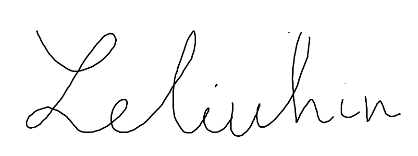
**Курсовой проект**

по дисциплине «Математические модели»



Выполнил: Лелюхин Д. О.

студент гр.23504/2

Руководитель:

профессор, д.т.н. С.М. Устинов

«\_\_\_»\_\_\_\_\_\_\_\_\_\_2017 г.

Содержание

[**Задание** 2](#_Toc483423449)

[**Аналитические преобразования** 3](#_Toc483423450)

[**Текст программы** 4](#_Toc483423451)

[Главная функция Main. 5](#_Toc483423452)

[Функция mylogplot. 8](#_Toc483423453)

[**Результаты работы программы** 10](#_Toc483423454)

[Блок аналитических преобразований: 10](#_Toc483423455)

[Все точки в диапазоне x2: -5.0:0.1:10 10](#_Toc483423456)

[Точки, по которым строим график: 16](#_Toc483423457)

[График x1(tau) при а=1 21](#_Toc483423458)

[Графи x2(tau) при а=1 22](#_Toc483423459)

[График x1(tau) при а=2 23](#_Toc483423460)

[График x2(tau) при а=2 24](#_Toc483423461)

[График x1(tau) при а=4 25](#_Toc483423462)

[График x2(tau) при а=4 26](#_Toc483423463)

[Легенда для точек ко всем графикам 27](#_Toc483423464)

[**Блок проверки** 27](#_Toc483423465)

[Список произвольно выбранных точек: 27](#_Toc483423466)

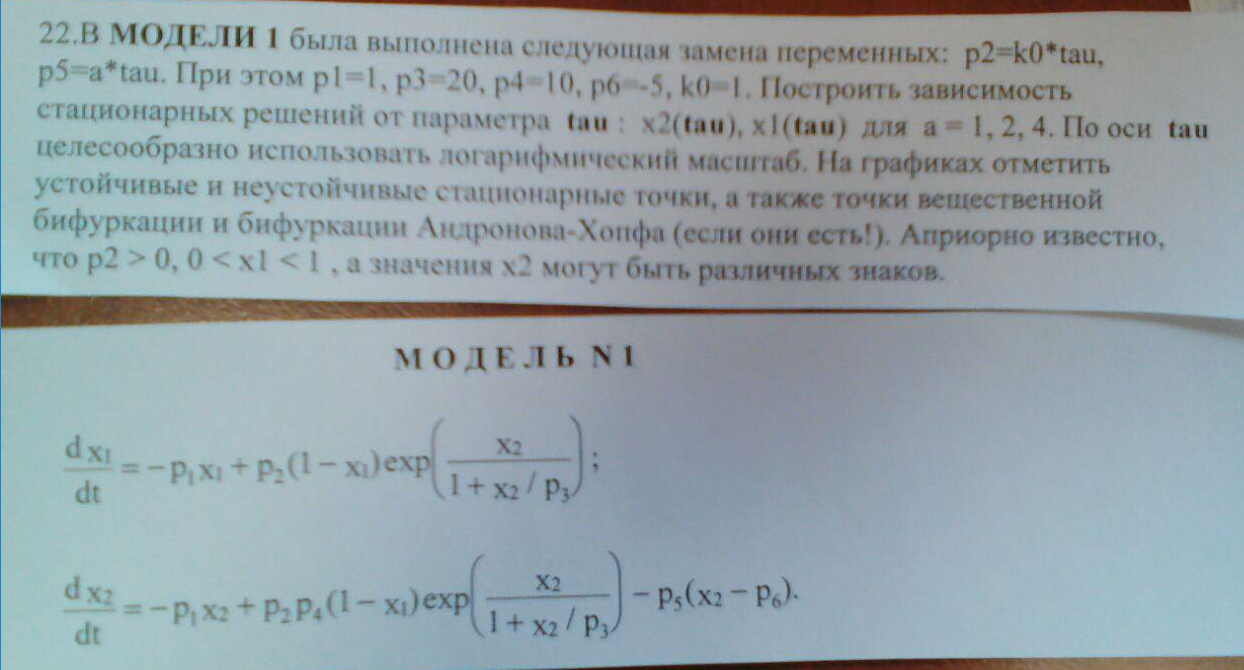
[Функция Test.m 28](#_Toc483423467)

[Результат работы блока проверки 28](#_Toc483423468)

[**Вывод** 32](#_Toc483423469)

[**Список используемой литературы** 32](#_Toc483423470)

# **Задание**



# **Аналитические преобразования**

Для нахождения решений уравнений, необходимо прировнять все уравнения к нулю и решить получившуюся систему.

Для обозначения точек на графиках необходимо ввести в цикл (по g от 1 до количества всех точек на графике) следующие условия:

1. Для стационарных устойчивых точек:

Вещественные части собственных значений матрицы Якоби должны быть меньше нуля:

if (real(BUFLAM1(g))<0 && real(BUFLAM2(g))<0)

1. Для стационарных неустойчивых точек:

Хотя бы одна вещественная часть одного из собственных значений матрицы Якоби должна быть больше нуля:

elseif ((real(BUFLAM1(g))>0 && real(BUFLAM2(g))>0) || ...

(real(BUFLAM1(g))<0 && real(BUFLAM2(g))>0) || ...

(real(BUFLAM1(g))>0 && real(BUFLAM2(g))<0))

Невозможно не отметить тот факт, что в данном контексте постановки задачи, что при введении логически верных условий существования точек комплексной и вещественной бифуркации, на графике их видно не будет. Чем это вызвано? Во-первых, шагом, с которым мы варьируем x2, а именно, что эти точки могут принимать далеко не целые значения. Во-вторых, как известно, условие существования точки вещественной бифуркации – определитель матрицы Якоби должен быть равен нулю. На руках имеется порядка 900 точек для построений графиков, и даже при таком раскладе очень мала вероятность, что мы попадем на эти точки. Что же будем делать в таком случае? Включать логику. Будем оперировать поочередно с собственными значениями двух соседних точек на графике. При такой постановке задачи, мы сможем только указать промежутки, где выполняются условия для точек бифуркации. Просто сравниваем собственные значения tau(g) и tau(g+1) в цикле и предсказываем будет ли выполняться условие, или же нет. Параллельно указываем как меняется вещественная или комплексная часть: с + на -, или с – на +.

1. Для точек вещественной бифуркации:

С – на + if (real(BUFLAM1(g))<0 && real(BUFLAM1(g+1))>0) || ...

(real(BUFLAM2(g))<0 && real(BUFLAM2(g+1))>0)

С + на - if (real(BUFLAM1(g))>0 && real(BUFLAM1(g+1))<0) || ...

(real(BUFLAM2(g))>0 && real(BUFLAM2(g+1))<0)

1. Для точек комплексной бифуркации (Андронова-Хопфа):

С – на + if (imag(BUFLAM1(g))<0 && imag(BUFLAM1(g+1))>0) || ...

(imag(BUFLAM2(g))<0 && imag(BUFLAM2(g+1))>0)

С + на - if (imag(BUFLAM1(g))>0 && imag(BUFLAM1(g+1))<0) || ...

(imag(BUFLAM2(g))>0 && imag(BUFLAM2(g+1))<0)

Рассмотрим систему. Довольно трудная ситуация складывается с переменной x2, она встречается в довольно неприятных местах: и в степени экспоненты и в знаменателе. Для выхода из этой ситуации будем варьировать одну из переменных, ту относительно которой решить систему труднее всего- x2. Далее следует блок аналитических преобразований системы уравнений, в котором будем заменять переменные с помощью следующей программы Matlab R2016b, а также встроенных функций subs и solve. Аналитические преобразования можно было бы выполнить вручную, но встроенные функции среды Matlab прекрасно справляются со своими обязанностями и необходимости в этом нет, ну разве что проверить навыки применения математического аппарата. После выполнения блока аналитических преобразований следует реализация задачи на языке программирования. В данном случае, MatLab R2016b.

# **Текст программы**

Программа выполнена в среде **MatLab R2016b** на языке данной среды.

## Главная функция Main.

Из нее вызываем написанную функцию построения графиков.

function M=Main

%Очищаем Окно Команд и область переменных

clc

clear all;

%Объявление переменных

p1=1;p3=20;p4=10;p6=-5;k0=1;

syms a x1 x2 tau;

syms maj majt;

sym ls;

p2=k0\*tau;

p5=a\*tau;

dx1dt=-p1\*x1+p2\*(1-x1)\*exp(x2/(1+x2/p3));

dx2dt=-p1\*x2+p2\*p4\*(1-x1)\*exp(x2/(1+x2/p3))-p5\*(x2-p6);

x1j=x1;%Присваиваем значение x1 в буферную переменную

x2j=x2;%Присваиваем значение x2 в буферную переменную

%Откроем файл OUTValues.dat для дальнейшей записи таблицы данных в него

outfile=fopen('D:\Мат.модели\Курсач\OUTValues.dat','w');

%--------------------------------------------------------------------------------

%Блок аналитических преобразований

fprintf('Умножим (1) уравнение на p4:');

temp1=dx1dt\*p4

fprintf('Вычтем (1) уравнение из (2):');

temp2=dx2dt-temp1

fprintf('Выразим x1:');

x1=solve(temp2,x1)

fprintf('Подставим x1 в (1):');

temp3=dx1dt;

temp3=subs(temp3,x1)

fprintf('Решим квадратное уравнение по переменной tau:');

taut=solve(temp3,tau)

fprintf('Строим матрицу Якоби:');

maj=jacobian([dx1dt,dx2dt],[x1j,x2j])

%--------------------------------------------------------------------------------

%Основная часть (логика,цикл, вывод результатов и графиков)

%Создаем буферный массив 1\*2 для записи корней уравнения (tau) в него

kor=[0 0];

%Создаем буферный массив 2\*2 для записи матрицы Якоби в него

majt=[0 0;0 0];

%Создаем пустые массивы для вывода всех данных в виде таблицы

KP=[];A=[];X2=[];TAU=[];K=[];X1=[];LAM1=[];LAM2=[];

%Создаем пустые буферные массивы для вывода графиков по точкам

BUFA=[];BUFTAU=[];BUFX1=[];BUFX2=[];BUFLAM1=[];BUFLAM2=[];

GRAFA=[];GRAFTAU=[];GRAFX1=[];GRAFX2=[];GRAFLAM1=[];GRAFLAM2=[];

%Создаем пустые буферные массивы для сортировки точек графиков

BUFTAU1=[];BUFTAU2=[];BUFX11=[];BUFX12=[];BUFX21=[];BUFX22=[];

TEMPLAM11=[];TEMPLAM12=[];TEMPLAM21=[];TEMPLAM22=[];BUFA1=[];BUFA2=[];

iter=1;%Счетчик общего колличества точек

fig=1;%Переменная, отвечающая за номер фигуры выведенного графика

at=1;%Эквивалент переменной а, меняющий значения в цикле а=1 2 4

%Начало цикла, пока а не станет равной 4

while at<=4

for x2t=-5.0:0.1:10.0

try

kor=double(subs(taut,[x2,a],[x2t,at]));

catch

%Блок try-catch необходим для фильтрации ошибок и предупреждений

%вида 'Деление на ноль' при решении квадратного уравнения по tau

end

%Далее проверяем является ли корень tau комплексным числом

if imag(kor)~=0

kor=abs(kor);

end

%Пока выполняется цикл будем выводить результаты в Окно Команд

fprintf('a=%d x2=%4.1f\n',at,x2t);

%Так как у нас мб 2 значения tau=>цикл по kor(k) (или tau)

for k=1:length(kor) %Длина kor принимает значения от 1 до 2

%Подставляем значения a,x2,tau в буферную переменную x1t

x1t=double(subs(x1,[a,x2,tau],[at,x2t,kor(k)]));

%Подставляем значения a,x1,x2,tau в буферную матрицу Якоби majt

majt=double(subs(maj,[a,x1j,x2j,tau],[at,x1t,x2t,kor(k)]));

%Вычисляем сумму элементов главной диагонали матрицы majt

sd=majt(1,1)+majt(2,2);

%Находим вектор собственных значений матрицы Якоби majt

ls=double(eig(majt));

%Для вывода данных в общую таблицу постоянно записываем все

%значения в массивы

A(end+1)=at;

X2(end+1)=x2t;

KP(end+1)=iter;

%Увеличиваем счетчик общего колличества точек

iter=iter+1;

%Вводим условие из задания

if (kor(k)>0 && x1t>0 && x1t<1)

%Пока выполняется цикл будем выводить результаты в Окно Команд

fprintf('\ttau(%d)= %9.5f | x1=%9.5f | L1=%s | L2=%s \n', ...

k,kor(k),x1t,num2str(ls(1)),num2str(ls(2)));

%Далее логически разделяем поэлементно значения в массивах

if (k==1)

TAU(end+1)=kor(k);

K(end+1)=k;

X1(end+1)=x1t;

LAM1(end+1)=ls(1);

LAM2(end+1)=ls(2);

BUFA1(end+1)=at;

BUFTAU1(end+1)=kor(k);

BUFX11(end+1)=x1t;

BUFX21(end+1)=x2t;

TEMPLAM11(end+1)=ls(1);

TEMPLAM12(end+1)=ls(2);

elseif (k==2)

TAU(end+1)=kor(k);

K(end+1)=k;

X1(end+1)=x1t;

LAM1(end+1)=ls(1);

LAM2(end+1)=ls(2);

BUFA2(end+1)=at;

BUFTAU2(end+1)=kor(k);

BUFX12(end+1)=x1t;

BUFX22(end+1)=x2t;

TEMPLAM21(end+1)=ls(1);

TEMPLAM22(end+1)=ls(2);

end

%Если же корни tau отсутствуют, присваиваем пустое значение

else

TAU(end+1)=NaN;

K(end+1)=NaN;

X1(end+1)=NaN;

LAM1(end+1)=NaN;

LAM2(end+1)=NaN;

fprintf('\t%d-й корень tau отсутствует\n',k);

continue

%Если k-ый корень отсутствует, понижаем счетчик кол-ва точек

iter=iter-1;

end

end

fprintf('\n');

end

%Дабы избежать "зиг-загообразности" точек на графиках:

%Переворачиваем ранее записанный массив вторых корней уравнения

%и сопутствующие ему буферные массивы значений

BUFA2=fliplr(BUFA2);

BUFTAU2=fliplr(BUFTAU2);

BUFX12=fliplr(BUFX12);

BUFX22=fliplr(BUFX22);

TEMPLAM21=fliplr(TEMPLAM21);

TEMPLAM22=fliplr(TEMPLAM22);

%И скрепляем с массивами первых корней уравнения

BUFA=[BUFA1,BUFA2];

BUFTAU=[BUFTAU1,BUFTAU2];

BUFX1=[BUFX11,BUFX12];

BUFX2=[BUFX21,BUFX22];

BUFLAM1=[TEMPLAM11,TEMPLAM21];

BUFLAM2=[TEMPLAM12,TEMPLAM22];

%Передаем значения другим массивам для вывода точек всех графиков

GRAFA=[GRAFA,BUFA];

GRAFTAU=[GRAFTAU,BUFTAU];

GRAFX1=[GRAFX1,BUFX1];

GRAFX2=[GRAFX2,BUFX2];

GRAFLAM1=[GRAFLAM1,BUFLAM1];

GRAFLAM2=[GRAFLAM2,BUFLAM2];

%Используем собственные функции построения графиков для x1 и x2

fig=mylogplot(at,fig,BUFTAU,BUFLAM1,BUFLAM2,BUFX1);

fig=mylogplot(at,fig,BUFTAU,BUFLAM1,BUFLAM2,BUFX2);

%Обнуляем массивы, чтобы точки для разных значений а

%не лежали в одной плоскости

BUFA=[];BUFTAU=[];BUFX1=[];BUFX2=[];BUFLAM1=[];BUFLAM2=[];

BUFTAU1=[];BUFTAU2=[];BUFX11=[];BUFX12=[];BUFX21=[];BUFX22=[];

TEMPLAM11=[];TEMPLAM12=[];TEMPLAM21=[];TEMPLAM22=[];BUFA1=[];BUFA2=[];

%Умножаем фактическое а на 2

at=at\*2;

end

%--------------------------------------------------------------------------------

%Инициализируем таблицу значений всех точек и выводим в Окно Команд

T=table;

T.N=KP';T.a=A';T.x2=X2';T.tau=TAU';

T.k=K';T.x1=X1';T.LAM1=LAM1';T.LAM2=LAM2'

%Инициализируем таблицу значений точек по которым строим графики

G=table;

G.N=(1:length(GRAFTAU))';G.a=GRAFA';G.x2=GRAFX2';G.tau=GRAFTAU';

G.x1=GRAFX1';G.LAM1=GRAFLAM1';G.LAM2=GRAFLAM2'

%Строим в отдельном окне легенду точек, общую для всех графиков:

figure(fig);

imshow('D:\Мат.модели\Курсач\Legend.png');

%Записываем таблицу в отдельный файл OUTValues.dat

writetable(T,'D:\Мат.модели\Курсач\OUTValues.dat');

%Закрываем файл

fclose(outfile);

%Блок проверки

Test(GRAFA,GRAFTAU,GRAFX1,GRAFX2);

end

%--------------------------------------------------------------------------------

## Функция mylogplot.

Функция mylogplot, входными параметрами которой являются массивы точек tau, x1, x2, массивы собственных значений tau, переменная, принимающая значения параметра а=1,2,4, а также переменная fig, которая также является и выходным параметром, изменяющаяся в течение жизненного цикла функции mylogplot и отвечающая за номер окна вывода графика, а их у нас должно быть 6 штук.

function [fig]=mylogplot(at,fig,BUFTAU,BUFLAM1,BUFLAM2,BUFX)

kolv=0;%Счетчик точек вещественной бифуркации

kolk=0;%Счетчик точек бифуркации Андронова-Хопфа

stac=0;%Счетчик стационарных устойчивых точек

nstac=0;%Счетчик стационарных неустойчивых точек

ost=0;%Счетчик точек, не входящих ни в одно условие

%В зависимости от входного массива задаем строковой переменной strx

%значение 1 или 2

if (rem(fig,2)==1)

strx=1;

elseif (rem(fig,2)==0)

strx=2;

end

%Строим график в новом окне с индексом fig

figure(fig);

%Цикл с условием устранения выхода за пределы массива length(BUFTAU)-1

%--------------------------------------------------------------------------------

for g=1:length(BUFTAU)-1

%Вводим условия для 4 типов точек и обозначаем их на графиках

%в логарифмическом масштабе по оси tau

if (real(BUFLAM1(g))<0 && real(BUFLAM2(g))<0)

%Стационарные устойчивые точки

%Маркер "звездочка" зеленого цвета

semilogx(BUFTAU(g),BUFX(g),'Marker','p','MarkerEdgeColor','g', ...

'MarkerFaceColor','g');

%Команда hold on включает режим сохранения текущего графика

hold on;

stac=stac+1;%Увеличиваем счетчик точек

%----------------------------------------------------------------------------

elseif ((real(BUFLAM1(g))>0 && real(BUFLAM2(g))>0) || ...

(real(BUFLAM1(g))<0 && real(BUFLAM2(g))>0) || ...

(real(BUFLAM1(g))>0 && real(BUFLAM2(g))<0))

%Стационарные неустойчивые точки

%Маркер "o" красного цвета

semilogx(BUFTAU(g),BUFX(g),'Marker','o','MarkerEdgeColor','r', ...

'MarkerFaceColor','r');

hold on;

nstac=nstac+1;%Увеличиваем счетчик точек

%--------------------------------------------------------------------------

else

%Другие точки

%Маркер "о" черного цвета

semilogx((BUFTAU(g))',(BUFX(g))','ko');

hold on;

ost=ost+1;%Увеличиваем счетчик точек

end

%--------------------------------------------------------------------------

if (real(BUFLAM1(g))<0 && real(BUFLAM1(g+1))>0) || ...

(real(BUFLAM2(g))<0 && real(BUFLAM2(g+1))>0)

%Промежуток с точками вещественной бифуркации (меняется с - на +)

%Маркер "звезда" синего цвета

semilogx((BUFTAU(g)+BUFTAU(g+1))/2,(BUFX(g)+BUFX(g+1))/2, ...

'Marker','h','MarkerSize',11,'MarkerEdgeColor','b', ...

'MarkerFaceColor','b');

hold on;

kolv=kolv+1;%Увеличиваем счетчик точек

end

if (real(BUFLAM1(g))>0 && real(BUFLAM1(g+1))<0) || ...

(real(BUFLAM2(g))>0 && real(BUFLAM2(g+1))<0)

%Промежуток с точками вещественной бифуркации (меняется с + на -)

%Маркер "звезда" синего цвета

semilogx((BUFTAU(g)+BUFTAU(g+1))/2,(BUFX(g)+BUFX(g+1))/2, ...

'Marker','h','MarkerSize',11,'MarkerEdgeColor','b', ...

'MarkerFaceColor','b');

hold on;

kolv=kolv+1;%Увеличиваем счетчик точек

end

%--------------------------------------------------------------------------

if (imag(BUFLAM1(g))<0 && imag(BUFLAM1(g+1))>0) || ...

(imag(BUFLAM2(g))<0 && imag(BUFLAM2(g+1))>0)

%Промежуток с точками комплексной бифуркации Андронова-Хопфа (меняется с - на +)

%Маркер "квадрат" цвета циан

semilogx((BUFTAU(g)+BUFTAU(g+1))/2,(BUFX(g)+BUFX(g+1))/2, ...

'Marker','s','MarkerSize', 11,'MarkerEdgeColor','c', ...

'MarkerFaceColor','c');

hold on;

kolk=kolk+1;%Увеличиваем счетчик точек

end

if (imag(BUFLAM1(g))>0 && imag(BUFLAM1(g+1))<0) || ...

(imag(BUFLAM2(g))>0 && imag(BUFLAM2(g+1))<0)

%Промежуток с точками комплексной бифуркации Андронова-Хопфа (меняется с + на -)

%Маркер "квадрат" цвета циан

semilogx((BUFTAU(g)+BUFTAU(g+1))/2,(BUFX(g)+BUFX(g+1))/2, ...

'Marker','s','MarkerSize', 11,'MarkerEdgeColor','c', ...

'MarkerFaceColor','c');

hold on;

kolk=kolk+1;%Увеличиваем счетчик точек

end

end

%--------------------------------------------------------------------------------

%Команда grid on наносит координатную сетку на текущие оси

grid on;

%Размещаем текст над графиком при помощи title

title(sprintf('График зависимости x%i (tau) при а=%i:',strx,at),'fontsize',15);

%Помещаем текст на оси x и tau

xlabel('tau','fontsize',15);

ylabel(sprintf('x%i ',strx),'fontsize',15,'rotation',0);

%Выводим колличество точек разных типов

fprintf('\n\tПри a=%i',at);

fprintf('\n\tКолличество стационарных устойчивых точек для x%i(tau):%i',strx,stac);

fprintf('\n\tКолличество стационарных неустойчивых точек для x%i(tau):%i',strx,nstac);

fprintf('\n\tКолличество точек вещественной бифуркации для x%i(tau):%i',strx,kolv);

fprintf('\n\tКолличество точек бифуркации Андронова-Хопфа для x%i(tau):%i',strx,kolk);

fprintf('\n\tКолличество других точек для x%i(tau):%i',strx,ost);

fprintf('\n');

fig=fig+1;%Увеличиваем счетчик fig

end

# **Результаты работы программы**

## Блок аналитических преобразований:

Умножим (1) уравнение на p4:

temp1 = - 10\*x1 - 10\*tau\*exp(x2/(x2/20 + 1))\*(x1 - 1)

Вычтем (1) уравнение из (2):

temp2 = 10\*x1 - x2 - a\*tau\*(x2 + 5)

Выразим x1:

x1 = x2/10 + (a\*tau\*(x2 + 5))/10

Подставим x1 в (1):

temp3 = - x2/10 - (a\*tau\*(x2 + 5))/10 - tau\*exp(x2/(x2/20 + 1))\*(x2/10 + (a\*tau\*(x2 + 5))/10 - 1)

Решим квадратное уравнение по переменной tau:

taut =

-(5\*a - 10\*exp(x2/(x2/20 + 1)) - 10\*(exp((2\*x2)/(x2/20 + 1)) + (x2^2\*exp((2\*x2)/(x2/20 + 1)))/100 - a\*exp(x2/(x2/20 + 1)) + (a^2\*x2)/10 - (x2\*exp((2\*x2)/(x2/20 + 1)))/5 + a^2/4 + (a^2\*x2^2)/100 - (3\*a\*x2\*exp(x2/(x2/20 + 1)))/10 - (a\*x2^2\*exp(x2/(x2/20 + 1)))/50)^(1/2) + a\*x2 + x2\*exp(x2/(x2/20 + 1)))/(2\*(5\*a\*exp(x2/(x2/20 + 1)) + a\*x2\*exp(x2/(x2/20 + 1))))

-(5\*a - 10\*exp(x2/(x2/20 + 1)) + 10\*(exp((2\*x2)/(x2/20 + 1)) + (x2^2\*exp((2\*x2)/(x2/20 + 1)))/100 - a\*exp(x2/(x2/20 + 1)) + (a^2\*x2)/10 - (x2\*exp((2\*x2)/(x2/20 + 1)))/5 + a^2/4 + (a^2\*x2^2)/100 - (3\*a\*x2\*exp(x2/(x2/20 + 1)))/10 - (a\*x2^2\*exp(x2/(x2/20 + 1)))/50)^(1/2) + a\*x2 + x2\*exp(x2/(x2/20 + 1)))/(2\*(5\*a\*exp(x2/(x2/20 + 1)) + a\*x2\*exp(x2/(x2/20 + 1))))

Строим матрицу Якоби:

maj =

[ - tau\*exp(x2/(x2/20 + 1)) - 1, tau\*exp(x2/(x2/20 + 1))\*(x2/(20\*(x2/20 + 1)^2) - 1/(x2/20 + 1))\*(x1 - 1)]

[ -10\*tau\*exp(x2/(x2/20 + 1)), 10\*tau\*exp(x2/(x2/20 + 1))\*(x2/(20\*(x2/20 + 1)^2) - 1/(x2/20 + 1))\*(x1 - 1) - a\*tau - 1]

## Все точки в диапазоне x2: -5.0:0.1:10

N a x2 tau k x1 LAM1 LAM2

\_\_\_ \_ \_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 1 -5 NaN NaN NaN NaN+0i NaN+0i

