Karadžić, U.(2013). Analiza hidromehaničkih prelaznih režima na HE-Piva za slučaj brzog zaustavljanja francisovog agregata, *Zbornik radova III Savjetovanje CIGRE*, Pržno, Crna Gora. pp. 33, <http://cigre.me/page.php?id=121>
- Giljen,Z. Karadžić, U. (2011). Analiza hidromehaničkih prelaznih režima na HE-Piva, *Zbornik radova II Savjetovanje CIGRE*, Pržno, Crna Gora. pp. 28, <http://cigre.me/page.php?id=120>
- Pješčić,S. Giljen, Z. (2010). Kavitacija turbina i metode za smanjenje njenog negativnog uticaja, *Zbornik radova konferencije održavanja "KOD - 2010"*, Ulcinj, Crna Gora. pp. 425 – 430.
- Pješčić, S. Giljen, Z. (2009). Rekonstrukcija i modernizacija HE-Piva u funkciji energetske efikasnosti, *Zbornik radova konferencije održavanja "KOD - 2009"*, Bar, Crna Gora. pp. 309 - 314.