2 1 -5 NaN NaN NaN NaN+0i NaN+0i

3 1 -4.9 56.961 1 0.079607 -1.0887+0i -56.562+0i

4 1 -4.9 NaN NaN NaN NaN+0i NaN+0i

5 1 -4.8 26.266 1 0.045325 -1.0489+0i -26.48+0i

6 1 -4.8 NaN NaN NaN NaN+0i NaN+0i

7 1 -4.7 16.829 1 0.034868 -1.0375+0i -17.232+0i

8 1 -4.7 NaN NaN NaN NaN+0i NaN+0i

9 1 -4.6 12.256 1 0.030236 -1.0325+0i -12.745+0i

10 1 -4.6 NaN NaN NaN NaN+0i NaN+0i

11 1 -4.5 9.559 1 0.027951 -1.0302+0i -10.092+0i

12 1 -4.5 NaN NaN NaN NaN+0i NaN+0i

13 1 -4.4 7.7813 1 0.026875 -1.0293+0i -8.3378+0i

14 1 -4.4 NaN NaN NaN NaN+0i NaN+0i

15 1 -4.3 6.5219 1 0.026531 -1.0292+0i -7.0894+0i

16 1 -4.3 NaN NaN NaN NaN+0i NaN+0i

17 1 -4.2 5.5836 1 0.026684 -1.0297+0i -6.1537+0i

18 1 -4.2 NaN NaN NaN NaN+0i NaN+0i

19 1 -4.1 4.8579 1 0.027209 -1.0307+0i -5.4246+0i

20 1 -4.1 NaN NaN NaN NaN+0i NaN+0i

21 1 -4 4.2803 1 0.028032 -1.0322+0i -4.839+0i

22 1 -4 NaN NaN NaN NaN+0i NaN+0i

23 1 -3.9 3.8101 1 0.029112 -1.034+0i -4.3568+0i

24 1 -3.9 NaN NaN NaN NaN+0i NaN+0i

25 1 -3.8 3.4202 1 0.030423 -1.0364+0i -3.9515+0i

26 1 -3.8 NaN NaN NaN NaN+0i NaN+0i

27 1 -3.7 3.0919 1 0.031951 -1.0392+0i -3.6047+0i

28 1 -3.7 NaN NaN NaN NaN+0i NaN+0i

29 1 -3.6 2.8121 1 0.033689 -1.0426+0i -3.3033+0i

30 1 -3.6 NaN NaN NaN NaN+0i NaN+0i

31 1 -3.5 2.5709 1 0.035634 -1.0466+0i -3.0377+0i

32 1 -3.5 NaN NaN NaN NaN+0i NaN+0i

33 1 -3.4 2.3612 1 0.037789 -1.0515+0i -2.8004+0i

34 1 -3.4 NaN NaN NaN NaN+0i NaN+0i

35 1 -3.3 2.1774 1 0.040157 -1.0574+0i -2.5858+0i

36 1 -3.3 NaN NaN NaN NaN+0i NaN+0i

37 1 -3.2 2.0153 1 0.042747 -1.0648+0i -2.3893+0i

38 1 -3.2 NaN NaN NaN NaN+0i NaN+0i

39 1 -3.1 1.8714 1 0.045566 -1.074+0i -2.207+0i

40 1 -3.1 NaN NaN NaN NaN+0i NaN+0i

41 1 -3 1.7431 1 0.048627 -1.0861+0i -2.0351+0i

42 1 -3 NaN NaN NaN NaN+0i NaN+0i

43 1 -2.9 1.6283 1 0.051943 -1.1025+0i -1.87+0i

44 1 -2.9 NaN NaN NaN NaN+0i NaN+0i

45 1 -2.8 1.5251 1 0.055528 -1.127+0i -1.7062+0i

46 1 -2.8 NaN NaN NaN NaN+0i NaN+0i

47 1 -2.7 1.4322 1 0.059402 -1.1703+0i -1.5311+0i

48 1 -2.7 NaN NaN NaN NaN+0i NaN+0i

49 1 -2.6 1.3483 1 0.063585 -1.2881-0.092613i -1.2881+0.092613i

50 1 -2.6 NaN NaN NaN NaN+0i NaN+0i

51 1 -2.5 1.2724 1 0.068101 -1.228-0.20248i -1.228+0.20248i

52 1 -2.5 NaN NaN NaN NaN+0i NaN+0i

53 1 -2.4 1.2038 1 0.072978 -1.1701-0.2566i -1.1701+0.2566i

54 1 -2.4 NaN NaN NaN NaN+0i NaN+0i

55 1 -2.3 1.1417 1 0.078249 -1.1137-0.28979i -1.1137+0.28979i

56 1 -2.3 NaN NaN NaN NaN+0i NaN+0i

57 1 -2.2 1.0855 1 0.083951 -1.0587-0.30991i -1.0587+0.30991i

58 1 -2.2 NaN NaN NaN NaN+0i NaN+0i

59 1 -2.1 1.0349 1 0.090132 -1.0044-0.32016i -1.0044+0.32016i

60 1 -2.1 NaN NaN NaN NaN+0i NaN+0i

61 1 -2 0.98948 1 0.096843 -0.95055-0.32195i -0.95055+0.32195i

62 1 -2 NaN NaN NaN NaN+0i NaN+0i

63 1 -1.9 0.94888 1 0.10415 -0.89674-0.31568i -0.89674+0.31568i

64 1 -1.9 NaN NaN NaN NaN+0i NaN+0i

65 1 -1.8 0.91292 1 0.11213 -0.84255-0.30085i -0.84255+0.30085i

66 1 -1.8 NaN NaN NaN NaN+0i NaN+0i

67 1 -1.7 0.88146 1 0.12088 -0.78756-0.27582i -0.78756+0.27582i

68 1 -1.7 NaN NaN NaN NaN+0i NaN+0i

69 1 -1.6 0.85445 1 0.13051 -0.73129-0.23675i -0.73129+0.23675i

70 1 -1.6 NaN NaN NaN NaN+0i NaN+0i

71 1 -1.5 0.83189 1 0.14116 -0.67322-0.17306i -0.67322+0.17306i

72 1 -1.5 NaN NaN NaN NaN+0i NaN+0i

73 1 -1.4 0.81386 1 0.15299 -0.66682+0i -0.5588+0i

74 1 -1.4 NaN NaN NaN NaN+0i NaN+0i

75 1 -1.3 0.80051 1 0.16619 -0.75792+0i -0.34092+0i

76 1 -1.3 NaN NaN NaN NaN+0i NaN+0i

77 1 -1.2 0.79205 1 0.18098 -0.78717+0i -0.17764+0i

78 1 -1.2 NaN NaN NaN NaN+0i NaN+0i

79 1 -1.1 0.78871 1 0.1976 -0.80169+0i -0.0206+0i

80 1 -1.1 NaN NaN NaN NaN+0i NaN+0i

81 1 -1 0.79071 1 0.21628 -0.80826+0i 0.13807+0i

82 1 -1 NaN NaN NaN NaN+0i NaN+0i

83 1 -0.9 0.79815 1 0.23724 -0.80923+0i 0.3013+0i

84 1 -0.9 NaN NaN NaN NaN+0i NaN+0i

85 1 -0.8 0.81092 1 0.26059 -0.80555+0i 0.46976+0i

86 1 -0.8 NaN NaN NaN NaN+0i NaN+0i

87 1 -0.7 0.82863 1 0.28631 -0.7976+0i 0.64235+0i

88 1 -0.7 NaN NaN NaN NaN+0i NaN+0i

89 1 -0.6 0.85047 1 0.31421 -0.78546+0i 0.81626+0i

90 1 -0.6 NaN NaN NaN NaN+0i NaN+0i

91 1 -0.5 0.87532 1 0.3439 -0.76913+0i 0.98723+0i

92 1 -0.5 NaN NaN NaN NaN+0i NaN+0i

93 1 -0.4 0.90184 1 0.37485 -0.7485+0i 1.1501+0i

94 1 -0.4 NaN NaN NaN NaN+0i NaN+0i

95 1 -0.3 0.92866 1 0.40647 -0.72341+0i 1.2993+0i

96 1 -0.3 NaN NaN NaN NaN+0i NaN+0i

97 1 -0.2 0.95455 1 0.43818 -0.69362+0i 1.4299+0i

98 1 -0.2 NaN NaN NaN NaN+0i NaN+0i

99 1 -0.1 0.97856 1 0.46949 -0.6587+0i 1.5374+0i

100 1 -0.1 NaN NaN NaN NaN+0i NaN+0i

101 1 0 1 1 0.5 -0.61803+0i 1.618+0i

102 1 0 NaN NaN NaN NaN+0i NaN+0i

103 1 0.1 1.0185 1 0.52941 -0.57068+0i 1.6688+0i

104 1 0.1 0.017429 2 0.018889 -0.99773+0i -0.85193+0i

105 1 0.2 1.0337 1 0.55754 -0.5152+0i 1.6869+0i

106 1 0.2 0.030522 2 0.035872 -0.99594+0i -0.72014+0i

107 1 0.3 1.0458 1 0.58428 -0.4494+0i 1.6695+0i

108 1 0.3 0.040275 2 0.051346 -0.99453+0i -0.60148+0i

109 1 0.4 1.0547 1 0.60956 -0.36976+0i 1.6127+0i

110 1 0.4 0.047447 2 0.065622 -0.99342+0i -0.49352+0i

111 1 0.5 1.0607 1 0.63337 -0.27007+0i 1.5104+0i

112 1 0.5 0.052623 2 0.078942 -0.99255+0i -0.39439+0i

113 1 0.6 1.0638 1 0.65575 -0.1377+0i 1.3501+0i

114 1 0.6 0.056247 2 0.091498 -0.99188+0i -0.30262+0i

115 1 0.7 1.0644 1 0.67673 0.06265+0i 1.0969+0i

116 1 0.7 0.058665 2 0.10344 -0.99136+0i -0.21707+0i

117 1 0.8 1.0627 1 0.69636 0.54108-0.24951i 0.54108+0.24951i

118 1 0.8 0.060142 2 0.11488 -0.99096+0i -0.13683+0i

119 1 0.9 1.0589 1 0.71472 0.49036-0.65697i 0.49036+0.65697i

120 1 0.9 0.060887 2 0.12592 -0.99066+0i -0.061178+0i

121 1 1 1.0531 1 0.73187 0.42781-0.91428i 0.42781+0.91428i

122 1 1 0.06106 2 0.13664 -0.99044+0i 0.010446+0i

123 1 1.1 1.0457 1 0.74788 0.35363-1.1268i 0.35363+1.1268i

124 1 1.1 0.06079 2 0.14708 -0.99028+0i 0.078506+0i

125 1 1.2 1.0368 1 0.76282 0.268-1.3141i 0.268+1.3141i

126 1 1.2 0.060178 2 0.15731 -0.99017+0i 0.14338+0i

127 1 1.3 1.0266 1 0.77677 0.1711-1.4835i 0.1711+1.4835i

128 1 1.3 0.059302 2 0.16736 -0.99011+0i 0.20536+0i

129 1 1.4 1.0153 1 0.78977 0.06306-1.6383i 0.06306+1.6383i

130 1 1.4 0.058228 2 0.17727 -0.99008+0i 0.2647+0i

131 1 1.5 1.0029 1 0.80191 -0.055996-1.7802i -0.055996+1.7802i

132 1 1.5 0.057005 2 0.18705 -0.99008+0i 0.32161+0i

133 1 1.6 0.98975 1 0.81324 -0.18597-1.9097i -0.18597+1.9097i

134 1 1.6 0.055674 2 0.19674 -0.99009+0i 0.37625+0i

135 1 1.7 0.97583 1 0.82381 -0.32677-2.0272i -0.32677+2.0272i

136 1 1.7 0.054267 2 0.20636 -0.99012+0i 0.42877+0i

137 1 1.8 0.96129 1 0.83367 -0.47835-2.1322i -0.47835+2.1322i

138 1 1.8 0.052811 2 0.21591 -0.99017+0i 0.47928+0i

139 1 1.9 0.94621 1 0.84289 -0.64066-2.2242i -0.64066+2.2242i

140 1 1.9 0.051327 2 0.22542 -0.99022+0i 0.52787+0i

141 1 2 0.93071 1 0.85149 -0.81366-2.3025i -0.81366+2.3025i

142 1 2 0.04983 2 0.23488 -0.99029+0i 0.57464+0i

143 1 2.1 0.91484 1 0.85954 -0.99733-2.366i -0.99733+2.366i

144 1 2.1 0.048335 2 0.24432 -0.99035+0i 0.61963+0i

145 1 2.2 0.89869 1 0.86705 -1.1917-2.4134i -1.1917+2.4134i

146 1 2.2 0.046851 2 0.25373 -0.99042+0i 0.66292+0i

147 1 2.3 0.88231 1 0.87408 -1.3967-2.4428i -1.3967+2.4428i

148 1 2.3 0.045387 2 0.26313 -0.99049+0i 0.70454+0i

149 1 2.4 0.86576 1 0.88066 -1.6123-2.4523i -1.6123+2.4523i

150 1 2.4 0.043949 2 0.27252 -0.99056+0i 0.74453+0i

151 1 2.5 0.84909 1 0.88682 -1.8387-2.4391i -1.8387+2.4391i

152 1 2.5 0.042543 2 0.28191 -0.99063+0i 0.78293+0i

153 1 2.6 0.83234 1 0.89258 -2.0757-2.3998i -2.0757+2.3998i

154 1 2.6 0.041171 2 0.29129 -0.9907+0i 0.81974+0i

155 1 2.7 0.81556 1 0.89798 -2.3234-2.3296i -2.3234+2.3296i

156 1 2.7 0.039838 2 0.30068 -0.99077+0i 0.855+0i

157 1 2.8 0.79877 1 0.90304 -2.5818-2.222i -2.5818+2.222i

158 1 2.8 0.038544 2 0.31006 -0.99083+0i 0.88872+0i

159 1 2.9 0.782 1 0.90778 -2.8509-2.067i -2.8509+2.067i

160 1 2.9 0.037291 2 0.31946 -0.99089+0i 0.92089+0i

161 1 3 0.76529 1 0.91223 -3.1306-1.8479i -3.1306+1.8479i

162 1 3 0.03608 2 0.32886 -0.99094+0i 0.95153+0i

163 1 3.1 0.74865 1 0.91641 -3.4209-1.5318i -3.4209+1.5318i

164 1 3.1 0.034911 2 0.33828 -0.99099+0i 0.98064+0i

165 1 3.2 0.73211 1 0.92033 -3.7219-1.0237i -3.7219+1.0237i

166 1 3.2 0.033784 2 0.3477 -0.99103+0i 1.0082+0i

167 1 3.3 0.71567 1 0.92401 -4.7401+0i -3.3266+0i

168 1 3.3 0.032699 2 0.35714 -0.99107+0i 1.0342+0i

169 1 3.4 0.69936 1 0.92747 -5.8772+0i -2.8335+0i

170 1 3.4 0.031655 2 0.36659 -0.9911+0i 1.0587+0i

171 1 3.5 0.6832 1 0.93072 -6.7904+0i -2.585+0i

172 1 3.5 0.030652 2 0.37605 -0.99112+0i 1.0816+0i

173 1 3.6 0.66718 1 0.93377 -7.6449+0i -2.4157+0i

174 1 3.6 0.029689 2 0.38553 -0.99114+0i 1.1029+0i

175 1 3.7 0.65132 1 0.93665 -8.4784+0i -2.2877+0i

176 1 3.7 0.028765 2 0.39503 -0.99115+0i 1.1225+0i

177 1 3.8 0.63563 1 0.93935 -9.306+0i -2.1853+0i

178 1 3.8 0.027879 2 0.40453 -0.99115+0i 1.1406+0i

179 1 3.9 0.62011 1 0.9419 -10.136+0i -2.1004+0i

180 1 3.9 0.02703 2 0.41406 -0.99114+0i 1.157+0i

181 1 4 0.60478 1 0.9443 -10.972+0i -2.0282+0i

182 1 4 0.026216 2 0.42359 -0.99113+0i 1.1717+0i

183 1 4.1 0.58962 1 0.94656 -11.817+0i -1.9655+0i

184 1 4.1 0.025438 2 0.43315 -0.9911+0i 1.1846+0i

185 1 4.2 0.57466 1 0.94868 -12.672+0i -1.9102+0i

186 1 4.2 0.024694 2 0.44272 -0.99107+0i 1.1958+0i

187 1 4.3 0.55988 1 0.95069 -13.539+0i -1.8609+0i

188 1 4.3 0.023982 2 0.4523 -0.99102+0i 1.2051+0i

189 1 4.4 0.5453 1 0.95258 -14.417+0i -1.8164+0i

190 1 4.4 0.023301 2 0.4619 -0.99096+0i 1.2126+0i

191 1 4.5 0.53091 1 0.95436 -15.307+0i -1.776+0i

192 1 4.5 0.022652 2 0.47152 -0.99089+0i 1.2182+0i

193 1 4.6 0.51671 1 0.95604 -16.207+0i -1.739+0i

194 1 4.6 0.022032 2 0.48115 -0.9908+0i 1.2218+0i

195 1 4.7 0.50271 1 0.95763 -17.119+0i -1.7048+0i

196 1 4.7 0.02144 2 0.4908 -0.99071+0i 1.2233+0i

197 1 4.8 0.4889 1 0.95912 -18.04+0i -1.6732+0i

198 1 4.8 0.020876 2 0.50046 -0.99059+0i 1.2227+0i

199 1 4.9 0.47528 1 0.96053 -18.969+0i -1.6436+0i

200 1 4.9 0.020339 2 0.51014 -0.99046+0i 1.2199+0i

201 1 5 0.46186 1 0.96186 -19.906+0i -1.616+0i

202 1 5 0.019828 2 0.51983 -0.99031+0i 1.2148+0i

203 1 5.1 0.44862 1 0.96311 -20.85+0i -1.59+0i

204 1 5.1 0.019342 2 0.52954 -0.99014+0i 1.2073+0i

205 1 5.2 0.43558 1 0.96429 -21.798+0i -1.5655+0i

206 1 5.2 0.01888 2 0.53926 -0.98994+0i 1.1973+0i

207 1 5.3 0.42272 1 0.9654 -22.749+0i -1.5423+0i

208 1 5.3 0.018442 2 0.549 -0.98972+0i 1.1847+0i

209 1 5.4 0.41004 1 0.96645 -23.701+0i -1.5203+0i

210 1 5.4 0.018027 2 0.55875 -0.98948+0i 1.1694+0i

211 1 5.5 0.39755 1 0.96743 -24.652+0i -1.4993+0i

212 1 5.5 0.017634 2 0.56852 -0.9892+0i 1.1512+0i

213 1 5.6 0.38524 1 0.96836 -25.599+0i -1.4793+0i

214 1 5.6 0.017263 2 0.5783 -0.98889+0i 1.1299+0i

215 1 5.7 0.37311 1 0.96923 -26.541+0i -1.4601+0i

216 1 5.7 0.016913 2 0.5881 -0.98853+0i 1.1054+0i

217 1 5.8 0.36115 1 0.97005 -27.474+0i -1.4418+0i

218 1 5.8 0.016583 2 0.59791 -0.98813+0i 1.0775+0i

219 1 5.9 0.34937 1 0.97081 -28.396+0i -1.4241+0i

220 1 5.9 0.016274 2 0.60774 -0.98768+0i 1.046+0i

221 1 6 0.33775 1 0.97153 -29.304+0i -1.4072+0i

222 1 6 0.015985 2 0.61758 -0.98716+0i 1.0106+0i

223 1 6.1 0.3263 1 0.9722 -30.194+0i -1.3908+0i

224 1 6.1 0.015716 2 0.62745 -0.98657+0i 0.97098+0i

225 1 6.2 0.31502 1 0.97282 -31.062+0i -1.375+0i

226 1 6.2 0.015467 2 0.63732 -0.9859+0i 0.92694+0i

227 1 6.3 0.30389 1 0.9734 -31.906+0i -1.3598+0i

228 1 6.3 0.015237 2 0.64722 -0.98512+0i 0.87809+0i

229 1 6.4 0.29292 1 0.97393 -32.72+0i -1.345+0i

230 1 6.4 0.015026 2 0.65713 -0.98421+0i 0.82404+0i

231 1 6.5 0.28211 1 0.97442 -33.5+0i -1.3307+0i

232 1 6.5 0.014835 2 0.66706 -0.98315+0i 0.76433+0i

233 1 6.6 0.27144 1 0.97487 -34.243+0i -1.3168+0i

234 1 6.6 0.014664 2 0.67701 -0.9819+0i 0.69846+0i

235 1 6.7 0.26092 1 0.97528 -34.942+0i -1.3033+0i

236 1 6.7 0.014513 2 0.68698 -0.98041+0i 0.62583+0i

237 1 6.8 0.25055 1 0.97565 -35.593+0i -1.2902+0i

238 1 6.8 0.014383 2 0.69697 -0.9786+0i 0.54575+0i

239 1 6.9 0.24031 1 0.97597 -36.19+0i -1.2774+0i

240 1 6.9 0.014274 2 0.70699 -0.97637+0i 0.45739+0i

241 1 7 0.23021 1 0.97626 -36.726+0i -1.265+0i

242 1 7 0.014187 2 0.71702 -0.97356+0i 0.35979+0i

243 1 7.1 0.22025 1 0.9765 -37.196+0i -1.2528+0i

244 1 7.1 0.014123 2 0.72709 -0.96994+0i 0.25175+0i

245 1 7.2 0.2104 1 0.97669 -37.593+0i -1.2409+0i

246 1 7.2 0.014084 2 0.73718 -0.96509+0i 0.13173+0i

247 1 7.3 0.20068 1 0.97684 -37.909+0i -1.2293+0i

248 1 7.3 0.01407 2 0.74731 -0.95829+0i -0.0023189+0i

249 1 7.4 0.19108 1 0.97694 -38.137+0i -1.218+0i

250 1 7.4 0.014085 2 0.75747 -0.94804+0i -0.15345+0i

251 1 7.5 0.18159 1 0.97699 -38.267+0i -1.2069+0i

252 1 7.5 0.014131 2 0.76766 -0.93059+0i -0.32727+0i

253 1 7.6 0.17221 1 0.97698 -38.29+0i -1.196+0i

254 1 7.6 0.014211 2 0.77791 -0.89172+0i -0.5403+0i

255 1 7.7 0.16292 1 0.97691 -38.198+0i -1.1853+0i

256 1 7.7 0.014329 2 0.7882 -0.81336-0.13598i -0.81336+0.13598i

257 1 7.8 0.15373 1 0.97677 -37.977+0i -1.1748+0i

258 1 7.8 0.01449 2 0.79855 -0.92269-0.22685i -0.92269+0.22685i

259 1 7.9 0.14462 1 0.97656 -37.617+0i -1.1645+0i

260 1 7.9 0.014702 2 0.80897 -1.0462-0.24521i -1.0462+0.24521i

261 1 8 0.13558 1 0.97625 -37.102+0i -1.1544+0i

262 1 8 0.014972 2 0.81946 -1.1865-0.1821i -1.1865+0.1821i

263 1 8.1 0.12659 1 0.97583 -36.419+0i -1.1443+0i

264 1 8.1 0.015313 2 0.83006 -1.5617+0i -1.1332+0i

265 1 8.2 0.11764 1 0.97529 -35.546+0i -1.1344+0i

266 1 8.2 0.015739 2 0.84078 -1.9826+0i -1.0846+0i

267 1 8.3 0.10871 1 0.97458 -34.463+0i -1.1246+0i

268 1 8.3 0.016274 2 0.85164 -2.4384+0i -1.0649+0i

269 1 8.4 0.099756 1 0.97367 -33.139+0i -1.1148+0i

270 1 8.4 0.01695 2 0.86271 -2.9684+0i -1.0541+0i

271 1 8.5 0.090728 1 0.97248 -31.537+0i -1.105+0i

272 1 8.5 0.017816 2 0.87405 -3.6058+0i -1.0474+0i

273 1 8.6 0.081541 1 0.9709 -29.598+0i -1.0951+0i

274 1 8.6 0.018956 2 0.88578 -4.3991+0i -1.0432+0i

275 1 8.7 0.072041 1 0.9687 -27.227+0i -1.085+0i

276 1 8.7 0.020522 2 0.89811 -5.4333+0i -1.0408+0i

277 1 8.8 0.061881 1 0.9654 -24.23+0i -1.0743+0i

278 1 8.8 0.022857 2 0.91154 -6.8919+0i -1.04+0i

279 1 8.9 0.049893 1 0.95935 -19.995+0i -1.062+0i

280 1 8.9 0.027129 2 0.92771 -9.3757+0i -1.0416+0i

281 1 9 0.035995 1 0.95039 -14.635+0i -1.0471+0i

282 1 9 0.035995 2 0.95039 -14.635+0i -1.0471+0i

283 1 9.1 0.035222 1 0.95966 -15.824+0i -1.0435+0i

284 1 9.1 0.035222 2 0.95966 -15.824+0i -1.0435+0i

285 1 9.2 0.034469 1 0.96895 -17.052+0i -1.0404+0i

286 1 9.2 0.034469 2 0.96895 -17.052+0i -1.0404+0i

287 1 9.3 0.033736 1 0.97824 -18.319+0i -1.0376+0i

288 1 9.3 0.033736 2 0.97824 -18.319+0i -1.0376+0i

289 1 9.4 0.033023 1 0.98755 -19.627+0i -1.035+0i

290 1 9.4 0.033023 2 0.98755 -19.627+0i -1.035+0i

291 1 9.5 0.03233 1 0.99688 -20.974+0i -1.0328+0i

292 1 9.5 0.03233 2 0.99688 -20.974+0i -1.0328+0i

293 1 9.6 NaN NaN NaN NaN+0i NaN+0i

294 1 9.6 NaN NaN NaN NaN+0i NaN+0i

295 1 9.7 NaN NaN NaN NaN+0i NaN+0i

296 1 9.7 NaN NaN NaN NaN+0i NaN+0i

297 1 9.8 NaN NaN NaN NaN+0i NaN+0i

298 1 9.8 NaN NaN NaN NaN+0i NaN+0i

299 1 9.9 NaN NaN NaN NaN+0i NaN+0i

300 1 9.9 NaN NaN NaN NaN+0i NaN+0i

301 1 10 NaN NaN NaN NaN+0i NaN+0i

302 1 10 NaN NaN NaN NaN+0i NaN+0i

303 2 -5 NaN NaN NaN NaN+0i NaN+0i

304 2 -5 NaN NaN NaN NaN+0i NaN+0i

305 2 -4.9 26.429 1 0.038583 -1.0407+0i -53.181+0i

306 2 -4.9 NaN NaN NaN NaN+0i NaN+0i

307 2 -4.8 12.555 1 0.02219 -1.023+0i -25.725+0i

308 2 -4.8 NaN NaN NaN NaN+0i NaN+0i

309 2 -4.7 8.1188 1 0.017131 -1.0177+0i -16.945+0i

310 2 -4.7 NaN NaN NaN NaN+0i NaN+0i

311 2 -4.6 5.936 1 0.014876 -1.0154+0i -12.621+0i

312 2 -4.6 NaN NaN NaN NaN+0i NaN+0i

313 2 -4.5 4.6376 1 0.013758 -1.0143+0i -10.046+0i

314 2 -4.5 NaN NaN NaN NaN+0i NaN+0i

315 2 -4.4 3.7769 1 0.013228 -1.0138+0i -8.336+0i

316 2 -4.4 NaN NaN NaN NaN+0i NaN+0i

317 2 -4.3 3.1647 1 0.013052 -1.0137+0i -7.117+0i

318 2 -4.3 NaN NaN NaN NaN+0i NaN+0i

319 2 -4.2 2.707 1 0.013117 -1.0138+0i -6.2032+0i

320 2 -4.2 NaN NaN NaN NaN+0i NaN+0i

321 2 -4.1 2.352 1 0.013361 -1.0142+0i -5.492+0i

322 2 -4.1 NaN NaN NaN NaN+0i NaN+0i

323 2 -4 2.0687 1 0.013747 -1.0147+0i -4.9219+0i

324 2 -4 NaN NaN NaN NaN+0i NaN+0i

325 2 -3.9 1.8375 1 0.014255 -1.0154+0i -4.4541+0i

326 2 -3.9 NaN NaN NaN NaN+0i NaN+0i

327 2 -3.8 1.6453 1 0.01487 -1.0162+0i -4.0628+0i

328 2 -3.8 NaN NaN NaN NaN+0i NaN+0i

329 2 -3.7 1.483 1 0.015584 -1.0172+0i -3.73+0i

330 2 -3.7 NaN NaN NaN NaN+0i NaN+0i

331 2 -3.6 1.3443 1 0.016393 -1.0183+0i -3.4431+0i

332 2 -3.6 NaN NaN NaN NaN+0i NaN+0i

333 2 -3.5 1.2243 1 0.017292 -1.0197+0i -3.1925+0i

334 2 -3.5 NaN NaN NaN NaN+0i NaN+0i

335 2 -3.4 1.1196 1 0.018282 -1.0212+0i -2.9714+0i

336 2 -3.4 NaN NaN NaN NaN+0i NaN+0i

337 2 -3.3 1.0275 1 0.019361 -1.0229+0i -2.7743+0i

338 2 -3.3 NaN NaN NaN NaN+0i NaN+0i

339 2 -3.2 0.94592 1 0.02053 -1.0248+0i -2.597+0i

340 2 -3.2 NaN NaN NaN NaN+0i NaN+0i

341 2 -3.1 0.87313 1 0.021789 -1.0271+0i -2.4363+0i

342 2 -3.1 NaN NaN NaN NaN+0i NaN+0i

343 2 -3 0.80785 1 0.02314 -1.0297+0i -2.2894+0i

344 2 -3 NaN NaN NaN NaN+0i NaN+0i

345 2 -2.9 0.74901 1 0.024583 -1.0327+0i -2.1542+0i

346 2 -2.9 NaN NaN NaN NaN+0i NaN+0i

347 2 -2.8 0.69573 1 0.026119 -1.0363+0i -2.0288+0i

348 2 -2.8 NaN NaN NaN NaN+0i NaN+0i

349 2 -2.7 0.64728 1 0.027751 -1.0405+0i -1.9117+0i

350 2 -2.7 NaN NaN NaN NaN+0i NaN+0i

351 2 -2.6 0.60308 1 0.029477 -1.0457+0i -1.8014+0i

352 2 -2.6 NaN NaN NaN NaN+0i NaN+0i

353 2 -2.5 0.5626 1 0.0313 -1.0522+0i -1.6965+0i

354 2 -2.5 NaN NaN NaN NaN+0i NaN+0i

355 2 -2.4 0.52542 1 0.03322 -1.0606+0i -1.5956+0i

356 2 -2.4 NaN NaN NaN NaN+0i NaN+0i

357 2 -2.3 0.49118 1 0.035236 -1.0722+0i -1.4968+0i

358 2 -2.3 NaN NaN NaN NaN+0i NaN+0i

359 2 -2.2 0.45955 1 0.037348 -1.0899+0i -1.3964+0i

360 2 -2.2 NaN NaN NaN NaN+0i NaN+0i

361 2 -2.1 0.43027 1 0.039554 -1.1255+0i -1.2824+0i

362 2 -2.1 NaN NaN NaN NaN+0i NaN+0i

363 2 -2 0.40309 1 0.041854 -1.1666-0.086421i -1.1666+0.086421i

364 2 -2 NaN NaN NaN NaN+0i NaN+0i

365 2 -1.9 0.37781 1 0.044243 -1.1309-0.13362i -1.1309+0.13362i

366 2 -1.9 NaN NaN NaN NaN+0i NaN+0i

367 2 -1.8 0.35425 1 0.046718 -1.0967-0.1593i -1.0967+0.1593i

368 2 -1.8 NaN NaN NaN NaN+0i NaN+0i

369 2 -1.7 0.33223 1 0.049273 -1.0639-0.17423i -1.0639+0.17423i

370 2 -1.7 NaN NaN NaN NaN+0i NaN+0i

371 2 -1.6 0.31162 1 0.051902 -1.0324-0.18185i -1.0324+0.18185i

372 2 -1.6 NaN NaN NaN NaN+0i NaN+0i

373 2 -1.5 0.29228 1 0.054595 -1.0021-0.18372i -1.0021+0.18372i

374 2 -1.5 NaN NaN NaN NaN+0i NaN+0i

375 2 -1.4 0.27408 1 0.057341 -0.97301-0.1806i -0.97301+0.1806i

376 2 -1.4 NaN NaN NaN NaN+0i NaN+0i

377 2 -1.3 0.25692 1 0.060123 -0.94504-0.17277i -0.94504+0.17277i

378 2 -1.3 NaN NaN NaN NaN+0i NaN+0i

379 2 -1.2 0.24069 1 0.062923 -0.9182-0.1601i -0.9182+0.1601i

380 2 -1.2 NaN NaN NaN NaN+0i NaN+0i

381 2 -1.1 0.22528 1 0.065715 -0.89251-0.1419i -0.89251+0.1419i

382 2 -1.1 NaN NaN NaN NaN+0i NaN+0i

383 2 -1 0.21058 1 0.068465 -0.86802-0.11635i -0.86802+0.11635i

384 2 -1 NaN NaN NaN NaN+0i NaN+0i

385 2 -0.9 0.19649 1 0.071125 -0.84485-0.077588i -0.84485+0.077588i

386 2 -0.9 NaN NaN NaN NaN+0i NaN+0i

387 2 -0.8 0.1829 1 0.073634 -0.87005+0i -0.77625+0i

388 2 -0.8 NaN NaN NaN NaN+0i NaN+0i

389 2 -0.7 0.16965 1 0.075901 -0.90743+0i -0.69895+0i

390 2 -0.7 NaN NaN NaN NaN+0i NaN+0i

391 2 -0.6 0.15658 1 0.077792 -0.92555+0i -0.64519+0i

392 2 -0.6 NaN NaN NaN NaN+0i NaN+0i

393 2 -0.5 0.14345 1 0.079102 -0.93797+0i -0.60271+0i

394 2 -0.5 NaN NaN NaN NaN+0i NaN+0i

395 2 -0.4 0.12988 1 0.079489 -0.94775+0i -0.5707+0i

396 2 -0.4 NaN NaN NaN NaN+0i NaN+0i

397 2 -0.3 0.11524 1 0.078328 -0.95629+0i -0.55186+0i

398 2 -0.3 NaN NaN NaN NaN+0i NaN+0i

399 2 -0.2 0.09822 1 0.074292 -0.96465+0i -0.55405+0i

400 2 -0.2 NaN NaN NaN NaN+0i NaN+0i

401 2 -0.1 0.075108 1 0.063606 -0.97441+0i -0.60126+0i

402 2 -0.1 NaN NaN NaN NaN+0i NaN+0i

403 2 0 NaN NaN NaN NaN+0i NaN+0i

404 2 0 NaN NaN NaN NaN+0i NaN+0i

405 2 0.1 0.094209 1 0.10609 -0.96708+0i -0.40439+0i

406 2 0.1 0.094209 2 0.10609 -0.96708+0i -0.40439+0i

407 2 0.2 0.1256 1 0.15063 -0.95331+0i -0.17617+0i

408 2 0.2 0.1256 2 0.15063 -0.95331+0i -0.17617+0i

409 2 0.3 0.14512 1 0.18383 -0.94359+0i 0.0033608+0i

410 2 0.3 0.14512 2 0.18383 -0.94359+0i 0.0033608+0i

411 2 0.4 0.15818 1 0.21084 -0.93624+0i 0.16172+0i

412 2 0.4 0.15818 2 0.21084 -0.93624+0i 0.16172+0i

413 2 0.5 0.16706 1 0.23376 -0.93054+0i 0.30874+0i

414 2 0.5 0.16706 2 0.23376 -0.93054+0i 0.30874+0i

415 2 0.6 0.17297 1 0.25373 -0.92606+0i 0.44903+0i

416 2 0.6 0.17297 2 0.25373 -0.92606+0i 0.44903+0i

417 2 0.7 0.1767 1 0.27144 -0.92252+0i 0.58507+0i

418 2 0.7 0.1767 2 0.27144 -0.92252+0i 0.58507+0i

419 2 0.8 0.17876 1 0.28737 -0.91973+0i 0.71827+0i

420 2 0.8 0.17876 2 0.28737 -0.91973+0i 0.71827+0i

421 2 0.9 0.17954 1 0.30186 -0.91752+0i 0.84949+0i

422 2 0.9 0.17954 2 0.30186 -0.91752+0i 0.84949+0i

423 2 1 0.21379 1 0.35654 -0.88937+0i 1.1417+0i

424 2 1 0.15039 2 0.28047 -0.93442+0i 0.78778+0i

425 2 1.1 0.2497 1 0.41463 -0.85063+0i 1.3682+0i

426 2 1.1 0.12729 2 0.26529 -0.94638+0i 0.71425+0i

427 2 1.2 0.27307 1 0.45861 -0.81521+0i 1.5036+0i

428 2 1.2 0.11424 2 0.26166 -0.95232+0i 0.69822+0i

429 2 1.3 0.29074 1 0.49633 -0.77855+0i 1.5876+0i

430 2 1.3 0.1047 2 0.26192 -0.95632+0i 0.7013+0i

431 2 1.4 0.30458 1 0.52986 -0.73904+0i 1.6309+0i

432 2 1.4 0.097047 2 0.26422 -0.95933+0i 0.71394+0i

433 2 1.5 0.31549 1 0.56014 -0.69541+0i 1.638+0i

434 2 1.5 0.090608 2 0.26779 -0.96174+0i 0.73207+0i

435 2 1.6 0.32404 1 0.58773 -0.64621+0i 1.6114+0i

436 2 1.6 0.085026 2 0.27223 -0.96372+0i 0.75358+0i

437 2 1.7 0.33061 1 0.61301 -0.58949+0i 1.5515+0i

438 2 1.7 0.080089 2 0.27732 -0.96541+0i 0.7772+0i

439 2 1.8 0.3355 1 0.63627 -0.52235+0i 1.4574+0i

440 2 1.8 0.075659 2 0.2829 -0.96688+0i 0.80214+0i

441 2 1.9 0.33894 1 0.65774 -0.43991+0i 1.3259+0i

442 2 1.9 0.071644 2 0.28887 -0.96816+0i 0.82786+0i

443 2 2 0.34113 1 0.67759 -0.3327+0i 1.1487+0i

444 2 2 0.067976 2 0.29517 -0.96929+0i 0.85395+0i

445 2 2.1 0.34223 1 0.69597 -0.17655+0i 0.90281+0i

446 2 2.1 0.064603 2 0.30174 -0.9703+0i 0.88015+0i

447 2 2.2 0.34238 1 0.71303 0.20128+0i 0.41637+0i

448 2 2.2 0.061487 2 0.30854 -0.97121+0i 0.90621+0i

449 2 2.3 0.3417 1 0.72888 0.2455-0.53479i 0.2455+0.53479i

450 2 2.3 0.058597 2 0.31555 -0.97203+0i 0.93198+0i

451 2 2.4 0.34029 1 0.74362 0.17352-0.77258i 0.17352+0.77258i

452 2 2.4 0.055908 2 0.32274 -0.97278+0i 0.95731+0i

453 2 2.5 0.33823 1 0.75735 0.093189-0.95723i 0.093189+0.95723i

454 2 2.5 0.053399 2 0.3301 -0.97345+0i 0.98208+0i

455 2 2.6 0.33562 1 0.77014 0.004803-1.1133i 0.004803+1.1133i

456 2 2.6 0.051053 2 0.3376 -0.97406+0i 1.0062+0i

457 2 2.7 0.33251 1 0.78207 -0.091387-1.2494i -0.091387+1.2494i

458 2 2.7 0.048855 2 0.34524 -0.97462+0i 1.0296+0i

459 2 2.8 0.32898 1 0.79321 -0.19515-1.3697i -0.19515+1.3697i

460 2 2.8 0.046792 2 0.353 -0.97512+0i 1.0521+0i

461 2 2.9 0.32507 1 0.80362 -0.30626-1.4762i -0.30626+1.4762i

462 2 2.9 0.044854 2 0.36087 -0.97558+0i 1.0738+0i

463 2 3 0.32084 1 0.81334 -0.42453-1.57i -0.42453+1.57i

464 2 3 0.04303 2 0.36885 -0.97599+0i 1.0945+0i

465 2 3.1 0.31632 1 0.82244 -0.54977-1.6516i -0.54977+1.6516i

466 2 3.1 0.041312 2 0.37693 -0.97636+0i 1.1143+0i

467 2 3.2 0.31156 1 0.83096 -0.68179-1.721i -0.68179+1.721i

468 2 3.2 0.039692 2 0.3851 -0.97669+0i 1.1329+0i

469 2 3.3 0.30659 1 0.83894 -0.82042-1.7781i -0.82042+1.7781i

470 2 3.3 0.038164 2 0.39335 -0.97699+0i 1.1505+0i

471 2 3.4 0.30144 1 0.84642 -0.96549-1.8225i -0.96549+1.8225i

472 2 3.4 0.036721 2 0.40169 -0.97724+0i 1.1668+0i

473 2 3.5 0.29614 1 0.85343 -1.1168-1.8534i -1.1168+1.8534i

474 2 3.5 0.035358 2 0.41011 -0.97747+0i 1.182+0i

475 2 3.6 0.29071 1 0.86001 -1.2742-1.87i -1.2742+1.87i

476 2 3.6 0.034069 2 0.4186 -0.97766+0i 1.1958+0i

477 2 3.7 0.28517 1 0.86619 -1.4376-1.8709i -1.4376+1.8709i

478 2 3.7 0.03285 2 0.42716 -0.97782+0i 1.2084+0i

479 2 3.8 0.27954 1 0.87199 -1.6066-1.8548i -1.6066+1.8548i

480 2 3.8 0.031696 2 0.43579 -0.97794+0i 1.2195+0i

481 2 3.9 0.27384 1 0.87744 -1.7812-1.8195i -1.7812+1.8195i

482 2 3.9 0.030604 2 0.44448 -0.97803+0i 1.2292+0i

483 2 4 0.26809 1 0.88256 -1.9611-1.7623i -1.9611+1.7623i

484 2 4 0.029571 2 0.45323 -0.97809+0i 1.2374+0i

485 2 4.1 0.26229 1 0.88737 -2.1461-1.6792i -2.1461+1.6792i

486 2 4.1 0.028592 2 0.46204 -0.97811+0i 1.2441+0i

487 2 4.2 0.25647 1 0.8919 -2.336-1.5644i -2.336+1.5644i

488 2 4.2 0.027665 2 0.4709 -0.9781+0i 1.2491+0i

489 2 4.3 0.25063 1 0.89616 -2.5305-1.4084i -2.5305+1.4084i

490 2 4.3 0.026787 2 0.47982 -0.97806+0i 1.2524+0i

491 2 4.4 0.24477 1 0.90017 -2.7294-1.1931i -2.7294+1.1931i

492 2 4.4 0.025955 2 0.4888 -0.97798+0i 1.2539+0i

493 2 4.5 0.23892 1 0.90394 -2.9323-0.87343i -2.9323+0.87343i

494 2 4.5 0.025168 2 0.49782 -0.97786+0i 1.2536+0i

495 2 4.6 0.23307 1 0.90749 -3.1869+0i -3.0911+0i

496 2 4.6 0.024422 2 0.50689 -0.9777+0i 1.2514+0i

497 2 4.7 0.22724 1 0.91084 -4.2847+0i -2.4134+0i

498 2 4.7 0.023716 2 0.51601 -0.9775+0i 1.2471+0i

499 2 4.8 0.22142 1 0.91398 -4.9257+0i -2.1986+0i

500 2 4.8 0.023048 2 0.52517 -0.97725+0i 1.2407+0i

501 2 4.9 0.21563 1 0.91695 -5.4971+0i -2.0587+0i

502 2 4.9 0.022416 2 0.53438 -0.97695+0i 1.232+0i

503 2 5 0.20987 1 0.91973 -6.0369+0i -1.9548+0i

504 2 5 0.021818 2 0.54364 -0.9766+0i 1.221+0i

505 2 5.1 0.20414 1 0.92235 -6.5587+0i -1.8725+0i

506 2 5.1 0.021254 2 0.55293 -0.97618+0i 1.2075+0i

507 2 5.2 0.19844 1 0.92482 -7.0686+0i -1.8045+0i

508 2 5.2 0.020721 2 0.56227 -0.97571+0i 1.1914+0i

509 2 5.3 0.19279 1 0.92714 -7.5697+0i -1.7468+0i

510 2 5.3 0.020219 2 0.57165 -0.97516+0i 1.1725+0i

511 2 5.4 0.18717 1 0.92932 -8.0634+0i -1.6968+0i

512 2 5.4 0.019746 2 0.58107 -0.97453+0i 1.1506+0i

513 2 5.5 0.1816 1 0.93136 -8.5501+0i -1.6527+0i

514 2 5.5 0.019302 2 0.59053 -0.97381+0i 1.1257+0i

515 2 5.6 0.17607 1 0.93328 -9.0297+0i -1.6134+0i

516 2 5.6 0.018885 2 0.60004 -0.97298+0i 1.0973+0i

517 2 5.7 0.17059 1 0.93507 -9.5018+0i -1.5779+0i

518 2 5.7 0.018495 2 0.60958 -0.97204+0i 1.0654+0i

519 2 5.8 0.16516 1 0.93675 -9.9653+0i -1.5457+0i

520 2 5.8 0.018131 2 0.61916 -0.97095+0i 1.0296+0i

521 2 5.9 0.15978 1 0.93831 -10.419+0i -1.516+0i

522 2 5.9 0.017793 2 0.62879 -0.9697+0i 0.98967+0i

523 2 6 0.15444 1 0.93977 -10.862+0i -1.4887+0i

524 2 6 0.01748 2 0.63846 -0.96826+0i 0.94524+0i

525 2 6.1 0.14915 1 0.94112 -11.292+0i -1.4633+0i

526 2 6.1 0.017191 2 0.64816 -0.96659+0i 0.89593+0i

527 2 6.2 0.14391 1 0.94237 -11.708+0i -1.4395+0i

528 2 6.2 0.016928 2 0.65792 -0.96464+0i 0.8413+0i

529 2 6.3 0.13872 1 0.94351 -12.107+0i -1.4172+0i

530 2 6.3 0.016689 2 0.66772 -0.96234+0i 0.78084+0i

531 2 6.4 0.13358 1 0.94456 -12.488+0i -1.3962+0i

532 2 6.4 0.016475 2 0.67756 -0.9596+0i 0.71394+0i

533 2 6.5 0.12848 1 0.94551 -12.847+0i -1.3764+0i

534 2 6.5 0.016287 2 0.68746 -0.95631+0i 0.6399+0i

535 2 6.6 0.12343 1 0.94636 -13.182+0i -1.3575+0i

536 2 6.6 0.016124 2 0.69741 -0.95229+0i 0.55786+0i

537 2 6.7 0.11842 1 0.94711 -13.491+0i -1.3396+0i

538 2 6.7 0.015989 2 0.70741 -0.94729+0i 0.46679+0i

539 2 6.8 0.11346 1 0.94776 -13.77+0i -1.3224+0i

540 2 6.8 0.015881 2 0.71748 -0.94092+0i 0.36536+0i

541 2 6.9 0.10853 1 0.94831 -14.015+0i -1.306+0i

542 2 6.9 0.015803 2 0.72761 -0.93256+0i 0.25186+0i

543 2 7 0.10365 1 0.94875 -14.223+0i -1.2902+0i

544 2 7 0.015756 2 0.73781 -0.9211+0i 0.12386+0i

545 2 7.1 0.098791 1 0.94907 -14.389+0i -1.275+0i

546 2 7.1 0.015743 2 0.7481 -0.90435+0i -0.022381+0i

547 2 7.2 0.093965 1 0.94928 -14.51+0i -1.2603+0i

548 2 7.2 0.015768 2 0.75847 -0.87713+0i -0.19399+0i

549 2 7.3 0.089164 1 0.94934 -14.578+0i -1.2461+0i

550 2 7.3 0.015834 2 0.76895 -0.82074+0i -0.41204+0i

551 2 7.4 0.08438 1 0.94926 -14.588+0i -1.2324+0i

552 2 7.4 0.015948 2 0.77955 -0.70735-0.16478i -0.70735+0.16478i

553 2 7.5 0.079606 1 0.94901 -14.534+0i -1.219+0i

554 2 7.5 0.016118 2 0.79029 -0.81037-0.29244i -0.81037+0.29244i

555 2 7.6 0.074829 1 0.94857 -14.406+0i -1.2059+0i

556 2 7.6 0.016352 2 0.80121 -0.92797-0.35584i -0.92797+0.35584i

557 2 7.7 0.070034 1 0.94789 -14.194+0i -1.1931+0i

558 2 7.7 0.016667 2 0.81233 -1.0636-0.3745i -1.0636+0.3745i

559 2 7.8 0.065199 1 0.94691 -13.885+0i -1.1805+0i

560 2 7.8 0.017083 2 0.82373 -1.222-0.33225i -1.222+0.33225i

561 2 7.9 0.060291 1 0.94555 -13.46+0i -1.1681+0i

562 2 7.9 0.017632 2 0.83549 -1.4103-0.1036i -1.4103+0.1036i

563 2 8 0.055257 1 0.94367 -12.892+0i -1.1557+0i

564 2 8 0.018367 2 0.84775 -2.0926+0i -1.1872+0i

565 2 8.1 0.05 1 0.941 -12.139+0i -1.1432+0i

566 2 8.1 0.019385 2 0.86079 -2.7223+0i -1.1392+0i

567 2 8.2 0.044304 1 0.93696 -11.109+0i -1.1303+0i

568 2 8.2 0.020897 2 0.87517 -3.5349+0i -1.1156+0i

569 2 8.3 0.037461 1 0.92965 -9.5297+0i -1.1161+0i

570 2 8.3 0.023614 2 0.89281 -4.8144+0i -1.1031+0i

571 2 8.4 0.029076 1 0.91792 -7.3514+0i -1.0987+0i

572 2 8.4 0.029076 2 0.91792 -7.3514+0i -1.0987+0i

573 2 8.5 0.028429 1 0.92676 -8.0471+0i -1.0893+0i

574 2 8.5 0.028429 2 0.92676 -8.0471+0i -1.0893+0i

575 2 8.6 0.0278 1 0.93562 -8.7666+0i -1.0814+0i

576 2 8.6 0.0278 2 0.93562 -8.7666+0i -1.0814+0i

577 2 8.7 0.027188 1 0.9445 -9.5104+0i -1.0746+0i

578 2 8.7 0.027188 2 0.9445 -9.5104+0i -1.0746+0i

579 2 8.8 0.026594 1 0.9534 -10.279+0i -1.0687+0i

580 2 8.8 0.026594 2 0.9534 -10.279+0i -1.0687+0i

581 2 8.9 0.026015 1 0.96232 -11.074+0i -1.0636+0i

582 2 8.9 0.026015 2 0.96232 -11.074+0i -1.0636+0i

583 2 9 0.025453 1 0.97127 -11.895+0i -1.059+0i

584 2 9 0.025453 2 0.97127 -11.895+0i -1.059+0i

585 2 9.1 0.024905 1 0.98023 -12.742+0i -1.055+0i

586 2 9.1 0.024905 2 0.98023 -12.742+0i -1.055+0i

587 2 9.2 0.024373 1 0.98922 -13.616+0i -1.0514+0i

588 2 9.2 0.024373 2 0.98922 -13.616+0i -1.0514+0i

589 2 9.3 0.023855 1 0.99823 -14.518+0i -1.0481+0i

590 2 9.3 0.023855 2 0.99823 -14.518+0i -1.0481+0i

591 2 9.4 NaN NaN NaN NaN+0i NaN+0i

592 2 9.4 NaN NaN NaN NaN+0i NaN+0i

593 2 9.5 NaN NaN NaN NaN+0i NaN+0i

594 2 9.5 NaN NaN NaN NaN+0i NaN+0i

595 2 9.6 NaN NaN NaN NaN+0i NaN+0i

596 2 9.6 NaN NaN NaN NaN+0i NaN+0i

597 2 9.7 NaN NaN NaN NaN+0i NaN+0i

598 2 9.7 NaN NaN NaN NaN+0i NaN+0i

599 2 9.8 NaN NaN NaN NaN+0i NaN+0i

600 2 9.8 NaN NaN NaN NaN+0i NaN+0i

601 2 9.9 NaN NaN NaN NaN+0i NaN+0i

602 2 9.9 NaN NaN NaN NaN+0i NaN+0i

603 2 10 NaN NaN NaN NaN+0i NaN+0i

604 2 10 NaN NaN NaN NaN+0i NaN+0i

605 4 -5 NaN NaN NaN NaN+0i NaN+0i

606 4 -5 NaN NaN NaN NaN+0i NaN+0i

607 4 -4.9 12.724 1 0.018954 -1.0194+0i -51.563+0i

608 4 -4.9 NaN NaN NaN NaN+0i NaN+0i

609 4 -4.8 6.1371 1 0.010971 -1.0112+0i -25.359+0i

610 4 -4.8 NaN NaN NaN NaN+0i NaN+0i

611 4 -4.7 3.9874 1 0.0084874 -1.0086+0i -16.804+0i

612 4 -4.7 NaN NaN NaN NaN+0i NaN+0i

613 4 -4.6 2.9211 1 0.0073764 -1.0075+0i -12.56+0i

614 4 -4.6 NaN NaN NaN NaN+0i NaN+0i

615 4 -4.5 2.2841 1 0.0068239 -1.007+0i -10.023+0i

616 4 -4.5 NaN NaN NaN NaN+0i NaN+0i

617 4 -4.4 1.8607 1 0.0065606 -1.0067+0i -8.3347+0i

618 4 -4.4 NaN NaN NaN NaN+0i NaN+0i

619 4 -4.3 1.5588 1 0.006472 -1.0066+0i -7.1302+0i

620 4 -4.3 NaN NaN NaN NaN+0i NaN+0i

621 4 -4.2 1.3328 1 0.0065018 -1.0067+0i -6.227+0i

622 4 -4.2 NaN NaN NaN NaN+0i NaN+0i

623 4 -4.1 1.1573 1 0.006619 -1.0068+0i -5.5242+0i

624 4 -4.1 NaN NaN NaN NaN+0i NaN+0i

625 4 -4 1.017 1 0.006806 -1.007+0i -4.9615+0i

626 4 -4 NaN NaN NaN NaN+0i NaN+0i

627 4 -3.9 0.90239 1 0.0070516 -1.0073+0i -4.5005+0i

628 4 -3.9 NaN NaN NaN NaN+0i NaN+0i

629 4 -3.8 0.80698 1 0.007349 -1.0077+0i -4.1156+0i

630 4 -3.8 NaN NaN NaN NaN+0i NaN+0i

631 4 -3.7 0.72633 1 0.0076938 -1.0081+0i -3.7892+0i

632 4 -3.7 NaN NaN NaN NaN+0i NaN+0i

633 4 -3.6 0.65729 1 0.008083 -1.0085+0i -3.5086+0i

634 4 -3.6 NaN NaN NaN NaN+0i NaN+0i

635 4 -3.5 0.59752 1 0.0085149 -1.0091+0i -3.2645+0i

636 4 -3.5 NaN NaN NaN NaN+0i NaN+0i

637 4 -3.4 0.54529 1 0.0089882 -1.0096+0i -3.0501+0i

638 4 -3.4 NaN NaN NaN NaN+0i NaN+0i

639 4 -3.3 0.49927 1 0.009502 -1.0103+0i -2.8601+0i

640 4 -3.3 NaN NaN NaN NaN+0i NaN+0i

641 4 -3.2 0.45841 1 0.010056 -1.011+0i -2.6903+0i

642 4 -3.2 NaN NaN NaN NaN+0i NaN+0i

643 4 -3.1 0.42191 1 0.010649 -1.0118+0i -2.5374+0i

644 4 -3.1 NaN NaN NaN NaN+0i NaN+0i

645 4 -3 0.3891 1 0.011281 -1.0127+0i -2.399+0i

646 4 -3 NaN NaN NaN NaN+0i NaN+0i

647 4 -2.9 0.35946 1 0.011951 -1.0137+0i -2.2728+0i

648 4 -2.9 NaN NaN NaN NaN+0i NaN+0i

649 4 -2.8 0.33257 1 0.012658 -1.0147+0i -2.1572+0i

650 4 -2.8 NaN NaN NaN NaN+0i NaN+0i

651 4 -2.7 0.30805 1 0.013402 -1.0159+0i -2.0507+0i

652 4 -2.7 NaN NaN NaN NaN+0i NaN+0i

653 4 -2.6 0.2856 1 0.01418 -1.0173+0i -1.9522+0i

654 4 -2.6 NaN NaN NaN NaN+0i NaN+0i

655 4 -2.5 0.26499 1 0.014991 -1.0187+0i -1.8606+0i

656 4 -2.5 NaN NaN NaN NaN+0i NaN+0i

657 4 -2.4 0.24599 1 0.015833 -1.0204+0i -1.7752+0i

658 4 -2.4 NaN NaN NaN NaN+0i NaN+0i

659 4 -2.3 0.22843 1 0.016702 -1.0223+0i -1.6951+0i

660 4 -2.3 NaN NaN NaN NaN+0i NaN+0i

661 4 -2.2 0.21214 1 0.017594 -1.0245+0i -1.6198+0i

662 4 -2.2 NaN NaN NaN NaN+0i NaN+0i

663 4 -2.1 0.19699 1 0.018506 -1.0271+0i -1.5487+0i

664 4 -2.1 NaN NaN NaN NaN+0i NaN+0i

665 4 -2 0.18286 1 0.019431 -1.0301+0i -1.4812+0i

666 4 -2 NaN NaN NaN NaN+0i NaN+0i

667 4 -1.9 0.16965 1 0.020363 -1.0338+0i -1.4169+0i

668 4 -1.9 NaN NaN NaN NaN+0i NaN+0i

669 4 -1.8 0.15726 1 0.021292 -1.0385+0i -1.3551+0i

670 4 -1.8 NaN NaN NaN NaN+0i NaN+0i

671 4 -1.7 0.14561 1 0.022211 -1.0448+0i -1.295+0i

672 4 -1.7 NaN NaN NaN NaN+0i NaN+0i

673 4 -1.6 0.13464 1 0.023106 -1.0542+0i -1.235+0i

674 4 -1.6 NaN NaN NaN NaN+0i NaN+0i

675 4 -1.5 0.12426 1 0.023963 -1.072+0i -1.1696+0i

676 4 -1.5 NaN NaN NaN NaN+0i NaN+0i

677 4 -1.4 0.11442 1 0.024765 -1.0984-0.044105i -1.0984+0.044105i

678 4 -1.4 NaN NaN NaN NaN+0i NaN+0i

679 4 -1.3 0.10506 1 0.025492 -1.0774-0.070719i -1.0774+0.070719i

680 4 -1.3 NaN NaN NaN NaN+0i NaN+0i

681 4 -1.2 0.096131 1 0.026119 -1.0579-0.083445i -1.0579+0.083445i

682 4 -1.2 NaN NaN NaN NaN+0i NaN+0i

683 4 -1.1 0.087574 1 0.026615 -1.0398-0.089409i -1.0398+0.089409i

684 4 -1.1 NaN NaN NaN NaN+0i NaN+0i

685 4 -1 0.079341 1 0.026945 -1.0232-0.090818i -1.0232+0.090818i

686 4 -1 NaN NaN NaN NaN+0i NaN+0i

687 4 -0.9 0.07138 1 0.027063 -1.0083-0.088731i -1.0083+0.088731i

688 4 -0.9 NaN NaN NaN NaN+0i NaN+0i

689 4 -0.8 0.063639 1 0.026913 -0.99509-0.083763i -0.99509+0.083763i

690 4 -0.8 NaN NaN NaN NaN+0i NaN+0i

691 4 -0.7 0.05606 1 0.026424 -0.98382-0.076316i -0.98382+0.076316i

692 4 -0.7 NaN NaN NaN NaN+0i NaN+0i

693 4 -0.6 0.048582 1 0.025505 -0.97472-0.066684i -0.97472+0.066684i

694 4 -0.6 NaN NaN NaN NaN+0i NaN+0i

695 4 -0.5 0.041132 1 0.024038 -0.96815-0.055116i -0.96815+0.055116i

696 4 -0.5 NaN NaN NaN NaN+0i NaN+0i

697 4 -0.4 0.033623 1 0.021866 -0.96459-0.041861i -0.96459+0.041861i

698 4 -0.4 NaN NaN NaN NaN+0i NaN+0i

699 4 -0.3 0.025943 1 0.018772 -0.96471-0.027201i -0.96471+0.027201i

700 4 -0.3 NaN NaN NaN NaN+0i NaN+0i

701 4 -0.2 0.017942 1 0.014448 -0.96951-0.011056i -0.96951+0.011056i

702 4 -0.2 NaN NaN NaN NaN+0i NaN+0i

703 4 -0.1 0.0094052 1 0.0084341 -0.98831+0i -0.97262+0i

704 4 -0.1 NaN NaN NaN NaN+0i NaN+0i

705 4 0 NaN NaN NaN NaN+0i NaN+0i

706 4 0 NaN NaN NaN NaN+0i NaN+0i

707 4 0.1 NaN NaN NaN NaN+0i NaN+0i

708 4 0.1 NaN NaN NaN NaN+0i NaN+0i

709 4 0.2 NaN NaN NaN NaN+0i NaN+0i

710 4 0.2 NaN NaN NaN NaN+0i NaN+0i

711 4 0.3 NaN NaN NaN NaN+0i NaN+0i

712 4 0.3 NaN NaN NaN NaN+0i NaN+0i

713 4 0.4 NaN NaN NaN NaN+0i NaN+0i

714 4 0.4 NaN NaN NaN NaN+0i NaN+0i

715 4 0.5 0.11813 1 0.30988 -0.70055-0.035234i -0.70055+0.035234i

716 4 0.5 0.11813 2 0.30988 -0.70055-0.035234i -0.70055+0.035234i

717 4 0.6 0.12231 1 0.33397 -0.7296+0i -0.60376+0i

718 4 0.6 0.12231 2 0.33397 -0.7296+0i -0.60376+0i

719 4 0.7 0.12494 1 0.35487 -0.74238+0i -0.52331+0i

720 4 0.7 0.12494 2 0.35487 -0.74238+0i -0.52331+0i

721 4 0.8 0.12641 1 0.37326 -0.75049+0i -0.4472+0i

722 4 0.8 0.12641 2 0.37326 -0.75049+0i -0.4472+0i

723 4 0.9 0.12695 1 0.38961 -0.75704+0i -0.37215+0i

724 4 0.9 0.12695 2 0.38961 -0.75704+0i -0.37215+0i

725 4 1 0.12679 1 0.4043 -0.7628+0i -0.29736+0i

726 4 1 0.12679 2 0.4043 -0.7628+0i -0.29736+0i

727 4 1.1 0.12606 1 0.4176 -0.76804+0i -0.22259+0i

728 4 1.1 0.12606 2 0.4176 -0.76804+0i -0.22259+0i

729 4 1.2 0.12489 1 0.42973 -0.77289+0i -0.14778+0i

730 4 1.2 0.12489 2 0.42973 -0.77289+0i -0.14778+0i

731 4 1.3 0.12337 1 0.44089 -0.77741+0i -0.072976+0i

732 4 1.3 0.12337 2 0.44089 -0.77741+0i -0.072976+0i

733 4 1.4 0.12157 1 0.45122 -0.78163+0i 0.0017247+0i

734 4 1.4 0.12157 2 0.45122 -0.78163+0i 0.0017247+0i

735 4 1.5 0.11955 1 0.46084 -0.78557+0i 0.076213+0i

736 4 1.5 0.11955 2 0.46084 -0.78557+0i 0.076213+0i

737 4 1.6 0.11737 1 0.46986 -0.78926+0i 0.15036+0i

738 4 1.6 0.11737 2 0.46986 -0.78926+0i 0.15036+0i

739 4 1.7 0.11506 1 0.47836 -0.79271+0i 0.22402+0i

740 4 1.7 0.11506 2 0.47836 -0.79271+0i 0.22402+0i

741 4 1.8 0.11266 1 0.48643 -0.79592+0i 0.29704+0i

742 4 1.8 0.11266 2 0.48643 -0.79592+0i 0.29704+0i

743 4 1.9 0.11019 1 0.49412 -0.7989+0i 0.36927+0i

744 4 1.9 0.11019 2 0.49412 -0.7989+0i 0.36927+0i

745 4 2 0.10768 1 0.5015 -0.80166+0i 0.44055+0i

746 4 2 0.10768 2 0.5015 -0.80166+0i 0.44055+0i

747 4 2.1 0.10514 1 0.5086 -0.80421+0i 0.51071+0i

748 4 2.1 0.10514 2 0.5086 -0.80421+0i 0.51071+0i

749 4 2.2 0.1026 1 0.51548 -0.80656+0i 0.57957+0i

750 4 2.2 0.1026 2 0.51548 -0.80656+0i 0.57957+0i

751 4 2.3 0.10006 1 0.52217 -0.8087+0i 0.64696+0i

752 4 2.3 0.10006 2 0.52217 -0.8087+0i 0.64696+0i

753 4 2.4 0.097531 1 0.52869 -0.81063+0i 0.71269+0i

754 4 2.4 0.097531 2 0.52869 -0.81063+0i 0.71269+0i

755 4 2.5 0.09503 1 0.53509 -0.81237+0i 0.77658+0i

756 4 2.5 0.09503 2 0.53509 -0.81237+0i 0.77658+0i

757 4 2.6 0.092559 1 0.54138 -0.81391+0i 0.83843+0i

758 4 2.6 0.092559 2 0.54138 -0.81391+0i 0.83843+0i

759 4 2.7 0.090125 1 0.54758 -0.81526+0i 0.89805+0i

760 4 2.7 0.090125 2 0.54758 -0.81526+0i 0.89805+0i

761 4 2.8 0.087732 1 0.55372 -0.8164+0i 0.95524+0i

762 4 2.8 0.087732 2 0.55372 -0.8164+0i 0.95524+0i

763 4 2.9 0.085384 1 0.55981 -0.81735+0i 1.0098+0i

764 4 2.9 0.085384 2 0.55981 -0.81735+0i 1.0098+0i

765 4 3 0.083083 1 0.56587 -0.81809+0i 1.0615+0i

766 4 3 0.083083 2 0.56587 -0.81809+0i 1.0615+0i

767 4 3.1 0.080833 1 0.5719 -0.81863+0i 1.1101+0i

768 4 3.1 0.080833 2 0.5719 -0.81863+0i 1.1101+0i

769 4 3.2 0.078634 1 0.57792 -0.81895+0i 1.1555+0i

770 4 3.2 0.078634 2 0.57792 -0.81895+0i 1.1555+0i

771 4 3.3 0.076488 1 0.58394 -0.81905+0i 1.1973+0i

772 4 3.3 0.076488 2 0.58394 -0.81905+0i 1.1973+0i

773 4 3.4 0.074395 1 0.58997 -0.81893+0i 1.2354+0i

774 4 3.4 0.074395 2 0.58997 -0.81893+0i 1.2354+0i

775 4 3.5 0.072356 1 0.59601 -0.81856+0i 1.2695+0i

776 4 3.5 0.072356 2 0.59601 -0.81856+0i 1.2695+0i

777 4 3.6 0.07037 1 0.60207 -0.81795+0i 1.2994+0i

778 4 3.6 0.07037 2 0.60207 -0.81795+0i 1.2994+0i

779 4 3.7 0.071173 1 0.61768 -0.79987+0i 1.2983+0i

780 4 3.7 0.065809 2 0.59901 -0.832+0i 1.3407+0i

781 4 3.8 0.079074 1 0.65834 -0.71225+0i 1.118+0i

782 4 3.8 0.056026 2 0.57721 -0.87019+0i 1.3569+0i

783 4 3.9 0.081989 1 0.68188 -0.63793+0i 0.94149+0i

784 4 3.9 0.051109 2 0.57195 -0.88367+0i 1.3482+0i

785 4 4 0.083552 1 0.70079 -0.5503+0i 0.74057+0i

786 4 4 0.047441 2 0.57079 -0.89198+0i 1.3362+0i

787 4 4.1 0.084336 1 0.71698 -0.42866+0i 0.49578+0i

788 4 4.1 0.044462 2 0.57184 -0.89773+0i 1.3225+0i

789 4 4.2 0.084583 1 0.73127 -0.15718+0i 0.092346+0i

790 4 4.2 0.041942 2 0.57435 -0.9019+0i 1.3077+0i

791 4 4.3 0.084427 1 0.74407 -0.10234-0.41956i -0.10234+0.41956i

792 4 4.3 0.039759 2 0.5779 -0.90498+0i 1.2916+0i

793 4 4.4 0.083954 1 0.75567 -0.17578-0.59939i -0.17578+0.59939i

794 4 4.4 0.037837 2 0.58227 -0.90723+0i 1.274+0i

795 4 4.5 0.083223 1 0.76625 -0.25236-0.72955i -0.25236+0.72955i

796 4 4.5 0.036126 2 0.58728 -0.90881+0i 1.2549+0i

797 4 4.6 0.082276 1 0.77594 -0.33169-0.83251i -0.33169+0.83251i

798 4 4.6 0.034591 2 0.59283 -0.90982+0i 1.234+0i

799 4 4.7 0.081148 1 0.78486 -0.4134-0.91654i -0.4134+0.91654i

800 4 4.7 0.033205 2 0.59884 -0.91033+0i 1.211+0i

801 4 4.8 0.079866 1 0.79308 -0.49714-0.98567i -0.49714+0.98567i

802 4 4.8 0.031949 2 0.60524 -0.91036+0i 1.1856+0i

803 4 4.9 0.078451 1 0.80067 -0.5825-1.0422i -0.5825+1.0422i

804 4 4.9 0.030806 2 0.61199 -0.90993+0i 1.1577+0i

805 4 5 0.07692 1 0.80768 -0.66912-1.0875i -0.66912+1.0875i

806 4 5 0.029764 2 0.61906 -0.90903+0i 1.1269+0i

807 4 5.1 0.075289 1 0.81417 -0.75657-1.1226i -0.75657+1.1226i

808 4 5.1 0.028813 2 0.62641 -0.90766+0i 1.0928+0i

809 4 5.2 0.07357 1 0.82016 -0.84443-1.148i -0.84443+1.148i

810 4 5.2 0.027946 2 0.63402 -0.90577+0i 1.0552+0i

811 4 5.3 0.071772 1 0.8257 -0.93224-1.1642i -0.93224+1.1642i

812 4 5.3 0.027155 2 0.64188 -0.90331+0i 1.0135+0i

813 4 5.4 0.069906 1 0.83081 -1.0195-1.1716i -1.0195+1.1716i

814 4 5.4 0.026435 2 0.64997 -0.9002+0i 0.96738+0i

815 4 5.5 0.067977 1 0.8355 -1.1057-1.1704i -1.1057+1.1704i

816 4 5.5 0.025783 2 0.65829 -0.89632+0i 0.9162+0i

817 4 5.6 0.065992 1 0.8398 -1.1903-1.1609i -1.1903+1.1609i

818 4 5.6 0.025194 2 0.66682 -0.89152+0i 0.85931+0i

819 4 5.7 0.063955 1 0.84373 -1.2726-1.1432i -1.2726+1.1432i

820 4 5.7 0.024667 2 0.67557 -0.88559+0i 0.79591+0i

821 4 5.8 0.06187 1 0.84728 -1.3519-1.1176i -1.3519+1.1176i

822 4 5.8 0.024201 2 0.68455 -0.87822+0i 0.725+0i

823 4 5.9 0.059738 1 0.85046 -1.4274-1.0846i -1.4274+1.0846i

824 4 5.9 0.023794 2 0.69374 -0.86896+0i 0.6453+0i

825 4 6 0.057561 1 0.85327 -1.4983-1.0443i -1.4983+1.0443i

826 4 6 0.023449 2 0.70318 -0.85711+0i 0.55511+0i

827 4 6.1 0.055338 1 0.8557 -1.5634-0.9976i -1.5634+0.9976i

828 4 6.1 0.023168 2 0.71287 -0.84155+0i 0.45207+0i

829 4 6.2 0.053066 1 0.85773 -1.6216-0.94518i -1.6216+0.94518i

830 4 6.2 0.022954 2 0.72283 -0.82032+0i 0.33263+0i

831 4 6.3 0.050739 1 0.85934 -1.6714-0.88836i -1.6714+0.88836i

832 4 6.3 0.022815 2 0.73312 -0.78947+0i 0.19078+0i

833 4 6.4 0.048347 1 0.86046 -1.7108-0.82906i -1.7108+0.82906i

834 4 6.4 0.02276 2 0.74379 -0.73938+0i 0.014093+0i

835 4 6.5 0.045875 1 0.86102 -1.7373-0.77023i -1.7373+0.77023i

836 4 6.5 0.022808 2 0.75492 -0.62909+0i -0.24239+0i

837 4 6.6 0.043295 1 0.86089 -1.7474-0.7163i -1.7474+0.7163i

838 4 6.6 0.022985 2 0.76665 -0.52165-0.27064i -0.52165+0.27064i

839 4 6.7 0.040557 1 0.8598 -1.7354-0.67387i -1.7354+0.67387i

840 4 6.7 0.023343 2 0.77925 -0.6255-0.43514i -0.6255+0.43514i

841 4 6.8 0.037552 1 0.85725 -1.6906-0.65203i -1.6906+0.65203i

842 4 6.8 0.023991 2 0.79324 -0.75738-0.55615i -0.75738+0.55615i

843 4 6.9 0.033953 1 0.85162 -1.5837-0.66235i -1.5837+0.66235i

844 4 6.9 0.025257 2 0.81022 -0.94581-0.65452i -0.94581+0.65452i

845 4 7 0.028575 1 0.83716 -1.3289-0.68932i -1.3289+0.68932i

846 4 7 0.028575 2 0.83716 -1.3289-0.68932i -1.3289+0.68932i

847 4 7.1 0.027886 1 0.84497 -1.4651-0.60867i -1.4651+0.60867i

848 4 7.1 0.027886 2 0.84497 -1.4651-0.60867i -1.4651+0.60867i

849 4 7.2 0.027218 1 0.85282 -1.6081-0.46944i -1.6081+0.46944i

850 4 7.2 0.027218 2 0.85282 -1.6081-0.46944i -1.6081+0.46944i

851 4 7.3 0.026569 1 0.86072 -1.7581-0.13692i -1.7581+0.13692i

852 4 7.3 0.026569 2 0.86072 -1.7581-0.13692i -1.7581+0.13692i

853 4 7.4 0.02594 1 0.86866 -2.4062+0i -1.4244+0i

854 4 7.4 0.02594 2 0.86866 -2.4062+0i -1.4244+0i

855 4 7.5 0.025328 1 0.87664 -2.8319+0i -1.3275+0i

856 4 7.5 0.025328 2 0.87664 -2.8319+0i -1.3275+0i

857 4 7.6 0.024735 1 0.88466 -3.2331+0i -1.2701+0i

858 4 7.6 0.024735 2 0.88466 -3.2331+0i -1.2701+0i

859 4 7.7 0.024158 1 0.89272 -3.6317+0i -1.2304+0i

860 4 7.7 0.024158 2 0.89272 -3.6317+0i -1.2304+0i

861 4 7.8 0.023599 1 0.90083 -4.0356+0i -1.2007+0i

862 4 7.8 0.023599 2 0.90083 -4.0356+0i -1.2007+0i

863 4 7.9 0.023055 1 0.90896 -4.4488+0i -1.1776+0i

864 4 7.9 0.023055 2 0.90896 -4.4488+0i -1.1776+0i

865 4 8 0.022527 1 0.91714 -4.8735+0i -1.1589+0i

866 4 8 0.022527 2 0.91714 -4.8735+0i -1.1589+0i

867 4 8.1 0.022014 1 0.92535 -5.3112+0i -1.1434+0i

868 4 8.1 0.022014 2 0.92535 -5.3112+0i -1.1434+0i

869 4 8.2 0.021515 1 0.9336 -5.7631+0i -1.1304+0i

870 4 8.2 0.021515 2 0.9336 -5.7631+0i -1.1304+0i

871 4 8.3 0.021031 1 0.94188 -6.23+0i -1.1193+0i

872 4 8.3 0.021031 2 0.94188 -6.23+0i -1.1193+0i

873 4 8.4 0.02056 1 0.9502 -6.7124+0i -1.1097+0i

874 4 8.4 0.02056 2 0.9502 -6.7124+0i -1.1097+0i

875 4 8.5 0.020102 1 0.95855 -7.2111+0i -1.1014+0i

876 4 8.5 0.020102 2 0.95855 -7.2111+0i -1.1014+0i

877 4 8.6 0.019658 1 0.96694 -7.7264+0i -1.094+0i

878 4 8.6 0.019658 2 0.96694 -7.7264+0i -1.094+0i

879 4 8.7 0.019225 1 0.97535 -8.259+0i -1.0875+0i

880 4 8.7 0.019225 2 0.97535 -8.259+0i -1.0875+0i

881 4 8.8 0.018804 1 0.9838 -8.809+0i -1.0817+0i

882 4 8.8 0.018804 2 0.9838 -8.809+0i -1.0817+0i

883 4 8.9 0.018395 1 0.99228 -9.3771+0i -1.0764+0i

884 4 8.9 0.018395 2 0.99228 -9.3771+0i -1.0764+0i

885 4 9 NaN NaN NaN NaN+0i NaN+0i

886 4 9 NaN NaN NaN NaN+0i NaN+0i

887 4 9.1 NaN NaN NaN NaN+0i NaN+0i

888 4 9.1 NaN NaN NaN NaN+0i NaN+0i

889 4 9.2 NaN NaN NaN NaN+0i NaN+0i

890 4 9.2 NaN NaN NaN NaN+0i NaN+0i

891 4 9.3 NaN NaN NaN NaN+0i NaN+0i

892 4 9.3 NaN NaN NaN NaN+0i NaN+0i

893 4 9.4 NaN NaN NaN NaN+0i NaN+0i

894 4 9.4 NaN NaN NaN NaN+0i NaN+0i

895 4 9.5 NaN NaN NaN NaN+0i NaN+0i

896 4 9.5 NaN NaN NaN NaN+0i NaN+0i

897 4 9.6 NaN NaN NaN NaN+0i NaN+0i

898 4 9.6 NaN NaN NaN NaN+0i NaN+0i

899 4 9.7 NaN NaN NaN NaN+0i NaN+0i

900 4 9.7 NaN NaN NaN NaN+0i NaN+0i

901 4 9.8 NaN NaN NaN NaN+0i NaN+0i

902 4 9.8 NaN NaN NaN NaN+0i NaN+0i

903 4 9.9 NaN NaN NaN NaN+0i NaN+0i

904 4 9.9 NaN NaN NaN NaN+0i NaN+0i

905 4 10 NaN NaN NaN NaN+0i NaN+0i

906 4 10 NaN NaN NaN NaN+0i NaN+0i

NaN, в значениях таблицы, означает, что корень отсутствует.

При а=1:

Колличество стационарных устойчивых точек для x1(tau):151

Колличество стационарных неустойчивых точек для x1(tau):88

Колличество точек вещественной бифуркации для x1(tau):5

Колличество точек бифуркации Андронова-Хопфа для x1(tau):0

Колличество других точек для x1(tau):0

Колличество стационарных устойчивых точек для x2(tau):151

Колличество стационарных неустойчивых точек для x2(tau):88

Колличество точек вещественной бифуркации для x2(tau):5

Колличество точек бифуркации Андронова-Хопфа для x2(tau):0

Колличество других точек для x2(tau):0

При а=2:

Колличество стационарных устойчивых точек для x1(tau):142

Колличество стационарных неустойчивых точек для x1(tau):92

Колличество точек вещественной бифуркации для x1(tau):5

Колличество точек бифуркации Андронова-Хопфа для x1(tau):0

Колличество других точек для x1(tau):0

Колличество стационарных устойчивых точек для x2(tau):142

Колличество стационарных неустойчивых точек для x2(tau):92

Колличество точек вещественной бифуркации для x2(tau):5

Колличество точек бифуркации Андронова-Хопфа для x2(tau):0

Колличество других точек для x2(tau):0

При а=4:

Колличество стационарных устойчивых точек для x1(tau):138

Колличество стационарных неустойчивых точек для x1(tau):80

Колличество точек вещественной бифуркации для x1(tau):4

Колличество точек бифуркации Андронова-Хопфа для x1(tau):0

Колличество других точек для x1(tau):0

Колличество стационарных устойчивых точек для x2(tau):138

Колличество стационарных неустойчивых точек для x2(tau):80

Колличество точек вещественной бифуркации для x2(tau):4

Колличество точек бифуркации Андронова-Хопфа для x2(tau):0

Колличество других точек для x2(tau):0

## Точки, по которым строим график:

N a x2 tau x1 LAM1 LAM2

\_\_\_ \_ \_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 1 -4.9 56.961 0.079607 -1.0887+0i -56.562+0i

2 1 -4.8 26.266 0.045325 -1.0489+0i -26.48+0i

3 1 -4.7 16.829 0.034868 -1.0375+0i -17.232+0i

4 1 -4.6 12.256 0.030236 -1.0325+0i -12.745+0i

5 1 -4.5 9.559 0.027951 -1.0302+0i -10.092+0i

6 1 -4.4 7.7813 0.026875 -1.0293+0i -8.3378+0i

7 1 -4.3 6.5219 0.026531 -1.0292+0i -7.0894+0i

8 1 -4.2 5.5836 0.026684 -1.0297+0i -6.1537+0i

9 1 -4.1 4.8579 0.027209 -1.0307+0i -5.4246+0i

10 1 -4 4.2803 0.028032 -1.0322+0i -4.839+0i

11 1 -3.9 3.8101 0.029112 -1.034+0i -4.3568+0i

12 1 -3.8 3.4202 0.030423 -1.0364+0i -3.9515+0i

13 1 -3.7 3.0919 0.031951 -1.0392+0i -3.6047+0i

14 1 -3.6 2.8121 0.033689 -1.0426+0i -3.3033+0i

15 1 -3.5 2.5709 0.035634 -1.0466+0i -3.0377+0i

16 1 -3.4 2.3612 0.037789 -1.0515+0i -2.8004+0i

17 1 -3.3 2.1774 0.040157 -1.0574+0i -2.5858+0i

18 1 -3.2 2.0153 0.042747 -1.0648+0i -2.3893+0i

19 1 -3.1 1.8714 0.045566 -1.074+0i -2.207+0i

20 1 -3 1.7431 0.048627 -1.0861+0i -2.0351+0i

21 1 -2.9 1.6283 0.051943 -1.1025+0i -1.87+0i

22 1 -2.8 1.5251 0.055528 -1.127+0i -1.7062+0i

23 1 -2.7 1.4322 0.059402 -1.1703+0i -1.5311+0i

24 1 -2.6 1.3483 0.063585 -1.2881-0.092613i -1.2881+0.092613i

25 1 -2.5 1.2724 0.068101 -1.228-0.20248i -1.228+0.20248i

26 1 -2.4 1.2038 0.072978 -1.1701-0.2566i -1.1701+0.2566i

27 1 -2.3 1.1417 0.078249 -1.1137-0.28979i -1.1137+0.28979i

28 1 -2.2 1.0855 0.083951 -1.0587-0.30991i -1.0587+0.30991i

29 1 -2.1 1.0349 0.090132 -1.0044-0.32016i -1.0044+0.32016i

30 1 -2 0.98948 0.096843 -0.95055-0.32195i -0.95055+0.32195i

31 1 -1.9 0.94888 0.10415 -0.89674-0.31568i -0.89674+0.31568i

32 1 -1.8 0.91292 0.11213 -0.84255-0.30085i -0.84255+0.30085i

33 1 -1.7 0.88146 0.12088 -0.78756-0.27582i -0.78756+0.27582i

34 1 -1.6 0.85445 0.13051 -0.73129-0.23675i -0.73129+0.23675i

35 1 -1.5 0.83189 0.14116 -0.67322-0.17306i -0.67322+0.17306i

36 1 -1.4 0.81386 0.15299 -0.66682+0i -0.5588+0i

37 1 -1.3 0.80051 0.16619 -0.75792+0i -0.34092+0i

38 1 -1.2 0.79205 0.18098 -0.78717+0i -0.17764+0i

39 1 -1.1 0.78871 0.1976 -0.80169+0i -0.0206+0i

40 1 -1 0.79071 0.21628 -0.80826+0i 0.13807+0i

41 1 -0.9 0.79815 0.23724 -0.80923+0i 0.3013+0i

42 1 -0.8 0.81092 0.26059 -0.80555+0i 0.46976+0i

43 1 -0.7 0.82863 0.28631 -0.7976+0i 0.64235+0i

44 1 -0.6 0.85047 0.31421 -0.78546+0i 0.81626+0i

45 1 -0.5 0.87532 0.3439 -0.76913+0i 0.98723+0i

46 1 -0.4 0.90184 0.37485 -0.7485+0i 1.1501+0i

47 1 -0.3 0.92866 0.40647 -0.72341+0i 1.2993+0i

48 1 -0.2 0.95455 0.43818 -0.69362+0i 1.4299+0i

49 1 -0.1 0.97856 0.46949 -0.6587+0i 1.5374+0i

50 1 0 1 0.5 -0.61803+0i 1.618+0i

51 1 0.1 1.0185 0.52941 -0.57068+0i 1.6688+0i

52 1 0.2 1.0337 0.55754 -0.5152+0i 1.6869+0i

53 1 0.3 1.0458 0.58428 -0.4494+0i 1.6695+0i

54 1 0.4 1.0547 0.60956 -0.36976+0i 1.6127+0i

55 1 0.5 1.0607 0.63337 -0.27007+0i 1.5104+0i

56 1 0.6 1.0638 0.65575 -0.1377+0i 1.3501+0i

57 1 0.7 1.0644 0.67673 0.06265+0i 1.0969+0i

58 1 0.8 1.0627 0.69636 0.54108-0.24951i 0.54108+0.24951i

59 1 0.9 1.0589 0.71472 0.49036-0.65697i 0.49036+0.65697i

60 1 1 1.0531 0.73187 0.42781-0.91428i 0.42781+0.91428i

61 1 1.1 1.0457 0.74788 0.35363-1.1268i 0.35363+1.1268i

62 1 1.2 1.0368 0.76282 0.268-1.3141i 0.268+1.3141i

63 1 1.3 1.0266 0.77677 0.1711-1.4835i 0.1711+1.4835i

64 1 1.4 1.0153 0.78977 0.06306-1.6383i 0.06306+1.6383i

65 1 1.5 1.0029 0.80191 -0.055996-1.7802i -0.055996+1.7802i

66 1 1.6 0.98975 0.81324 -0.18597-1.9097i -0.18597+1.9097i

67 1 1.7 0.97583 0.82381 -0.32677-2.0272i -0.32677+2.0272i

68 1 1.8 0.96129 0.83367 -0.47835-2.1322i -0.47835+2.1322i

69 1 1.9 0.94621 0.84289 -0.64066-2.2242i -0.64066+2.2242i

70 1 2 0.93071 0.85149 -0.81366-2.3025i -0.81366+2.3025i

71 1 2.1 0.91484 0.85954 -0.99733-2.366i -0.99733+2.366i

72 1 2.2 0.89869 0.86705 -1.1917-2.4134i -1.1917+2.4134i

73 1 2.3 0.88231 0.87408 -1.3967-2.4428i -1.3967+2.4428i

74 1 2.4 0.86576 0.88066 -1.6123-2.4523i -1.6123+2.4523i

75 1 2.5 0.84909 0.88682 -1.8387-2.4391i -1.8387+2.4391i

76 1 2.6 0.83234 0.89258 -2.0757-2.3998i -2.0757+2.3998i

77 1 2.7 0.81556 0.89798 -2.3234-2.3296i -2.3234+2.3296i

78 1 2.8 0.79877 0.90304 -2.5818-2.222i -2.5818+2.222i

79 1 2.9 0.782 0.90778 -2.8509-2.067i -2.8509+2.067i

80 1 3 0.76529 0.91223 -3.1306-1.8479i -3.1306+1.8479i

81 1 3.1 0.74865 0.91641 -3.4209-1.5318i -3.4209+1.5318i

82 1 3.2 0.73211 0.92033 -3.7219-1.0237i -3.7219+1.0237i

83 1 3.3 0.71567 0.92401 -4.7401+0i -3.3266+0i

84 1 3.4 0.69936 0.92747 -5.8772+0i -2.8335+0i

85 1 3.5 0.6832 0.93072 -6.7904+0i -2.585+0i

86 1 3.6 0.66718 0.93377 -7.6449+0i -2.4157+0i

87 1 3.7 0.65132 0.93665 -8.4784+0i -2.2877+0i

88 1 3.8 0.63563 0.93935 -9.306+0i -2.1853+0i

89 1 3.9 0.62011 0.9419 -10.136+0i -2.1004+0i

90 1 4 0.60478 0.9443 -10.972+0i -2.0282+0i

91 1 4.1 0.58962 0.94656 -11.817+0i -1.9655+0i

92 1 4.2 0.57466 0.94868 -12.672+0i -1.9102+0i

93 1 4.3 0.55988 0.95069 -13.539+0i -1.8609+0i

94 1 4.4 0.5453 0.95258 -14.417+0i -1.8164+0i

95 1 4.5 0.53091 0.95436 -15.307+0i -1.776+0i

96 1 4.6 0.51671 0.95604 -16.207+0i -1.739+0i

97 1 4.7 0.50271 0.95763 -17.119+0i -1.7048+0i

98 1 4.8 0.4889 0.95912 -18.04+0i -1.6732+0i

99 1 4.9 0.47528 0.96053 -18.969+0i -1.6436+0i

100 1 5 0.46186 0.96186 -19.906+0i -1.616+0i

101 1 5.1 0.44862 0.96311 -20.85+0i -1.59+0i

102 1 5.2 0.43558 0.96429 -21.798+0i -1.5655+0i

103 1 5.3 0.42272 0.9654 -22.749+0i -1.5423+0i

104 1 5.4 0.41004 0.96645 -23.701+0i -1.5203+0i

105 1 5.5 0.39755 0.96743 -24.652+0i -1.4993+0i

106 1 5.6 0.38524 0.96836 -25.599+0i -1.4793+0i

107 1 5.7 0.37311 0.96923 -26.541+0i -1.4601+0i

108 1 5.8 0.36115 0.97005 -27.474+0i -1.4418+0i

109 1 5.9 0.34937 0.97081 -28.396+0i -1.4241+0i

110 1 6 0.33775 0.97153 -29.304+0i -1.4072+0i

111 1 6.1 0.3263 0.9722 -30.194+0i -1.3908+0i

112 1 6.2 0.31502 0.97282 -31.062+0i -1.375+0i

113 1 6.3 0.30389 0.9734 -31.906+0i -1.3598+0i

114 1 6.4 0.29292 0.97393 -32.72+0i -1.345+0i

115 1 6.5 0.28211 0.97442 -33.5+0i -1.3307+0i

116 1 6.6 0.27144 0.97487 -34.243+0i -1.3168+0i

117 1 6.7 0.26092 0.97528 -34.942+0i -1.3033+0i

118 1 6.8 0.25055 0.97565 -35.593+0i -1.2902+0i

119 1 6.9 0.24031 0.97597 -36.19+0i -1.2774+0i

120 1 7 0.23021 0.97626 -36.726+0i -1.265+0i

121 1 7.1 0.22025 0.9765 -37.196+0i -1.2528+0i

122 1 7.2 0.2104 0.97669 -37.593+0i -1.2409+0i

123 1 7.3 0.20068 0.97684 -37.909+0i -1.2293+0i

124 1 7.4 0.19108 0.97694 -38.137+0i -1.218+0i

125 1 7.5 0.18159 0.97699 -38.267+0i -1.2069+0i

126 1 7.6 0.17221 0.97698 -38.29+0i -1.196+0i

127 1 7.7 0.16292 0.97691 -38.198+0i -1.1853+0i

128 1 7.8 0.15373 0.97677 -37.977+0i -1.1748+0i

129 1 7.9 0.14462 0.97656 -37.617+0i -1.1645+0i

130 1 8 0.13558 0.97625 -37.102+0i -1.1544+0i

131 1 8.1 0.12659 0.97583 -36.419+0i -1.1443+0i

132 1 8.2 0.11764 0.97529 -35.546+0i -1.1344+0i

133 1 8.3 0.10871 0.97458 -34.463+0i -1.1246+0i

134 1 8.4 0.099756 0.97367 -33.139+0i -1.1148+0i

135 1 8.5 0.090728 0.97248 -31.537+0i -1.105+0i

136 1 8.6 0.081541 0.9709 -29.598+0i -1.0951+0i

137 1 8.7 0.072041 0.9687 -27.227+0i -1.085+0i

138 1 8.8 0.061881 0.9654 -24.23+0i -1.0743+0i

139 1 8.9 0.049893 0.95935 -19.995+0i -1.062+0i

140 1 9 0.035995 0.95039 -14.635+0i -1.0471+0i

141 1 9.1 0.035222 0.95966 -15.824+0i -1.0435+0i

142 1 9.2 0.034469 0.96895 -17.052+0i -1.0404+0i

143 1 9.3 0.033736 0.97824 -18.319+0i -1.0376+0i

144 1 9.4 0.033023 0.98755 -19.627+0i -1.035+0i

145 1 9.5 0.03233 0.99688 -20.974+0i -1.0328+0i

146 1 9.5 0.03233 0.99688 -20.974+0i -1.0328+0i

147 1 9.4 0.033023 0.98755 -19.627+0i -1.035+0i

148 1 9.3 0.033736 0.97824 -18.319+0i -1.0376+0i

149 1 9.2 0.034469 0.96895 -17.052+0i -1.0404+0i

150 1 9.1 0.035222 0.95966 -15.824+0i -1.0435+0i

151 1 9 0.035995 0.95039 -14.635+0i -1.0471+0i

152 1 8.9 0.027129 0.92771 -9.3757+0i -1.0416+0i

153 1 8.8 0.022857 0.91154 -6.8919+0i -1.04+0i

154 1 8.7 0.020522 0.89811 -5.4333+0i -1.0408+0i

155 1 8.6 0.018956 0.88578 -4.3991+0i -1.0432+0i

156 1 8.5 0.017816 0.87405 -3.6058+0i -1.0474+0i

157 1 8.4 0.01695 0.86271 -2.9684+0i -1.0541+0i

158 1 8.3 0.016274 0.85164 -2.4384+0i -1.0649+0i

159 1 8.2 0.015739 0.84078 -1.9826+0i -1.0846+0i

160 1 8.1 0.015313 0.83006 -1.5617+0i -1.1332+0i

161 1 8 0.014972 0.81946 -1.1865-0.1821i -1.1865+0.1821i

162 1 7.9 0.014702 0.80897 -1.0462-0.24521i -1.0462+0.24521i

163 1 7.8 0.01449 0.79855 -0.92269-0.22685i -0.92269+0.22685i

164 1 7.7 0.014329 0.7882 -0.81336-0.13598i -0.81336+0.13598i

165 1 7.6 0.014211 0.77791 -0.89172+0i -0.5403+0i

166 1 7.5 0.014131 0.76766 -0.93059+0i -0.32727+0i

167 1 7.4 0.014085 0.75747 -0.94804+0i -0.15345+0i

168 1 7.3 0.01407 0.74731 -0.95829+0i -0.0023189+0i

169 1 7.2 0.014084 0.73718 -0.96509+0i 0.13173+0i

170 1 7.1 0.014123 0.72709 -0.96994+0i 0.25175+0i

171 1 7 0.014187 0.71702 -0.97356+0i 0.35979+0i

172 1 6.9 0.014274 0.70699 -0.97637+0i 0.45739+0i

173 1 6.8 0.014383 0.69697 -0.9786+0i 0.54575+0i

174 1 6.7 0.014513 0.68698 -0.98041+0i 0.62583+0i

175 1 6.6 0.014664 0.67701 -0.9819+0i 0.69846+0i

176 1 6.5 0.014835 0.66706 -0.98315+0i 0.76433+0i

177 1 6.4 0.015026 0.65713 -0.98421+0i 0.82404+0i

178 1 6.3 0.015237 0.64722 -0.98512+0i 0.87809+0i

179 1 6.2 0.015467 0.63732 -0.9859+0i 0.92694+0i

180 1 6.1 0.015716 0.62745 -0.98657+0i 0.97098+0i

181 1 6 0.015985 0.61758 -0.98716+0i 1.0106+0i

182 1 5.9 0.016274 0.60774 -0.98768+0i 1.046+0i

183 1 5.8 0.016583 0.59791 -0.98813+0i 1.0775+0i

184 1 5.7 0.016913 0.5881 -0.98853+0i 1.1054+0i

185 1 5.6 0.017263 0.5783 -0.98889+0i 1.1299+0i

186 1 5.5 0.017634 0.56852 -0.9892+0i 1.1512+0i

187 1 5.4 0.018027 0.55875 -0.98948+0i 1.1694+0i

188 1 5.3 0.018442 0.549 -0.98972+0i 1.1847+0i

189 1 5.2 0.01888 0.53926 -0.98994+0i 1.1973+0i

190 1 5.1 0.019342 0.52954 -0.99014+0i 1.2073+0i

191 1 5 0.019828 0.51983 -0.99031+0i 1.2148+0i

192 1 4.9 0.020339 0.51014 -0.99046+0i 1.2199+0i

193 1 4.8 0.020876 0.50046 -0.99059+0i 1.2227+0i

194 1 4.7 0.02144 0.4908 -0.99071+0i 1.2233+0i

195 1 4.6 0.022032 0.48115 -0.9908+0i 1.2218+0i

196 1 4.5 0.022652 0.47152 -0.99089+0i 1.2182+0i

197 1 4.4 0.023301 0.4619 -0.99096+0i 1.2126+0i

198 1 4.3 0.023982 0.4523 -0.99102+0i 1.2051+0i

199 1 4.2 0.024694 0.44272 -0.99107+0i 1.1958+0i

200 1 4.1 0.025438 0.43315 -0.9911+0i 1.1846+0i

201 1 4 0.026216 0.42359 -0.99113+0i 1.1717+0i

202 1 3.9 0.02703 0.41406 -0.99114+0i 1.157+0i

203 1 3.8 0.027879 0.40453 -0.99115+0i 1.1406+0i

204 1 3.7 0.028765 0.39503 -0.99115+0i 1.1225+0i

205 1 3.6 0.029689 0.38553 -0.99114+0i 1.1029+0i

206 1 3.5 0.030652 0.37605 -0.99112+0i 1.0816+0i

207 1 3.4 0.031655 0.36659 -0.9911+0i 1.0587+0i

208 1 3.3 0.032699 0.35714 -0.99107+0i 1.0342+0i

209 1 3.2 0.033784 0.3477 -0.99103+0i 1.0082+0i

210 1 3.1 0.034911 0.33828 -0.99099+0i 0.98064+0i

211 1 3 0.03608 0.32886 -0.99094+0i 0.95153+0i

212 1 2.9 0.037291 0.31946 -0.99089+0i 0.92089+0i

213 1 2.8 0.038544 0.31006 -0.99083+0i 0.88872+0i

214 1 2.7 0.039838 0.30068 -0.99077+0i 0.855+0i

215 1 2.6 0.041171 0.29129 -0.9907+0i 0.81974+0i

216 1 2.5 0.042543 0.28191 -0.99063+0i 0.78293+0i

217 1 2.4 0.043949 0.27252 -0.99056+0i 0.74453+0i

218 1 2.3 0.045387 0.26313 -0.99049+0i 0.70454+0i

219 1 2.2 0.046851 0.25373 -0.99042+0i 0.66292+0i

220 1 2.1 0.048335 0.24432 -0.99035+0i 0.61963+0i

221 1 2 0.04983 0.23488 -0.99029+0i 0.57464+0i

222 1 1.9 0.051327 0.22542 -0.99022+0i 0.52787+0i

223 1 1.8 0.052811 0.21591 -0.99017+0i 0.47928+0i

224 1 1.7 0.054267 0.20636 -0.99012+0i 0.42877+0i

225 1 1.6 0.055674 0.19674 -0.99009+0i 0.37625+0i

226 1 1.5 0.057005 0.18705 -0.99008+0i 0.32161+0i

227 1 1.4 0.058228 0.17727 -0.99008+0i 0.2647+0i

228 1 1.3 0.059302 0.16736 -0.99011+0i 0.20536+0i

229 1 1.2 0.060178 0.15731 -0.99017+0i 0.14338+0i

230 1 1.1 0.06079 0.14708 -0.99028+0i 0.078506+0i

231 1 1 0.06106 0.13664 -0.99044+0i 0.010446+0i

232 1 0.9 0.060887 0.12592 -0.99066+0i -0.061178+0i

233 1 0.8 0.060142 0.11488 -0.99096+0i -0.13683+0i

234 1 0.7 0.058665 0.10344 -0.99136+0i -0.21707+0i

235 1 0.6 0.056247 0.091498 -0.99188+0i -0.30262+0i

236 1 0.5 0.052623 0.078942 -0.99255+0i -0.39439+0i

237 1 0.4 0.047447 0.065622 -0.99342+0i -0.49352+0i

238 1 0.3 0.040275 0.051346 -0.99453+0i -0.60148+0i

239 1 0.2 0.030522 0.035872 -0.99594+0i -0.72014+0i

240 1 0.1 0.017429 0.018889 -0.99773+0i -0.85193+0i

241 2 -4.9 26.429 0.038583 -1.0407+0i -53.181+0i

242 2 -4.8 12.555 0.02219 -1.023+0i -25.725+0i

243 2 -4.7 8.1188 0.017131 -1.0177+0i -16.945+0i

244 2 -4.6 5.936 0.014876 -1.0154+0i -12.621+0i

245 2 -4.5 4.6376 0.013758 -1.0143+0i -10.046+0i

246 2 -4.4 3.7769 0.013228 -1.0138+0i -8.336+0i

247 2 -4.3 3.1647 0.013052 -1.0137+0i -7.117+0i

248 2 -4.2 2.707 0.013117 -1.0138+0i -6.2032+0i

249 2 -4.1 2.352 0.013361 -1.0142+0i -5.492+0i

250 2 -4 2.0687 0.013747 -1.0147+0i -4.9219+0i

251 2 -3.9 1.8375 0.014255 -1.0154+0i -4.4541+0i

252 2 -3.8 1.6453 0.01487 -1.0162+0i -4.0628+0i

253 2 -3.7 1.483 0.015584 -1.0172+0i -3.73+0i

254 2 -3.6 1.3443 0.016393 -1.0183+0i -3.4431+0i

255 2 -3.5 1.2243 0.017292 -1.0197+0i -3.1925+0i

256 2 -3.4 1.1196 0.018282 -1.0212+0i -2.9714+0i

257 2 -3.3 1.0275 0.019361 -1.0229+0i -2.7743+0i

258 2 -3.2 0.94592 0.02053 -1.0248+0i -2.597+0i

259 2 -3.1 0.87313 0.021789 -1.0271+0i -2.4363+0i

260 2 -3 0.80785 0.02314 -1.0297+0i -2.2894+0i

261 2 -2.9 0.74901 0.024583 -1.0327+0i -2.1542+0i

262 2 -2.8 0.69573 0.026119 -1.0363+0i -2.0288+0i

263 2 -2.7 0.64728 0.027751 -1.0405+0i -1.9117+0i

264 2 -2.6 0.60308 0.029477 -1.0457+0i -1.8014+0i

265 2 -2.5 0.5626 0.0313 -1.0522+0i -1.6965+0i

266 2 -2.4 0.52542 0.03322 -1.0606+0i -1.5956+0i

267 2 -2.3 0.49118 0.035236 -1.0722+0i -1.4968+0i

268 2 -2.2 0.45955 0.037348 -1.0899+0i -1.3964+0i

269 2 -2.1 0.43027 0.039554 -1.1255+0i -1.2824+0i

270 2 -2 0.40309 0.041854 -1.1666-0.086421i -1.1666+0.086421i

271 2 -1.9 0.37781 0.044243 -1.1309-0.13362i -1.1309+0.13362i

272 2 -1.8 0.35425 0.046718 -1.0967-0.1593i -1.0967+0.1593i

273 2 -1.7 0.33223 0.049273 -1.0639-0.17423i -1.0639+0.17423i

274 2 -1.6 0.31162 0.051902 -1.0324-0.18185i -1.0324+0.18185i

275 2 -1.5 0.29228 0.054595 -1.0021-0.18372i -1.0021+0.18372i

276 2 -1.4 0.27408 0.057341 -0.97301-0.1806i -0.97301+0.1806i

277 2 -1.3 0.25692 0.060123 -0.94504-0.17277i -0.94504+0.17277i

278 2 -1.2 0.24069 0.062923 -0.9182-0.1601i -0.9182+0.1601i

279 2 -1.1 0.22528 0.065715 -0.89251-0.1419i -0.89251+0.1419i

280 2 -1 0.21058 0.068465 -0.86802-0.11635i -0.86802+0.11635i

281 2 -0.9 0.19649 0.071125 -0.84485-0.077588i -0.84485+0.077588i

282 2 -0.8 0.1829 0.073634 -0.87005+0i -0.77625+0i

283 2 -0.7 0.16965 0.075901 -0.90743+0i -0.69895+0i

284 2 -0.6 0.15658 0.077792 -0.92555+0i -0.64519+0i

285 2 -0.5 0.14345 0.079102 -0.93797+0i -0.60271+0i

286 2 -0.4 0.12988 0.079489 -0.94775+0i -0.5707+0i

287 2 -0.3 0.11524 0.078328 -0.95629+0i -0.55186+0i

288 2 -0.2 0.09822 0.074292 -0.96465+0i -0.55405+0i

289 2 -0.1 0.075108 0.063606 -0.97441+0i -0.60126+0i

290 2 0.1 0.094209 0.10609 -0.96708+0i -0.40439+0i

291 2 0.2 0.1256 0.15063 -0.95331+0i -0.17617+0i

292 2 0.3 0.14512 0.18383 -0.94359+0i 0.0033608+0i

293 2 0.4 0.15818 0.21084 -0.93624+0i 0.16172+0i

294 2 0.5 0.16706 0.23376 -0.93054+0i 0.30874+0i

295 2 0.6 0.17297 0.25373 -0.92606+0i 0.44903+0i

296 2 0.7 0.1767 0.27144 -0.92252+0i 0.58507+0i

297 2 0.8 0.17876 0.28737 -0.91973+0i 0.71827+0i

298 2 0.9 0.17954 0.30186 -0.91752+0i 0.84949+0i

299 2 1 0.21379 0.35654 -0.88937+0i 1.1417+0i

300 2 1.1 0.2497 0.41463 -0.85063+0i 1.3682+0i

301 2 1.2 0.27307 0.45861 -0.81521+0i 1.5036+0i

302 2 1.3 0.29074 0.49633 -0.77855+0i 1.5876+0i

303 2 1.4 0.30458 0.52986 -0.73904+0i 1.6309+0i

304 2 1.5 0.31549 0.56014 -0.69541+0i 1.638+0i

305 2 1.6 0.32404 0.58773 -0.64621+0i 1.6114+0i

306 2 1.7 0.33061 0.61301 -0.58949+0i 1.5515+0i

307 2 1.8 0.3355 0.63627 -0.52235+0i 1.4574+0i

308 2 1.9 0.33894 0.65774 -0.43991+0i 1.3259+0i

309 2 2 0.34113 0.67759 -0.3327+0i 1.1487+0i

310 2 2.1 0.34223 0.69597 -0.17655+0i 0.90281+0i

311 2 2.2 0.34238 0.71303 0.20128+0i 0.41637+0i

312 2 2.3 0.3417 0.72888 0.2455-0.53479i 0.2455+0.53479i

313 2 2.4 0.34029 0.74362 0.17352-0.77258i 0.17352+0.77258i

314 2 2.5 0.33823 0.75735 0.093189-0.95723i 0.093189+0.95723i

315 2 2.6 0.33562 0.77014 0.004803-1.1133i 0.004803+1.1133i

316 2 2.7 0.33251 0.78207 -0.091387-1.2494i -0.091387+1.2494i

317 2 2.8 0.32898 0.79321 -0.19515-1.3697i -0.19515+1.3697i

318 2 2.9 0.32507 0.80362 -0.30626-1.4762i -0.30626+1.4762i

319 2 3 0.32084 0.81334 -0.42453-1.57i -0.42453+1.57i

320 2 3.1 0.31632 0.82244 -0.54977-1.6516i -0.54977+1.6516i

321 2 3.2 0.31156 0.83096 -0.68179-1.721i -0.68179+1.721i

322 2 3.3 0.30659 0.83894 -0.82042-1.7781i -0.82042+1.7781i

323 2 3.4 0.30144 0.84642 -0.96549-1.8225i -0.96549+1.8225i

324 2 3.5 0.29614 0.85343 -1.1168-1.8534i -1.1168+1.8534i

325 2 3.6 0.29071 0.86001 -1.2742-1.87i -1.2742+1.87i

326 2 3.7 0.28517 0.86619 -1.4376-1.8709i -1.4376+1.8709i

327 2 3.8 0.27954 0.87199 -1.6066-1.8548i -1.6066+1.8548i

328 2 3.9 0.27384 0.87744 -1.7812-1.8195i -1.7812+1.8195i

329 2 4 0.26809 0.88256 -1.9611-1.7623i -1.9611+1.7623i

330 2 4.1 0.26229 0.88737 -2.1461-1.6792i -2.1461+1.6792i

331 2 4.2 0.25647 0.8919 -2.336-1.5644i -2.336+1.5644i

332 2 4.3 0.25063 0.89616 -2.5305-1.4084i -2.5305+1.4084i

333 2 4.4 0.24477 0.90017 -2.7294-1.1931i -2.7294+1.1931i

334 2 4.5 0.23892 0.90394 -2.9323-0.87343i -2.9323+0.87343i

335 2 4.6 0.23307 0.90749 -3.1869+0i -3.0911+0i

336 2 4.7 0.22724 0.91084 -4.2847+0i -2.4134+0i

337 2 4.8 0.22142 0.91398 -4.9257+0i -2.1986+0i

338 2 4.9 0.21563 0.91695 -5.4971+0i -2.0587+0i

339 2 5 0.20987 0.91973 -6.0369+0i -1.9548+0i

340 2 5.1 0.20414 0.92235 -6.5587+0i -1.8725+0i

341 2 5.2 0.19844 0.92482 -7.0686+0i -1.8045+0i

342 2 5.3 0.19279 0.92714 -7.5697+0i -1.7468+0i

343 2 5.4 0.18717 0.92932 -8.0634+0i -1.6968+0i

344 2 5.5 0.1816 0.93136 -8.5501+0i -1.6527+0i

345 2 5.6 0.17607 0.93328 -9.0297+0i -1.6134+0i

346 2 5.7 0.17059 0.93507 -9.5018+0i -1.5779+0i

347 2 5.8 0.16516 0.93675 -9.9653+0i -1.5457+0i

348 2 5.9 0.15978 0.93831 -10.419+0i -1.516+0i

349 2 6 0.15444 0.93977 -10.862+0i -1.4887+0i

350 2 6.1 0.14915 0.94112 -11.292+0i -1.4633+0i

351 2 6.2 0.14391 0.94237 -11.708+0i -1.4395+0i

352 2 6.3 0.13872 0.94351 -12.107+0i -1.4172+0i

353 2 6.4 0.13358 0.94456 -12.488+0i -1.3962+0i

354 2 6.5 0.12848 0.94551 -12.847+0i -1.3764+0i

355 2 6.6 0.12343 0.94636 -13.182+0i -1.3575+0i

356 2 6.7 0.11842 0.94711 -13.491+0i -1.3396+0i

357 2 6.8 0.11346 0.94776 -13.77+0i -1.3224+0i

358 2 6.9 0.10853 0.94831 -14.015+0i -1.306+0i

359 2 7 0.10365 0.94875 -14.223+0i -1.2902+0i

360 2 7.1 0.098791 0.94907 -14.389+0i -1.275+0i

361 2 7.2 0.093965 0.94928 -14.51+0i -1.2603+0i

362 2 7.3 0.089164 0.94934 -14.578+0i -1.2461+0i

363 2 7.4 0.08438 0.94926 -14.588+0i -1.2324+0i

364 2 7.5 0.079606 0.94901 -14.534+0i -1.219+0i

365 2 7.6 0.074829 0.94857 -14.406+0i -1.2059+0i

366 2 7.7 0.070034 0.94789 -14.194+0i -1.1931+0i

367 2 7.8 0.065199 0.94691 -13.885+0i -1.1805+0i

368 2 7.9 0.060291 0.94555 -13.46+0i -1.1681+0i

369 2 8 0.055257 0.94367 -12.892+0i -1.1557+0i

370 2 8.1 0.05 0.941 -12.139+0i -1.1432+0i

371 2 8.2 0.044304 0.93696 -11.109+0i -1.1303+0i

372 2 8.3 0.037461 0.92965 -9.5297+0i -1.1161+0i

373 2 8.4 0.029076 0.91792 -7.3514+0i -1.0987+0i

374 2 8.5 0.028429 0.92676 -8.0471+0i -1.0893+0i

375 2 8.6 0.0278 0.93562 -8.7666+0i -1.0814+0i

376 2 8.7 0.027188 0.9445 -9.5104+0i -1.0746+0i

377 2 8.8 0.026594 0.9534 -10.279+0i -1.0687+0i

378 2 8.9 0.026015 0.96232 -11.074+0i -1.0636+0i

379 2 9 0.025453 0.97127 -11.895+0i -1.059+0i

380 2 9.1 0.024905 0.98023 -12.742+0i -1.055+0i

381 2 9.2 0.024373 0.98922 -13.616+0i -1.0514+0i

382 2 9.3 0.023855 0.99823 -14.518+0i -1.0481+0i

383 2 9.3 0.023855 0.99823 -14.518+0i -1.0481+0i

384 2 9.2 0.024373 0.98922 -13.616+0i -1.0514+0i

385 2 9.1 0.024905 0.98023 -12.742+0i -1.055+0i

386 2 9 0.025453 0.97127 -11.895+0i -1.059+0i

387 2 8.9 0.026015 0.96232 -11.074+0i -1.0636+0i

388 2 8.8 0.026594 0.9534 -10.279+0i -1.0687+0i

389 2 8.7 0.027188 0.9445 -9.5104+0i -1.0746+0i

390 2 8.6 0.0278 0.93562 -8.7666+0i -1.0814+0i

391 2 8.5 0.028429 0.92676 -8.0471+0i -1.0893+0i

392 2 8.4 0.029076 0.91792 -7.3514+0i -1.0987+0i

393 2 8.3 0.023614 0.89281 -4.8144+0i -1.1031+0i

394 2 8.2 0.020897 0.87517 -3.5349+0i -1.1156+0i

395 2 8.1 0.019385 0.86079 -2.7223+0i -1.1392+0i

396 2 8 0.018367 0.84775 -2.0926+0i -1.1872+0i

397 2 7.9 0.017632 0.83549 -1.4103-0.1036i -1.4103+0.1036i

398 2 7.8 0.017083 0.82373 -1.222-0.33225i -1.222+0.33225i

399 2 7.7 0.016667 0.81233 -1.0636-0.3745i -1.0636+0.3745i

400 2 7.6 0.016352 0.80121 -0.92797-0.35584i -0.92797+0.35584i

401 2 7.5 0.016118 0.79029 -0.81037-0.29244i -0.81037+0.29244i

402 2 7.4 0.015948 0.77955 -0.70735-0.16478i -0.70735+0.16478i

403 2 7.3 0.015834 0.76895 -0.82074+0i -0.41204+0i

404 2 7.2 0.015768 0.75847 -0.87713+0i -0.19399+0i

405 2 7.1 0.015743 0.7481 -0.90435+0i -0.022381+0i

406 2 7 0.015756 0.73781 -0.9211+0i 0.12386+0i

407 2 6.9 0.015803 0.72761 -0.93256+0i 0.25186+0i

408 2 6.8 0.015881 0.71748 -0.94092+0i 0.36536+0i

409 2 6.7 0.015989 0.70741 -0.94729+0i 0.46679+0i

410 2 6.6 0.016124 0.69741 -0.95229+0i 0.55786+0i

411 2 6.5 0.016287 0.68746 -0.95631+0i 0.6399+0i

412 2 6.4 0.016475 0.67756 -0.9596+0i 0.71394+0i

413 2 6.3 0.016689 0.66772 -0.96234+0i 0.78084+0i

414 2 6.2 0.016928 0.65792 -0.96464+0i 0.8413+0i

415 2 6.1 0.017191 0.64816 -0.96659+0i 0.89593+0i

416 2 6 0.01748 0.63846 -0.96826+0i 0.94524+0i

417 2 5.9 0.017793 0.62879 -0.9697+0i 0.98967+0i

418 2 5.8 0.018131 0.61916 -0.97095+0i 1.0296+0i

419 2 5.7 0.018495 0.60958 -0.97204+0i 1.0654+0i

420 2 5.6 0.018885 0.60004 -0.97298+0i 1.0973+0i

421 2 5.5 0.019302 0.59053 -0.97381+0i 1.1257+0i

422 2 5.4 0.019746 0.58107 -0.97453+0i 1.1506+0i

423 2 5.3 0.020219 0.57165 -0.97516+0i 1.1725+0i

424 2 5.2 0.020721 0.56227 -0.97571+0i 1.1914+0i

425 2 5.1 0.021254 0.55293 -0.97618+0i 1.2075+0i

426 2 5 0.021818 0.54364 -0.9766+0i 1.221+0i

427 2 4.9 0.022416 0.53438 -0.97695+0i 1.232+0i

428 2 4.8 0.023048 0.52517 -0.97725+0i 1.2407+0i

429 2 4.7 0.023716 0.51601 -0.9775+0i 1.2471+0i

430 2 4.6 0.024422 0.50689 -0.9777+0i 1.2514+0i

431 2 4.5 0.025168 0.49782 -0.97786+0i 1.2536+0i

432 2 4.4 0.025955 0.4888 -0.97798+0i 1.2539+0i

433 2 4.3 0.026787 0.47982 -0.97806+0i 1.2524+0i

434 2 4.2 0.027665 0.4709 -0.9781+0i 1.2491+0i

435 2 4.1 0.028592 0.46204 -0.97811+0i 1.2441+0i

436 2 4 0.029571 0.45323 -0.97809+0i 1.2374+0i

437 2 3.9 0.030604 0.44448 -0.97803+0i 1.2292+0i

438 2 3.8 0.031696 0.43579 -0.97794+0i 1.2195+0i

439 2 3.7 0.03285 0.42716 -0.97782+0i 1.2084+0i

440 2 3.6 0.034069 0.4186 -0.97766+0i 1.1958+0i

441 2 3.5 0.035358 0.41011 -0.97747+0i 1.182+0i

442 2 3.4 0.036721 0.40169 -0.97724+0i 1.1668+0i

443 2 3.3 0.038164 0.39335 -0.97699+0i 1.1505+0i

444 2 3.2 0.039692 0.3851 -0.97669+0i 1.1329+0i

445 2 3.1 0.041312 0.37693 -0.97636+0i 1.1143+0i

446 2 3 0.04303 0.36885 -0.97599+0i 1.0945+0i

447 2 2.9 0.044854 0.36087 -0.97558+0i 1.0738+0i

448 2 2.8 0.046792 0.353 -0.97512+0i 1.0521+0i

449 2 2.7 0.048855 0.34524 -0.97462+0i 1.0296+0i

450 2 2.6 0.051053 0.3376 -0.97406+0i 1.0062+0i

451 2 2.5 0.053399 0.3301 -0.97345+0i 0.98208+0i

452 2 2.4 0.055908 0.32274 -0.97278+0i 0.95731+0i

453 2 2.3 0.058597 0.31555 -0.97203+0i 0.93198+0i

454 2 2.2 0.061487 0.30854 -0.97121+0i 0.90621+0i

455 2 2.1 0.064603 0.30174 -0.9703+0i 0.88015+0i

456 2 2 0.067976 0.29517 -0.96929+0i 0.85395+0i

457 2 1.9 0.071644 0.28887 -0.96816+0i 0.82786+0i

458 2 1.8 0.075659 0.2829 -0.96688+0i 0.80214+0i

459 2 1.7 0.080089 0.27732 -0.96541+0i 0.7772+0i

460 2 1.6 0.085026 0.27223 -0.96372+0i 0.75358+0i

461 2 1.5 0.090608 0.26779 -0.96174+0i 0.73207+0i

462 2 1.4 0.097047 0.26422 -0.95933+0i 0.71394+0i

463 2 1.3 0.1047 0.26192 -0.95632+0i 0.7013+0i

464 2 1.2 0.11424 0.26166 -0.95232+0i 0.69822+0i

465 2 1.1 0.12729 0.26529 -0.94638+0i 0.71425+0i

466 2 1 0.15039 0.28047 -0.93442+0i 0.78778+0i

467 2 0.9 0.17954 0.30186 -0.91752+0i 0.84949+0i

468 2 0.8 0.17876 0.28737 -0.91973+0i 0.71827+0i

469 2 0.7 0.1767 0.27144 -0.92252+0i 0.58507+0i

470 2 0.6 0.17297 0.25373 -0.92606+0i 0.44903+0i

471 2 0.5 0.16706 0.23376 -0.93054+0i 0.30874+0i

472 2 0.4 0.15818 0.21084 -0.93624+0i 0.16172+0i

473 2 0.3 0.14512 0.18383 -0.94359+0i 0.0033608+0i

474 2 0.2 0.1256 0.15063 -0.95331+0i -0.17617+0i

475 2 0.1 0.094209 0.10609 -0.96708+0i -0.40439+0i

476 4 -4.9 12.724 0.018954 -1.0194+0i -51.563+0i

477 4 -4.8 6.1371 0.010971 -1.0112+0i -25.359+0i

478 4 -4.7 3.9874 0.0084874 -1.0086+0i -16.804+0i

479 4 -4.6 2.9211 0.0073764 -1.0075+0i -12.56+0i

480 4 -4.5 2.2841 0.0068239 -1.007+0i -10.023+0i

481 4 -4.4 1.8607 0.0065606 -1.0067+0i -8.3347+0i

482 4 -4.3 1.5588 0.006472 -1.0066+0i -7.1302+0i

483 4 -4.2 1.3328 0.0065018 -1.0067+0i -6.227+0i

484 4 -4.1 1.1573 0.006619 -1.0068+0i -5.5242+0i

485 4 -4 1.017 0.006806 -1.007+0i -4.9615+0i

486 4 -3.9 0.90239 0.0070516 -1.0073+0i -4.5005+0i

487 4 -3.8 0.80698 0.007349 -1.0077+0i -4.1156+0i

488 4 -3.7 0.72633 0.0076938 -1.0081+0i -3.7892+0i

489 4 -3.6 0.65729 0.008083 -1.0085+0i -3.5086+0i

490 4 -3.5 0.59752 0.0085149 -1.0091+0i -3.2645+0i

491 4 -3.4 0.54529 0.0089882 -1.0096+0i -3.0501+0i

492 4 -3.3 0.49927 0.009502 -1.0103+0i -2.8601+0i

493 4 -3.2 0.45841 0.010056 -1.011+0i -2.6903+0i

494 4 -3.1 0.42191 0.010649 -1.0118+0i -2.5374+0i

495 4 -3 0.3891 0.011281 -1.0127+0i -2.399+0i

496 4 -2.9 0.35946 0.011951 -1.0137+0i -2.2728+0i

497 4 -2.8 0.33257 0.012658 -1.0147+0i -2.1572+0i

498 4 -2.7 0.30805 0.013402 -1.0159+0i -2.0507+0i

499 4 -2.6 0.2856 0.01418 -1.0173+0i -1.9522+0i

500 4 -2.5 0.26499 0.014991 -1.0187+0i -1.8606+0i

501 4 -2.4 0.24599 0.015833 -1.0204+0i -1.7752+0i

502 4 -2.3 0.22843 0.016702 -1.0223+0i -1.6951+0i

503 4 -2.2 0.21214 0.017594 -1.0245+0i -1.6198+0i

504 4 -2.1 0.19699 0.018506 -1.0271+0i -1.5487+0i

505 4 -2 0.18286 0.019431 -1.0301+0i -1.4812+0i

506 4 -1.9 0.16965 0.020363 -1.0338+0i -1.4169+0i

507 4 -1.8 0.15726 0.021292 -1.0385+0i -1.3551+0i

508 4 -1.7 0.14561 0.022211 -1.0448+0i -1.295+0i

509 4 -1.6 0.13464 0.023106 -1.0542+0i -1.235+0i

510 4 -1.5 0.12426 0.023963 -1.072+0i -1.1696+0i

511 4 -1.4 0.11442 0.024765 -1.0984-0.044105i -1.0984+0.044105i

512 4 -1.3 0.10506 0.025492 -1.0774-0.070719i -1.0774+0.070719i

513 4 -1.2 0.096131 0.026119 -1.0579-0.083445i -1.0579+0.083445i

514 4 -1.1 0.087574 0.026615 -1.0398-0.089409i -1.0398+0.089409i

515 4 -1 0.079341 0.026945 -1.0232-0.090818i -1.0232+0.090818i

516 4 -0.9 0.07138 0.027063 -1.0083-0.088731i -1.0083+0.088731i

517 4 -0.8 0.063639 0.026913 -0.99509-0.083763i -0.99509+0.083763i

518 4 -0.7 0.05606 0.026424 -0.98382-0.076316i -0.98382+0.076316i

519 4 -0.6 0.048582 0.025505 -0.97472-0.066684i -0.97472+0.066684i

520 4 -0.5 0.041132 0.024038 -0.96815-0.055116i -0.96815+0.055116i

521 4 -0.4 0.033623 0.021866 -0.96459-0.041861i -0.96459+0.041861i

522 4 -0.3 0.025943 0.018772 -0.96471-0.027201i -0.96471+0.027201i

523 4 -0.2 0.017942 0.014448 -0.96951-0.011056i -0.96951+0.011056i

524 4 -0.1 0.0094052 0.0084341 -0.98831+0i -0.97262+0i

525 4 0.5 0.11813 0.30988 -0.70055-0.035234i -0.70055+0.035234i

526 4 0.6 0.12231 0.33397 -0.7296+0i -0.60376+0i

527 4 0.7 0.12494 0.35487 -0.74238+0i -0.52331+0i

528 4 0.8 0.12641 0.37326 -0.75049+0i -0.4472+0i

529 4 0.9 0.12695 0.38961 -0.75704+0i -0.37215+0i

530 4 1 0.12679 0.4043 -0.7628+0i -0.29736+0i

531 4 1.1 0.12606 0.4176 -0.76804+0i -0.22259+0i

532 4 1.2 0.12489 0.42973 -0.77289+0i -0.14778+0i

533 4 1.3 0.12337 0.44089 -0.77741+0i -0.072976+0i

534 4 1.4 0.12157 0.45122 -0.78163+0i 0.0017247+0i

535 4 1.5 0.11955 0.46084 -0.78557+0i 0.076213+0i

536 4 1.6 0.11737 0.46986 -0.78926+0i 0.15036+0i

537 4 1.7 0.11506 0.47836 -0.79271+0i 0.22402+0i

538 4 1.8 0.11266 0.48643 -0.79592+0i 0.29704+0i

539 4 1.9 0.11019 0.49412 -0.7989+0i 0.36927+0i

540 4 2 0.10768 0.5015 -0.80166+0i 0.44055+0i

541 4 2.1 0.10514 0.5086 -0.80421+0i 0.51071+0i

542 4 2.2 0.1026 0.51548 -0.80656+0i 0.57957+0i

543 4 2.3 0.10006 0.52217 -0.8087+0i 0.64696+0i

544 4 2.4 0.097531 0.52869 -0.81063+0i 0.71269+0i

545 4 2.5 0.09503 0.53509 -0.81237+0i 0.77658+0i

546 4 2.6 0.092559 0.54138 -0.81391+0i 0.83843+0i

547 4 2.7 0.090125 0.54758 -0.81526+0i 0.89805+0i

548 4 2.8 0.087732 0.55372 -0.8164+0i 0.95524+0i

549 4 2.9 0.085384 0.55981 -0.81735+0i 1.0098+0i

550 4 3 0.083083 0.56587 -0.81809+0i 1.0615+0i

551 4 3.1 0.080833 0.5719 -0.81863+0i 1.1101+0i

552 4 3.2 0.078634 0.57792 -0.81895+0i 1.1555+0i

553 4 3.3 0.076488 0.58394 -0.81905+0i 1.1973+0i

554 4 3.4 0.074395 0.58997 -0.81893+0i 1.2354+0i

555 4 3.5 0.072356 0.59601 -0.81856+0i 1.2695+0i

556 4 3.6 0.07037 0.60207 -0.81795+0i 1.2994+0i

557 4 3.7 0.071173 0.61768 -0.79987+0i 1.2983+0i

558 4 3.8 0.079074 0.65834 -0.71225+0i 1.118+0i

559 4 3.9 0.081989 0.68188 -0.63793+0i 0.94149+0i

560 4 4 0.083552 0.70079 -0.5503+0i 0.74057+0i

561 4 4.1 0.084336 0.71698 -0.42866+0i 0.49578+0i

562 4 4.2 0.084583 0.73127 -0.15718+0i 0.092346+0i

563 4 4.3 0.084427 0.74407 -0.10234-0.41956i -0.10234+0.41956i

564 4 4.4 0.083954 0.75567 -0.17578-0.59939i -0.17578+0.59939i

565 4 4.5 0.083223 0.76625 -0.25236-0.72955i -0.25236+0.72955i

566 4 4.6 0.082276 0.77594 -0.33169-0.83251i -0.33169+0.83251i

567 4 4.7 0.081148 0.78486 -0.4134-0.91654i -0.4134+0.91654i

568 4 4.8 0.079866 0.79308 -0.49714-0.98567i -0.49714+0.98567i

569 4 4.9 0.078451 0.80067 -0.5825-1.0422i -0.5825+1.0422i

570 4 5 0.07692 0.80768 -0.66912-1.0875i -0.66912+1.0875i

571 4 5.1 0.075289 0.81417 -0.75657-1.1226i -0.75657+1.1226i

572 4 5.2 0.07357 0.82016 -0.84443-1.148i -0.84443+1.148i

573 4 5.3 0.071772 0.8257 -0.93224-1.1642i -0.93224+1.1642i

574 4 5.4 0.069906 0.83081 -1.0195-1.1716i -1.0195+1.1716i

575 4 5.5 0.067977 0.8355 -1.1057-1.1704i -1.1057+1.1704i

576 4 5.6 0.065992 0.8398 -1.1903-1.1609i -1.1903+1.1609i

577 4 5.7 0.063955 0.84373 -1.2726-1.1432i -1.2726+1.1432i

578 4 5.8 0.06187 0.84728 -1.3519-1.1176i -1.3519+1.1176i

579 4 5.9 0.059738 0.85046 -1.4274-1.0846i -1.4274+1.0846i

580 4 6 0.057561 0.85327 -1.4983-1.0443i -1.4983+1.0443i

581 4 6.1 0.055338 0.8557 -1.5634-0.9976i -1.5634+0.9976i

582 4 6.2 0.053066 0.85773 -1.6216-0.94518i -1.6216+0.94518i

583 4 6.3 0.050739 0.85934 -1.6714-0.88836i -1.6714+0.88836i

584 4 6.4 0.048347 0.86046 -1.7108-0.82906i -1.7108+0.82906i

585 4 6.5 0.045875 0.86102 -1.7373-0.77023i -1.7373+0.77023i

586 4 6.6 0.043295 0.86089 -1.7474-0.7163i -1.7474+0.7163i

587 4 6.7 0.040557 0.8598 -1.7354-0.67387i -1.7354+0.67387i

588 4 6.8 0.037552 0.85725 -1.6906-0.65203i -1.6906+0.65203i

589 4 6.9 0.033953 0.85162 -1.5837-0.66235i -1.5837+0.66235i

590 4 7 0.028575 0.83716 -1.3289-0.68932i -1.3289+0.68932i

591 4 7.1 0.027886 0.84497 -1.4651-0.60867i -1.4651+0.60867i

592 4 7.2 0.027218 0.85282 -1.6081-0.46944i -1.6081+0.46944i

593 4 7.3 0.026569 0.86072 -1.7581-0.13692i -1.7581+0.13692i

594 4 7.4 0.02594 0.86866 -2.4062+0i -1.4244+0i

595 4 7.5 0.025328 0.87664 -2.8319+0i -1.3275+0i

596 4 7.6 0.024735 0.88466 -3.2331+0i -1.2701+0i

597 4 7.7 0.024158 0.89272 -3.6317+0i -1.2304+0i

598 4 7.8 0.023599 0.90083 -4.0356+0i -1.2007+0i

599 4 7.9 0.023055 0.90896 -4.4488+0i -1.1776+0i

600 4 8 0.022527 0.91714 -4.8735+0i -1.1589+0i

601 4 8.1 0.022014 0.92535 -5.3112+0i -1.1434+0i

602 4 8.2 0.021515 0.9336 -5.7631+0i -1.1304+0i

603 4 8.3 0.021031 0.94188 -6.23+0i -1.1193+0i

604 4 8.4 0.02056 0.9502 -6.7124+0i -1.1097+0i

605 4 8.5 0.020102 0.95855 -7.2111+0i -1.1014+0i

606 4 8.6 0.019658 0.96694 -7.7264+0i -1.094+0i

607 4 8.7 0.019225 0.97535 -8.259+0i -1.0875+0i

608 4 8.8 0.018804 0.9838 -8.809+0i -1.0817+0i

609 4 8.9 0.018395 0.99228 -9.3771+0i -1.0764+0i

610 4 8.9 0.018395 0.99228 -9.3771+0i -1.0764+0i

611 4 8.8 0.018804 0.9838 -8.809+0i -1.0817+0i

612 4 8.7 0.019225 0.97535 -8.259+0i -1.0875+0i

613 4 8.6 0.019658 0.96694 -7.7264+0i -1.094+0i

614 4 8.5 0.020102 0.95855 -7.2111+0i -1.1014+0i

615 4 8.4 0.02056 0.9502 -6.7124+0i -1.1097+0i

616 4 8.3 0.021031 0.94188 -6.23+0i -1.1193+0i

617 4 8.2 0.021515 0.9336 -5.7631+0i -1.1304+0i

618 4 8.1 0.022014 0.92535 -5.3112+0i -1.1434+0i

619 4 8 0.022527 0.91714 -4.8735+0i -1.1589+0i

620 4 7.9 0.023055 0.90896 -4.4488+0i -1.1776+0i

621 4 7.8 0.023599 0.90083 -4.0356+0i -1.2007+0i

622 4 7.7 0.024158 0.89272 -3.6317+0i -1.2304+0i

623 4 7.6 0.024735 0.88466 -3.2331+0i -1.2701+0i

624 4 7.5 0.025328 0.87664 -2.8319+0i -1.3275+0i

625 4 7.4 0.02594 0.86866 -2.4062+0i -1.4244+0i

626 4 7.3 0.026569 0.86072 -1.7581-0.13692i -1.7581+0.13692i

627 4 7.2 0.027218 0.85282 -1.6081-0.46944i -1.6081+0.46944i

628 4 7.1 0.027886 0.84497 -1.4651-0.60867i -1.4651+0.60867i

629 4 7 0.028575 0.83716 -1.3289-0.68932i -1.3289+0.68932i

630 4 6.9 0.025257 0.81022 -0.94581-0.65452i -0.94581+0.65452i

631 4 6.8 0.023991 0.79324 -0.75738-0.55615i -0.75738+0.55615i

632 4 6.7 0.023343 0.77925 -0.6255-0.43514i -0.6255+0.43514i

633 4 6.6 0.022985 0.76665 -0.52165-0.27064i -0.52165+0.27064i

634 4 6.5 0.022808 0.75492 -0.62909+0i -0.24239+0i

635 4 6.4 0.02276 0.74379 -0.73938+0i 0.014093+0i

636 4 6.3 0.022815 0.73312 -0.78947+0i 0.19078+0i

637 4 6.2 0.022954 0.72283 -0.82032+0i 0.33263+0i

638 4 6.1 0.023168 0.71287 -0.84155+0i 0.45207+0i

639 4 6 0.023449 0.70318 -0.85711+0i 0.55511+0i

640 4 5.9 0.023794 0.69374 -0.86896+0i 0.6453+0i

641 4 5.8 0.024201 0.68455 -0.87822+0i 0.725+0i

642 4 5.7 0.024667 0.67557 -0.88559+0i 0.79591+0i

643 4 5.6 0.025194 0.66682 -0.89152+0i 0.85931+0i

644 4 5.5 0.025783 0.65829 -0.89632+0i 0.9162+0i

645 4 5.4 0.026435 0.64997 -0.9002+0i 0.96738+0i

646 4 5.3 0.027155 0.64188 -0.90331+0i 1.0135+0i

647 4 5.2 0.027946 0.63402 -0.90577+0i 1.0552+0i

648 4 5.1 0.028813 0.62641 -0.90766+0i 1.0928+0i

649 4 5 0.029764 0.61906 -0.90903+0i 1.1269+0i

650 4 4.9 0.030806 0.61199 -0.90993+0i 1.1577+0i

651 4 4.8 0.031949 0.60524 -0.91036+0i 1.1856+0i

652 4 4.7 0.033205 0.59884 -0.91033+0i 1.211+0i

653 4 4.6 0.034591 0.59283 -0.90982+0i 1.234+0i

654 4 4.5 0.036126 0.58728 -0.90881+0i 1.2549+0i

655 4 4.4 0.037837 0.58227 -0.90723+0i 1.274+0i

656 4 4.3 0.039759 0.5779 -0.90498+0i 1.2916+0i

657 4 4.2 0.041942 0.57435 -0.9019+0i 1.3077+0i

658 4 4.1 0.044462 0.57184 -0.89773+0i 1.3225+0i

659 4 4 0.047441 0.57079 -0.89198+0i 1.3362+0i

660 4 3.9 0.051109 0.57195 -0.88367+0i 1.3482+0i

661 4 3.8 0.056026 0.57721 -0.87019+0i 1.3569+0i

662 4 3.7 0.065809 0.59901 -0.832+0i 1.3407+0i

663 4 3.6 0.07037 0.60207 -0.81795+0i 1.2994+0i

664 4 3.5 0.072356 0.59601 -0.81856+0i 1.2695+0i

665 4 3.4 0.074395 0.58997 -0.81893+0i 1.2354+0i

666 4 3.3 0.076488 0.58394 -0.81905+0i 1.1973+0i

667 4 3.2 0.078634 0.57792 -0.81895+0i 1.1555+0i

668 4 3.1 0.080833 0.5719 -0.81863+0i 1.1101+0i

669 4 3 0.083083 0.56587 -0.81809+0i 1.0615+0i

670 4 2.9 0.085384 0.55981 -0.81735+0i 1.0098+0i

671 4 2.8 0.087732 0.55372 -0.8164+0i 0.95524+0i

672 4 2.7 0.090125 0.54758 -0.81526+0i 0.89805+0i

673 4 2.6 0.092559 0.54138 -0.81391+0i 0.83843+0i

674 4 2.5 0.09503 0.53509 -0.81237+0i 0.77658+0i

675 4 2.4 0.097531 0.52869 -0.81063+0i 0.71269+0i

676 4 2.3 0.10006 0.52217 -0.8087+0i 0.64696+0i

677 4 2.2 0.1026 0.51548 -0.80656+0i 0.57957+0i

678 4 2.1 0.10514 0.5086 -0.80421+0i 0.51071+0i

679 4 2 0.10768 0.5015 -0.80166+0i 0.44055+0i

680 4 1.9 0.11019 0.49412 -0.7989+0i 0.36927+0i

681 4 1.8 0.11266 0.48643 -0.79592+0i 0.29704+0i

682 4 1.7 0.11506 0.47836 -0.79271+0i 0.22402+0i

683 4 1.6 0.11737 0.46986 -0.78926+0i 0.15036+0i

684 4 1.5 0.11955 0.46084 -0.78557+0i 0.076213+0i

685 4 1.4 0.12157 0.45122 -0.78163+0i 0.0017247+0i

686 4 1.3 0.12337 0.44089 -0.77741+0i -0.072976+0i

687 4 1.2 0.12489 0.42973 -0.77289+0i -0.14778+0i

688 4 1.1 0.12606 0.4176 -0.76804+0i -0.22259+0i

689 4 1 0.12679 0.4043 -0.7628+0i -0.29736+0i

690 4 0.9 0.12695 0.38961 -0.75704+0i -0.37215+0i

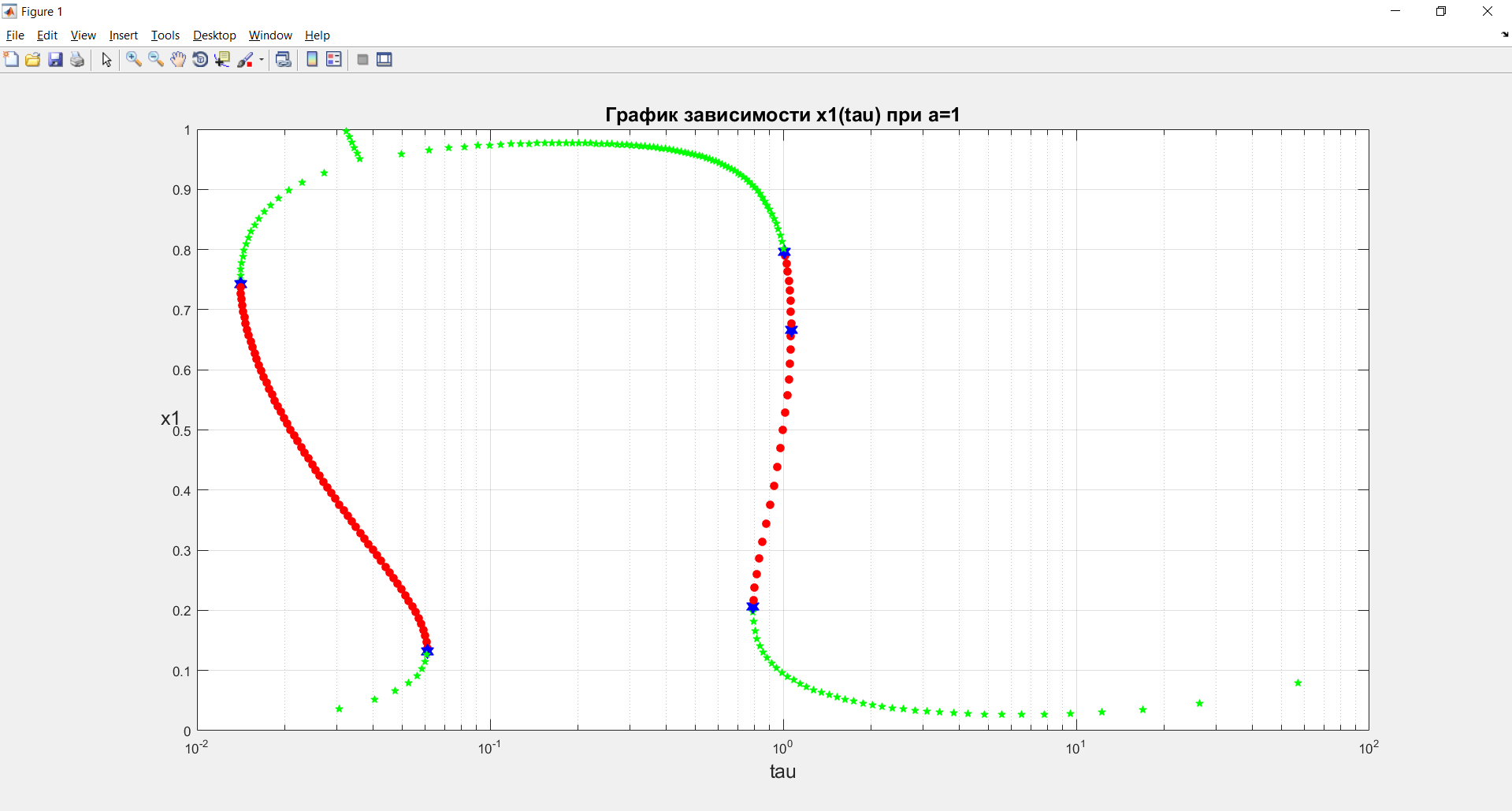
691 4 0.8 0.12641 0.37326 -0.75049+0i -0.4472+0i

692 4 0.7 0.12494 0.35487 -0.74238+0i -0.52331+0i

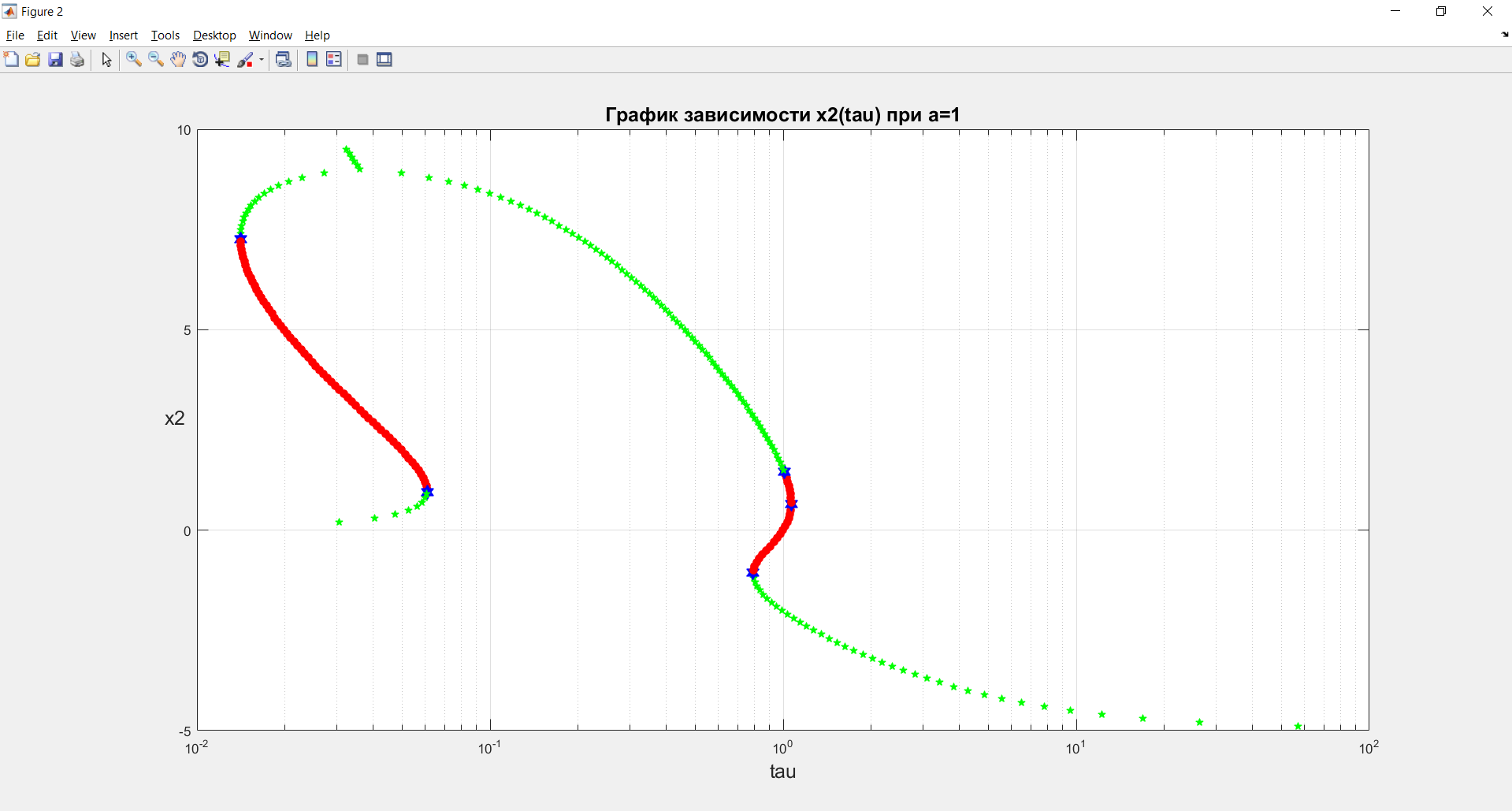
693 4 0.6 0.12231 0.33397 -0.7296+0i -0.60376+0i

694 4 0.5 0.11813 0.30988 -0.70055-0.035234i -0.70055+0.035234i

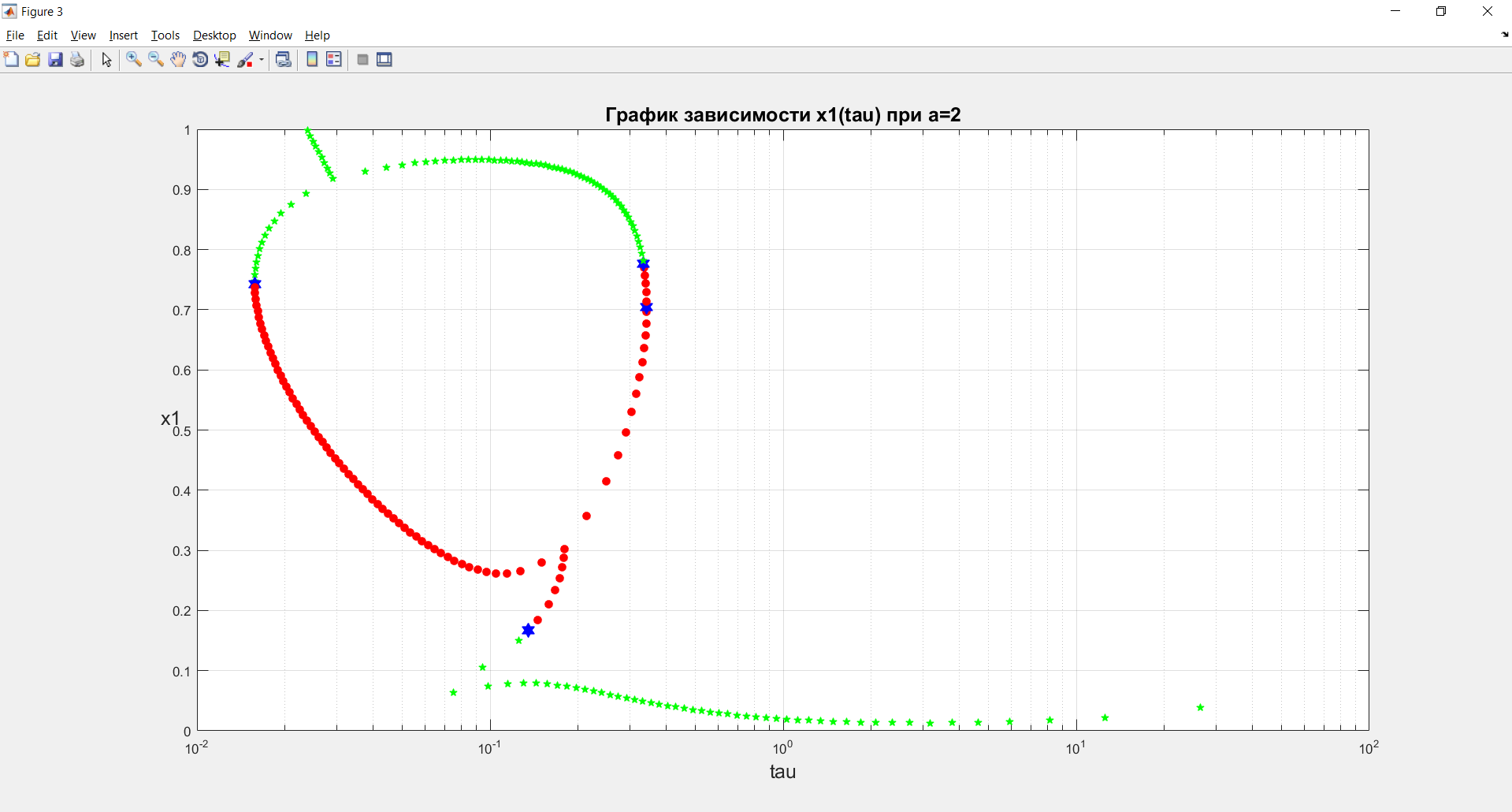
## График x1(tau) при а=1



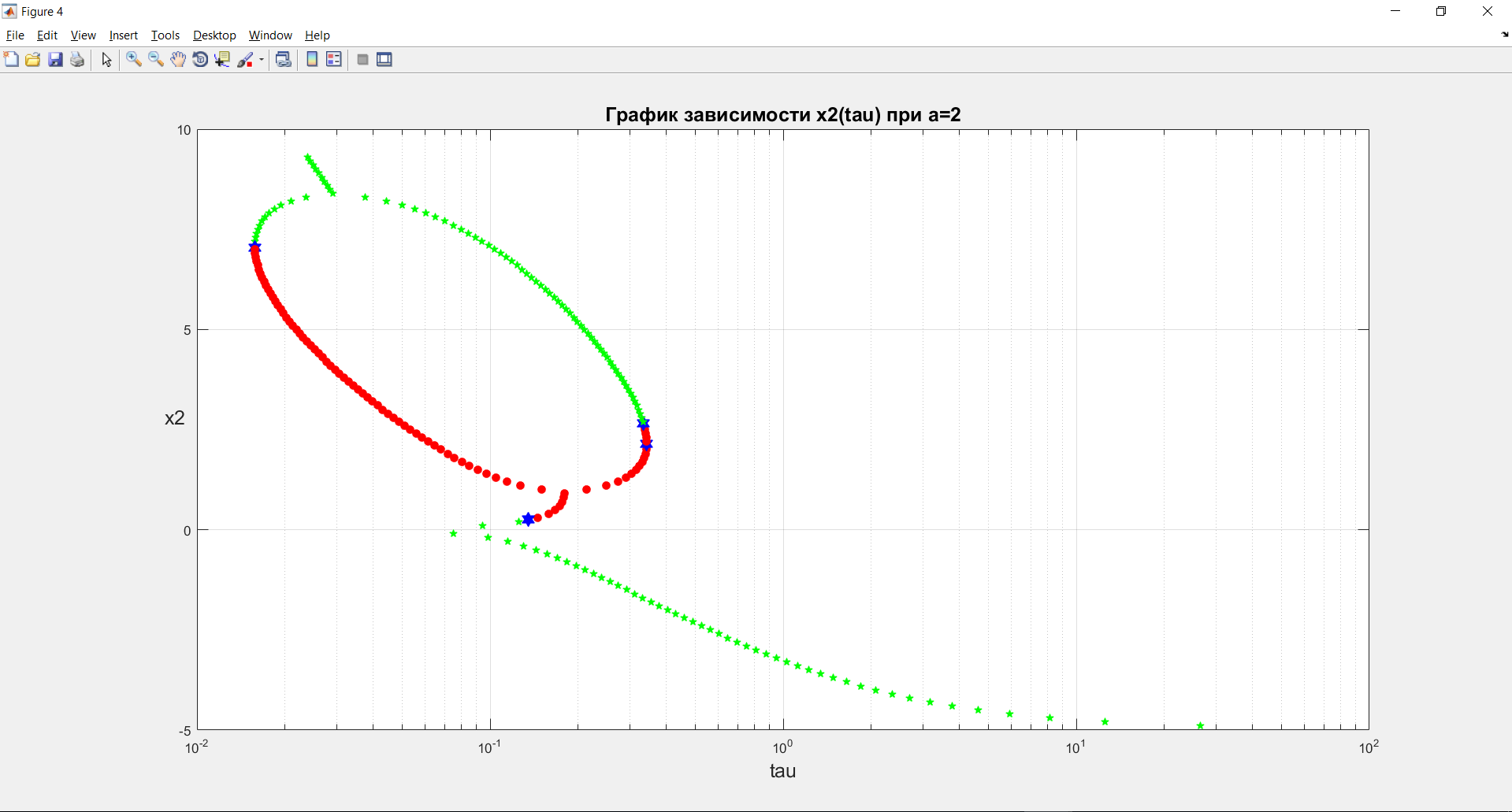
## Графи x2(tau) при а=1



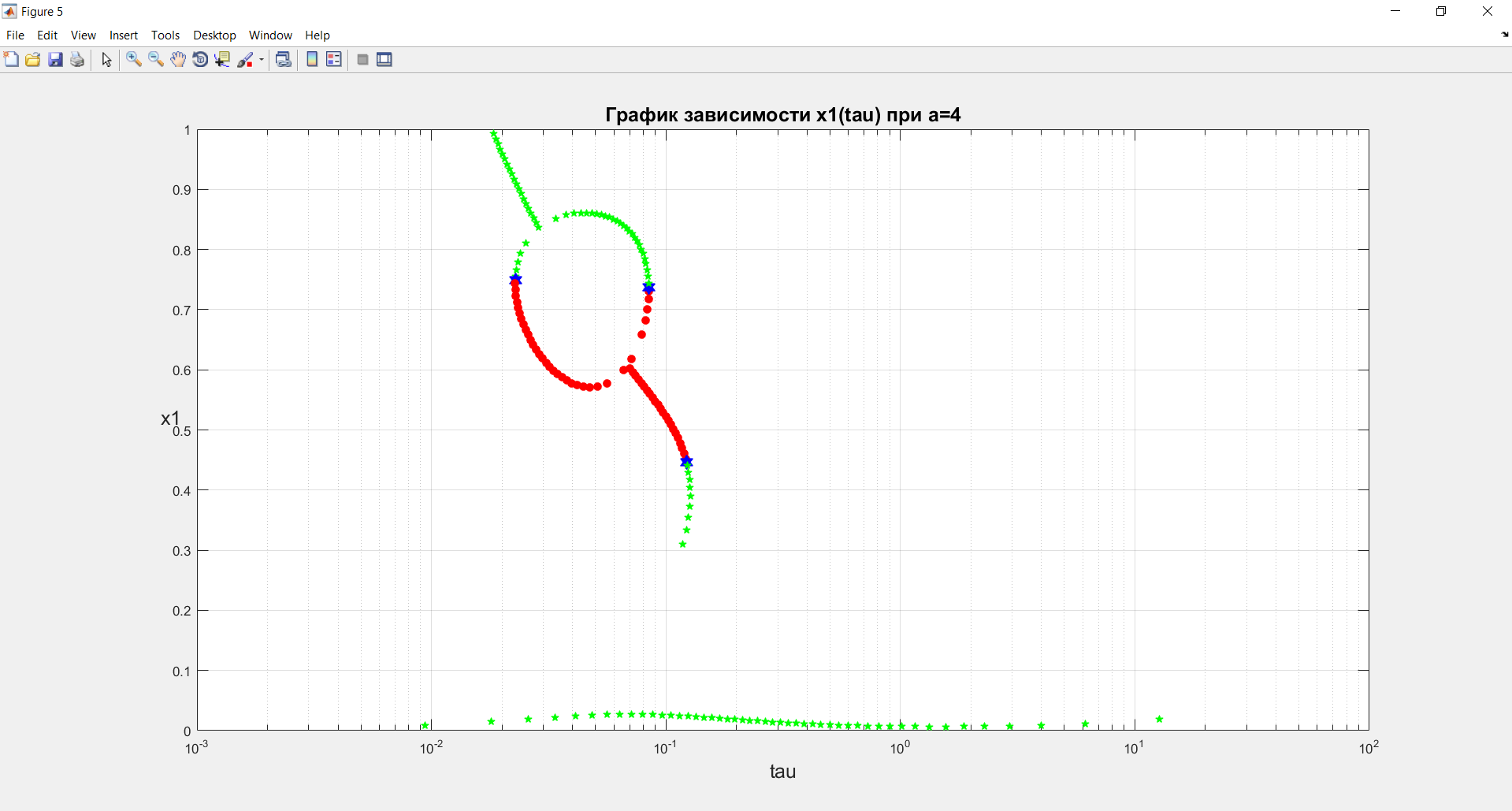
## График x1(tau) при а=2



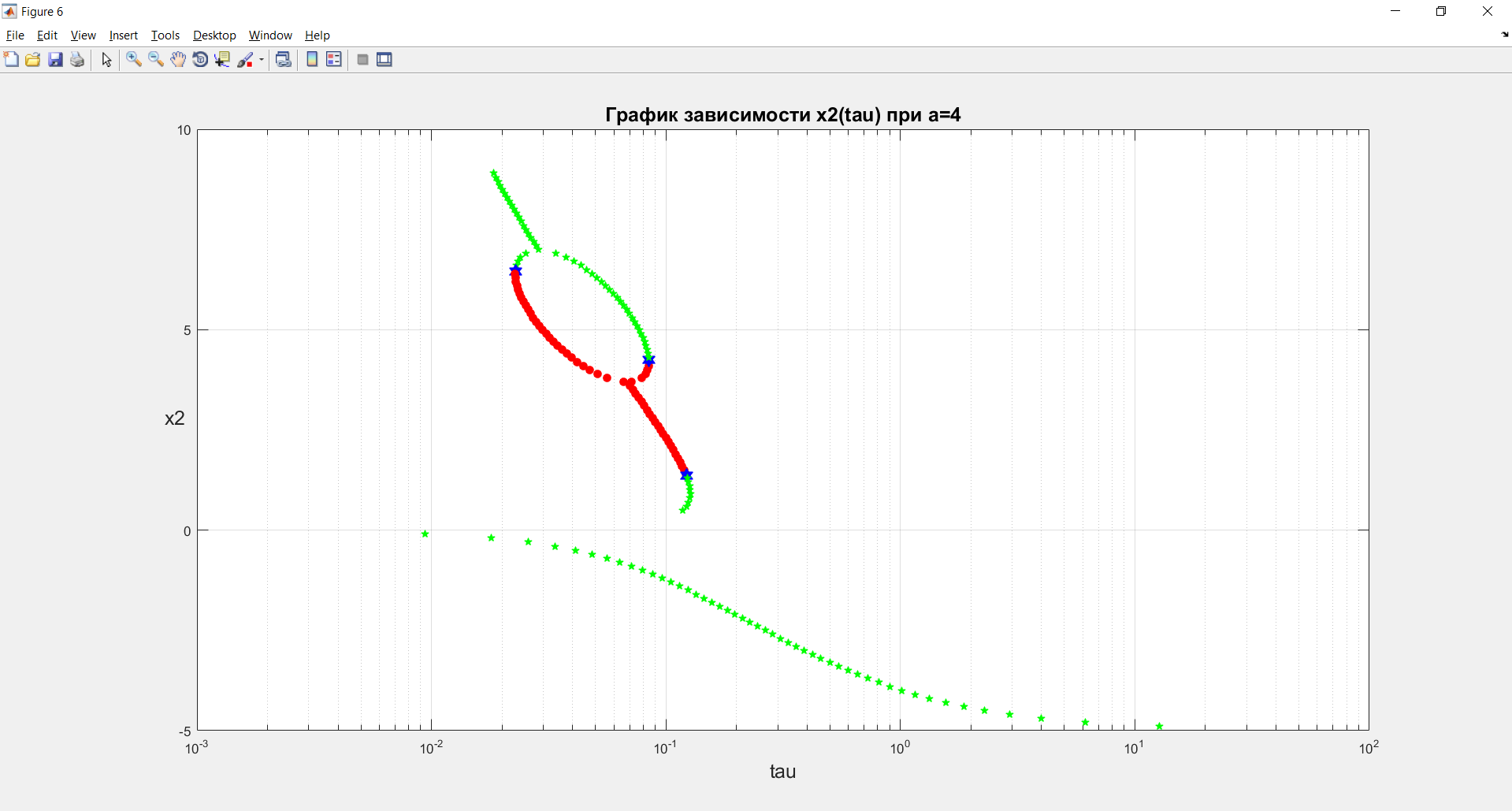
## График x2(tau) при а=2



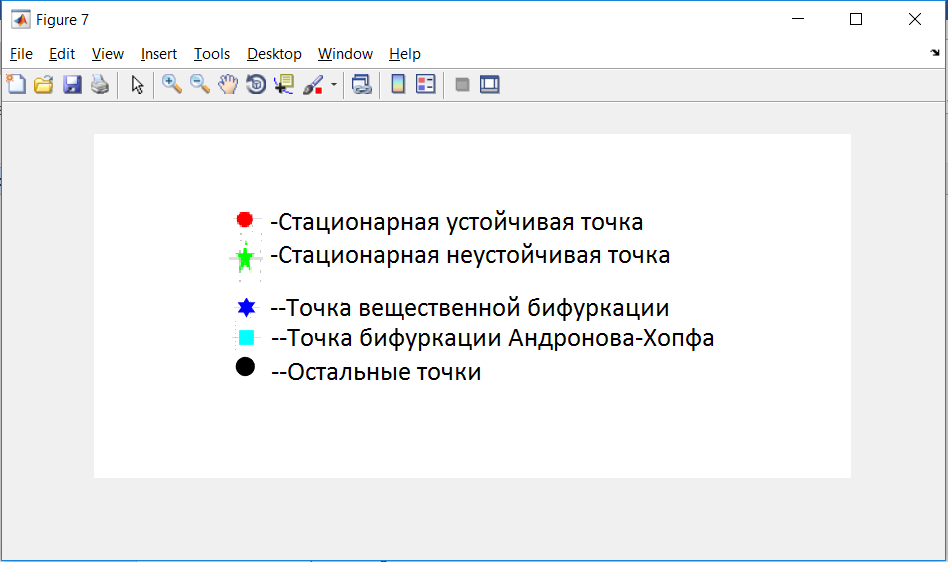
## График x1(tau) при а=4



## График x2(tau) при а=4



## Легенда для точек ко всем графикам



# **Блок проверки**

Возьмем по 2 точки на основе полученных графиков для каждого а и выполним проверку. Для этого подставим полученные значения a,tau,x1,x2 в исходную систему уравнений, затем вычислим определитель матрицы Якоби.

## Список произвольно выбранных точек:

a=1 | x2= -0.5 | tau= 0.87532 | x1= 0.34390 | L1= -0.76913 | L2= 0.98723 | detJ= -0.7593 | dx1dt= -8.2394e-06 | dx2dt= -2.2394e-05

a=1 | x2= 4.1 | tau= 0.02544 | x1= 0.43315 | L1=-0.9911 | L2=1.1846 | detJ= -1.1742 | dx1dt= 2.9332e-05 | dx2dt= 2.8932e-04

a=2 | x2= 2.4 | tau= 0.34029 | x1= 0.74362 | L1=0.17352+0.77258i | L2=0.17352-0.77258i | detJ= 0.6269

dx1dt= 2.2775e-05 | dx2dt= 1.3575e-04­

a=2 | x2= 4.4 | tau= 0.02596 | x1= 0.48880 | L1=-0.97798 | L2=1.2539 | detJ= -1.2267 | dx1dt= 8.1385e-05 | dx2dt= 7.6585e-04

a=4 | x2= 3.2 | tau= 0.07863 | x1= 0.57792 | L1=-0.81895 | L2=1.1555 | detJ= -0.9462 | dx1dt= -0.0543 | dx2dt= -0.5426

a=4 | x2= 4.0 | tau= 0.04744 | x1= 0.57079 | L1=-0.89198 | L2=1.3362 | detJ= -1.1918 | dx1dt= -1.7835e-05 | dx2dt= -1.1835e-04

Из-за погрешностей при вычислении матрицы Якоби и исходной системы уравнений мы получили около нулевые значения. Учитывая величину чисел, участвующих в рассчетах значение detJ, dx1dt, dx2dt во всех случаях можно считать равным нулю.

Для выполнения блока проверки вычислений был написан дополнительный блок программы Test.m, приведенный ниже:

## Функция Test.m

function Test(pra,prtau,prx1,prx2)

%Объявление переменных

p1=1;

p3=20;

p4=10;

p6=-5;

k0=1;

syms a x1 x2 tau;

syms maj majt;

sym ls;

p2=k0\*tau;

p5=a\*tau;

dx1dt=-p1\*x1+p2\*(1-x1)\*exp(x2/(1+x2/p3));

dx2dt=-p1\*x2+p2\*p4\*(1-x1)\*exp(x2/(1+x2/p3))-p5\*(x2-p6);

maj=jacobian([dx1dt,dx2dt],[x1,x2]);

fprintf('\n\t БЛОК ПРОВЕРКИ\n')

%Блок проверки

for b=1:length(prtau)

f1=double(subs(dx1dt,[tau,x1,x2],[prtau(b),prx1(b),prx2(b)]));

f2=double(subs(dx2dt,[a,tau,x1,x2],[pra(b),prtau(b),prx1(b),prx2(b)]));

J=double(subs(maj,[a,x1,x2,tau],[pra(b),prx1(b),prx2(b),prtau(b)]));

DJ=det(J);

fprintf('\ta=%i x2=%4.1f | x1=%5.5f | tau=%5.5f | |J|=%5.5f | dx1dt=%5.5f | ... dx2dt=%5.5f \n', pra(b),prx2(b),prx1(b),prtau(b),DJ,f1,f2);

end

end

## Результат работы блока проверки

БЛОК ПРОВЕРКИ

a=1 x2=-4.9 | x1=0.07961 | tau=56.96065 | |J|=61.57723 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-4.8 | x1=0.04533 | tau=26.26627 | |J|=27.77608 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-4.7 | x1=0.03487 | tau=16.82894 | |J|=17.87725 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-4.6 | x1=0.03024 | tau=12.25590 | |J|=13.15923 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-4.5 | x1=0.02795 | tau=9.55901 | |J|=10.39727 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-4.4 | x1=0.02688 | tau=7.78125 | |J|=8.58203 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-4.3 | x1=0.02653 | tau=6.52187 | |J|=7.29633 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-4.2 | x1=0.02668 | tau=5.58355 | |J|=6.33648 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-4.1 | x1=0.02721 | tau=4.85787 | |J|=5.59122 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-4.0 | x1=0.02803 | tau=4.28032 | |J|=4.99461 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-3.9 | x1=0.02911 | tau=3.81011 | |J|=4.50510 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-3.8 | x1=0.03042 | tau=3.42019 | |J|=4.09519 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-3.7 | x1=0.03195 | tau=3.09193 | |J|=3.74596 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-3.6 | x1=0.03369 | tau=2.81206 | |J|=3.44394 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-3.5 | x1=0.03563 | tau=2.57089 | |J|=3.17929 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-3.4 | x1=0.03779 | tau=2.36118 | |J|=2.94465 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-3.3 | x1=0.04016 | tau=2.17740 | |J|=2.73437 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-3.2 | x1=0.04275 | tau=2.01526 | |J|=2.54409 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-3.1 | x1=0.04557 | tau=1.87140 | |J|=2.37033 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-3.0 | x1=0.04863 | tau=1.74314 | |J|=2.21031 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-2.9 | x1=0.05194 | tau=1.62830 | |J|=2.06175 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-2.8 | x1=0.05553 | tau=1.52513 | |J|=1.92280 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-2.7 | x1=0.05940 | tau=1.43218 | |J|=1.79188 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-2.6 | x1=0.06358 | tau=1.34827 | |J|=1.66765 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-2.5 | x1=0.06810 | tau=1.27240 | |J|=1.54898 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-2.4 | x1=0.07298 | tau=1.20376 | |J|=1.43487 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-2.3 | x1=0.07825 | tau=1.14166 | |J|=1.32441 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-2.2 | x1=0.08395 | tau=1.08554 | |J|=1.21681 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-2.1 | x1=0.09013 | tau=1.03494 | |J|=1.11131 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-2.0 | x1=0.09684 | tau=0.98948 | |J|=1.00721 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-1.9 | x1=0.10415 | tau=0.94888 | |J|=0.90380 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-1.8 | x1=0.11213 | tau=0.91292 | |J|=0.80040 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-1.7 | x1=0.12088 | tau=0.88146 | |J|=0.69632 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2=-1.6 | x1=0.13051 | tau=0.85445 | |J|=0.59083 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-1.5 | x1=0.14116 | tau=0.83189 | |J|=0.48318 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-1.4 | x1=0.15299 | tau=0.81386 | |J|=0.37261 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-1.3 | x1=0.16619 | tau=0.80051 | |J|=0.25839 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2=-1.2 | x1=0.18098 | tau=0.79205 | |J|=0.13984 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-1.1 | x1=0.19760 | tau=0.78871 | |J|=0.01651 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-1.0 | x1=0.21628 | tau=0.79071 | |J|=-0.11160 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-0.9 | x1=0.23724 | tau=0.79815 | |J|=-0.24382 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-0.8 | x1=0.26059 | tau=0.81092 | |J|=-0.37842 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-0.7 | x1=0.28631 | tau=0.82863 | |J|=-0.51234 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-0.6 | x1=0.31421 | tau=0.85047 | |J|=-0.64114 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-0.5 | x1=0.34390 | tau=0.87532 | |J|=-0.75930 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-0.4 | x1=0.37485 | tau=0.90184 | |J|=-0.86083 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-0.3 | x1=0.40647 | tau=0.92866 | |J|=-0.93997 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2=-0.2 | x1=0.43818 | tau=0.95455 | |J|=-0.99182 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2=-0.1 | x1=0.46949 | tau=0.97856 | |J|=-1.01267 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 0.0 | x1=0.50000 | tau=1.00000 | |J|=-1.00000 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 0.1 | x1=0.52941 | tau=1.01846 | |J|=-0.95235 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.2 | x1=0.55754 | tau=1.03374 | |J|=-0.86910 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 0.3 | x1=0.58428 | tau=1.04580 | |J|=-0.75028 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.4 | x1=0.60956 | tau=1.05473 | |J|=-0.59631 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.5 | x1=0.63337 | tau=1.06068 | |J|=-0.40790 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 0.6 | x1=0.65575 | tau=1.06384 | |J|=-0.18591 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.7 | x1=0.67673 | tau=1.06443 | |J|=0.06872 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.8 | x1=0.69636 | tau=1.06270 | |J|=0.35503 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 0.9 | x1=0.71472 | tau=1.05885 | |J|=0.67207 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 1.0 | x1=0.73187 | tau=1.05312 | |J|=1.01892 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.1 | x1=0.74788 | tau=1.04571 | |J|=1.39473 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.2 | x1=0.76282 | tau=1.03681 | |J|=1.79868 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.3 | x1=0.77677 | tau=1.02661 | |J|=2.23003 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 1.4 | x1=0.78977 | tau=1.01527 | |J|=2.68806 | dx1dt=0.00000 | dx2dt=-0.00000

a=1 x2= 1.5 | x1=0.80191 | tau=1.00294 | |J|=3.17215 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.6 | x1=0.81324 | tau=0.98975 | |J|=3.68169 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 1.7 | x1=0.82381 | tau=0.97583 | |J|=4.21613 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.8 | x1=0.83367 | tau=0.96129 | |J|=4.77494 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 1.9 | x1=0.84289 | tau=0.94621 | |J|=5.35764 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 2.0 | x1=0.85149 | tau=0.93071 | |J|=5.96376 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 2.1 | x1=0.85954 | tau=0.91484 | |J|=6.59284 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.2 | x1=0.86705 | tau=0.89869 | |J|=7.24446 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 2.3 | x1=0.87408 | tau=0.88231 | |J|=7.91819 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 2.4 | x1=0.88066 | tau=0.86576 | |J|=8.61357 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.5 | x1=0.88682 | tau=0.84909 | |J|=9.33019 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.6 | x1=0.89258 | tau=0.83234 | |J|=10.06759 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.7 | x1=0.89798 | tau=0.81556 | |J|=10.82530 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.8 | x1=0.90304 | tau=0.79877 | |J|=11.60284 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.9 | x1=0.90778 | tau=0.78200 | |J|=12.39969 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.0 | x1=0.91223 | tau=0.76529 | |J|=13.21531 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.1 | x1=0.91641 | tau=0.74865 | |J|=14.04911 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.2 | x1=0.92033 | tau=0.73211 | |J|=14.90049 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.3 | x1=0.92401 | tau=0.71567 | |J|=15.76876 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.4 | x1=0.92747 | tau=0.69936 | |J|=16.65322 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.5 | x1=0.93072 | tau=0.68320 | |J|=17.55310 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.6 | x1=0.93377 | tau=0.66718 | |J|=18.46758 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.7 | x1=0.93665 | tau=0.65132 | |J|=19.39576 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.8 | x1=0.93935 | tau=0.63563 | |J|=20.33670 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.9 | x1=0.94190 | tau=0.62011 | |J|=21.28938 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 4.0 | x1=0.94430 | tau=0.60478 | |J|=22.25269 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.1 | x1=0.94656 | tau=0.58962 | |J|=23.22547 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 4.2 | x1=0.94868 | tau=0.57466 | |J|=24.20645 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 4.3 | x1=0.95069 | tau=0.55988 | |J|=25.19431 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 4.4 | x1=0.95258 | tau=0.54530 | |J|=26.18759 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.5 | x1=0.95436 | tau=0.53091 | |J|=27.18479 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.6 | x1=0.95604 | tau=0.51671 | |J|=28.18427 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 4.7 | x1=0.95763 | tau=0.50271 | |J|=29.18430 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.8 | x1=0.95912 | tau=0.48890 | |J|=30.18306 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2= 4.9 | x1=0.96053 | tau=0.47528 | |J|=31.17860 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.0 | x1=0.96186 | tau=0.46186 | |J|=32.16885 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.1 | x1=0.96311 | tau=0.44862 | |J|=33.15164 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.2 | x1=0.96429 | tau=0.43558 | |J|=34.12467 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.3 | x1=0.96540 | tau=0.42272 | |J|=35.08550 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.4 | x1=0.96645 | tau=0.41004 | |J|=36.03156 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.5 | x1=0.96743 | tau=0.39755 | |J|=36.96014 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.6 | x1=0.96836 | tau=0.38524 | |J|=37.86841 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.7 | x1=0.96923 | tau=0.37311 | |J|=38.75335 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.8 | x1=0.97005 | tau=0.36115 | |J|=39.61182 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.9 | x1=0.97081 | tau=0.34937 | |J|=40.44049 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.0 | x1=0.97153 | tau=0.33775 | |J|=41.23589 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 6.1 | x1=0.97220 | tau=0.32630 | |J|=41.99435 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.2 | x1=0.97282 | tau=0.31502 | |J|=42.71204 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 6.3 | x1=0.97340 | tau=0.30389 | |J|=43.38493 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.4 | x1=0.97393 | tau=0.29292 | |J|=44.00878 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.5 | x1=0.97442 | tau=0.28211 | |J|=44.57916 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 6.6 | x1=0.97487 | tau=0.27144 | |J|=45.09140 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.7 | x1=0.97528 | tau=0.26092 | |J|=45.54061 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.8 | x1=0.97565 | tau=0.25055 | |J|=45.92163 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 6.9 | x1=0.97597 | tau=0.24031 | |J|=46.22906 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.0 | x1=0.97626 | tau=0.23021 | |J|=46.45717 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.1 | x1=0.97650 | tau=0.22025 | |J|=46.59995 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.2 | x1=0.97669 | tau=0.21040 | |J|=46.65102 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.3 | x1=0.97684 | tau=0.20068 | |J|=46.60361 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.4 | x1=0.97694 | tau=0.19108 | |J|=46.45050 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.5 | x1=0.97699 | tau=0.18159 | |J|=46.18397 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.6 | x1=0.97698 | tau=0.17221 | |J|=45.79569 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.7 | x1=0.97691 | tau=0.16292 | |J|=45.27661 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.8 | x1=0.97677 | tau=0.15373 | |J|=44.61679 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.9 | x1=0.97656 | tau=0.14462 | |J|=43.80518 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 8.0 | x1=0.97625 | tau=0.13558 | |J|=42.82927 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.1 | x1=0.97583 | tau=0.12659 | |J|=41.67459 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.2 | x1=0.97529 | tau=0.11764 | |J|=40.32391 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.3 | x1=0.97458 | tau=0.10871 | |J|=38.75600 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 8.4 | x1=0.97367 | tau=0.09976 | |J|=36.94335 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.5 | x1=0.97248 | tau=0.09073 | |J|=34.84806 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 8.6 | x1=0.97090 | tau=0.08154 | |J|=32.41313 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.7 | x1=0.96870 | tau=0.07204 | |J|=29.54153 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 8.8 | x1=0.96540 | tau=0.06188 | |J|=26.03113 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 8.9 | x1=0.95935 | tau=0.04989 | |J|=21.23420 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 9.0 | x1=0.95039 | tau=0.03600 | |J|=15.32452 | dx1dt=-0.06445 | dx2dt=-0.64450

a=1 x2= 9.1 | x1=0.95966 | tau=0.03522 | |J|=16.51296 | dx1dt=-0.22053 | dx2dt=-2.20526

a=1 x2= 9.2 | x1=0.96895 | tau=0.03447 | |J|=17.74038 | dx1dt=-0.38523 | dx2dt=-3.85233

a=1 x2= 9.3 | x1=0.97824 | tau=0.03374 | |J|=19.00734 | dx1dt=-0.55882 | dx2dt=-5.58817

a=1 x2= 9.4 | x1=0.98755 | tau=0.03302 | |J|=20.31438 | dx1dt=-0.74153 | dx2dt=-7.41527

a=1 x2= 9.5 | x1=0.99688 | tau=0.03233 | |J|=21.66202 | dx1dt=-0.93361 | dx2dt=-9.33613

a=1 x2= 9.5 | x1=0.99688 | tau=0.03233 | |J|=21.66202 | dx1dt=-0.93361 | dx2dt=-9.33613

a=1 x2= 9.4 | x1=0.98755 | tau=0.03302 | |J|=20.31438 | dx1dt=-0.74153 | dx2dt=-7.41527

a=1 x2= 9.3 | x1=0.97824 | tau=0.03374 | |J|=19.00734 | dx1dt=-0.55882 | dx2dt=-5.58817

a=1 x2= 9.2 | x1=0.96895 | tau=0.03447 | |J|=17.74038 | dx1dt=-0.38523 | dx2dt=-3.85233

a=1 x2= 9.1 | x1=0.95966 | tau=0.03522 | |J|=16.51296 | dx1dt=-0.22053 | dx2dt=-2.20526

a=1 x2= 9.0 | x1=0.95039 | tau=0.03600 | |J|=15.32452 | dx1dt=-0.06445 | dx2dt=-0.64450

a=1 x2= 8.9 | x1=0.92771 | tau=0.02713 | |J|=9.76541 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.8 | x1=0.91154 | tau=0.02286 | |J|=7.16737 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.7 | x1=0.89811 | tau=0.02052 | |J|=5.65498 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.6 | x1=0.88578 | tau=0.01896 | |J|=4.58933 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 8.5 | x1=0.87405 | tau=0.01782 | |J|=3.77689 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.4 | x1=0.86271 | tau=0.01695 | |J|=3.12900 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.3 | x1=0.85164 | tau=0.01627 | |J|=2.59679 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 8.2 | x1=0.84078 | tau=0.01574 | |J|=2.15027 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 8.1 | x1=0.83006 | tau=0.01531 | |J|=1.76961 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 8.0 | x1=0.81946 | tau=0.01497 | |J|=1.44105 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.9 | x1=0.80897 | tau=0.01470 | |J|=1.15460 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.8 | x1=0.79855 | tau=0.01449 | |J|=0.90283 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.7 | x1=0.78820 | tau=0.01433 | |J|=0.68004 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.6 | x1=0.77791 | tau=0.01421 | |J|=0.48180 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.5 | x1=0.76766 | tau=0.01413 | |J|=0.30456 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.4 | x1=0.75747 | tau=0.01409 | |J|=0.14548 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 7.3 | x1=0.74731 | tau=0.01407 | |J|=0.00222 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.2 | x1=0.73718 | tau=0.01408 | |J|=-0.12713 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 7.1 | x1=0.72709 | tau=0.01412 | |J|=-0.24418 | dx1dt=0.00000 | dx2dt=-0.00000

a=1 x2= 7.0 | x1=0.71702 | tau=0.01419 | |J|=-0.35028 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.9 | x1=0.70699 | tau=0.01427 | |J|=-0.44659 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.8 | x1=0.69697 | tau=0.01438 | |J|=-0.53407 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.7 | x1=0.68698 | tau=0.01451 | |J|=-0.61357 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.6 | x1=0.67701 | tau=0.01466 | |J|=-0.68582 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 6.5 | x1=0.66706 | tau=0.01484 | |J|=-0.75145 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 6.4 | x1=0.65713 | tau=0.01503 | |J|=-0.81103 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.3 | x1=0.64722 | tau=0.01524 | |J|=-0.86502 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 6.2 | x1=0.63732 | tau=0.01547 | |J|=-0.91387 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.1 | x1=0.62745 | tau=0.01572 | |J|=-0.95794 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 6.0 | x1=0.61758 | tau=0.01599 | |J|=-0.99759 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.9 | x1=0.60774 | tau=0.01627 | |J|=-1.03310 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.8 | x1=0.59791 | tau=0.01658 | |J|=-1.06475 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.7 | x1=0.58810 | tau=0.01691 | |J|=-1.09276 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.6 | x1=0.57830 | tau=0.01726 | |J|=-1.11737 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.5 | x1=0.56852 | tau=0.01763 | |J|=-1.13876 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.4 | x1=0.55875 | tau=0.01803 | |J|=-1.15711 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 5.3 | x1=0.54900 | tau=0.01844 | |J|=-1.17258 | dx1dt=0.00000 | dx2dt=-0.00000

a=1 x2= 5.2 | x1=0.53926 | tau=0.01888 | |J|=-1.18530 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.1 | x1=0.52954 | tau=0.01934 | |J|=-1.19541 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 5.0 | x1=0.51983 | tau=0.01983 | |J|=-1.20302 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.9 | x1=0.51014 | tau=0.02034 | |J|=-1.20824 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.8 | x1=0.50046 | tau=0.02088 | |J|=-1.21118 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.7 | x1=0.49080 | tau=0.02144 | |J|=-1.21191 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 4.6 | x1=0.48115 | tau=0.02203 | |J|=-1.21052 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.5 | x1=0.47152 | tau=0.02265 | |J|=-1.20707 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 4.4 | x1=0.46190 | tau=0.02330 | |J|=-1.20165 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.3 | x1=0.45230 | tau=0.02398 | |J|=-1.19430 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.2 | x1=0.44272 | tau=0.02469 | |J|=-1.18509 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 4.1 | x1=0.43315 | tau=0.02544 | |J|=-1.17406 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2= 4.0 | x1=0.42359 | tau=0.02622 | |J|=-1.16126 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.9 | x1=0.41406 | tau=0.02703 | |J|=-1.14672 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.8 | x1=0.40453 | tau=0.02788 | |J|=-1.13050 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.7 | x1=0.39503 | tau=0.02876 | |J|=-1.11261 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.6 | x1=0.38553 | tau=0.02969 | |J|=-1.09309 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.5 | x1=0.37605 | tau=0.03065 | |J|=-1.07197 | dx1dt=0.00000 | dx2dt=-0.00000

a=1 x2= 3.4 | x1=0.36659 | tau=0.03166 | |J|=-1.04926 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.3 | x1=0.35714 | tau=0.03270 | |J|=-1.02499 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.2 | x1=0.34770 | tau=0.03378 | |J|=-0.99916 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 3.1 | x1=0.33828 | tau=0.03491 | |J|=-0.97180 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 3.0 | x1=0.32886 | tau=0.03608 | |J|=-0.94291 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.9 | x1=0.31946 | tau=0.03729 | |J|=-0.91250 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 2.8 | x1=0.31006 | tau=0.03854 | |J|=-0.88057 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 2.7 | x1=0.30068 | tau=0.03984 | |J|=-0.84711 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 2.6 | x1=0.29129 | tau=0.04117 | |J|=-0.81212 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.5 | x1=0.28191 | tau=0.04254 | |J|=-0.77559 | dx1dt=0.00000 | dx2dt=-0.00000

a=1 x2= 2.4 | x1=0.27252 | tau=0.04395 | |J|=-0.73751 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.3 | x1=0.26313 | tau=0.04539 | |J|=-0.69784 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2= 2.2 | x1=0.25373 | tau=0.04685 | |J|=-0.65657 | dx1dt=0.00000 | dx2dt=-0.00000

a=1 x2= 2.1 | x1=0.24432 | tau=0.04833 | |J|=-0.61365 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 2.0 | x1=0.23488 | tau=0.04983 | |J|=-0.56905 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.9 | x1=0.22542 | tau=0.05133 | |J|=-0.52271 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 1.8 | x1=0.21591 | tau=0.05281 | |J|=-0.47457 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.7 | x1=0.20636 | tau=0.05427 | |J|=-0.42453 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 1.6 | x1=0.19674 | tau=0.05567 | |J|=-0.37252 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2= 1.5 | x1=0.18705 | tau=0.05700 | |J|=-0.31842 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 1.4 | x1=0.17727 | tau=0.05823 | |J|=-0.26207 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.3 | x1=0.16736 | tau=0.05930 | |J|=-0.20333 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2= 1.2 | x1=0.15731 | tau=0.06018 | |J|=-0.14197 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 1.1 | x1=0.14708 | tau=0.06079 | |J|=-0.07774 | dx1dt=0.00000 | dx2dt=-0.00000

a=1 x2= 1.0 | x1=0.13664 | tau=0.06106 | |J|=-0.01035 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.9 | x1=0.12592 | tau=0.06089 | |J|=0.06061 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.8 | x1=0.11488 | tau=0.06014 | |J|=0.13559 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.7 | x1=0.10344 | tau=0.05866 | |J|=0.21519 | dx1dt=0.00000 | dx2dt=0.00000

a=1 x2= 0.6 | x1=0.09150 | tau=0.05625 | |J|=0.30017 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2= 0.5 | x1=0.07894 | tau=0.05262 | |J|=0.39146 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.4 | x1=0.06562 | tau=0.04745 | |J|=0.49028 | dx1dt=-0.00000 | dx2dt=0.00000

a=1 x2= 0.3 | x1=0.05135 | tau=0.04027 | |J|=0.59819 | dx1dt=-0.00000 | dx2dt=-0.00000

a=1 x2= 0.2 | x1=0.03587 | tau=0.03052 | |J|=0.71722 | dx1dt=0.00000 | dx2dt=-0.00000

a=1 x2= 0.1 | x1=0.01889 | tau=0.01743 | |J|=0.85000 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-4.9 | x1=0.03858 | tau=26.42915 | |J|=55.34283 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-4.8 | x1=0.02219 | tau=12.55474 | |J|=26.31782 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-4.7 | x1=0.01713 | tau=8.11885 | |J|=17.24541 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-4.6 | x1=0.01488 | tau=5.93595 | |J|=12.81538 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-4.5 | x1=0.01376 | tau=4.63758 | |J|=10.18944 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-4.4 | x1=0.01323 | tau=3.77690 | |J|=8.45104 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-4.3 | x1=0.01305 | tau=3.16466 | |J|=7.21444 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-4.2 | x1=0.01312 | tau=2.70698 | |J|=6.28904 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-4.1 | x1=0.01336 | tau=2.35201 | |J|=5.56985 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-4.0 | x1=0.01375 | tau=2.06874 | |J|=4.99428 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-3.9 | x1=0.01425 | tau=1.83752 | |J|=4.52268 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-3.8 | x1=0.01487 | tau=1.64529 | |J|=4.12871 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-3.7 | x1=0.01558 | tau=1.48302 | |J|=3.79420 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-3.6 | x1=0.01639 | tau=1.34426 | |J|=3.50620 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-3.5 | x1=0.01729 | tau=1.22431 | |J|=3.25523 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-3.4 | x1=0.01828 | tau=1.11963 | |J|=3.03421 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-3.3 | x1=0.01936 | tau=1.02753 | |J|=2.83769 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-3.2 | x1=0.02053 | tau=0.94592 | |J|=2.66149 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-3.1 | x1=0.02179 | tau=0.87313 | |J|=2.50227 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-3.0 | x1=0.02314 | tau=0.80785 | |J|=2.35739 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-2.9 | x1=0.02458 | tau=0.74901 | |J|=2.22469 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-2.8 | x1=0.02612 | tau=0.69573 | |J|=2.10244 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-2.7 | x1=0.02775 | tau=0.64728 | |J|=1.98918 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-2.6 | x1=0.02948 | tau=0.60308 | |J|=1.88371 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-2.5 | x1=0.03130 | tau=0.56260 | |J|=1.78505 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-2.4 | x1=0.03322 | tau=0.52542 | |J|=1.69234 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-2.3 | x1=0.03524 | tau=0.49118 | |J|=1.60487 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-2.2 | x1=0.03735 | tau=0.45955 | |J|=1.52205 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-2.1 | x1=0.03955 | tau=0.43027 | |J|=1.44336 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-2.0 | x1=0.04185 | tau=0.40309 | |J|=1.36836 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-1.9 | x1=0.04424 | tau=0.37781 | |J|=1.29670 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-1.8 | x1=0.04672 | tau=0.35425 | |J|=1.22806 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-1.7 | x1=0.04927 | tau=0.33223 | |J|=1.16220 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-1.6 | x1=0.05190 | tau=0.31162 | |J|=1.09889 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-1.5 | x1=0.05460 | tau=0.29228 | |J|=1.03799 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-1.4 | x1=0.05734 | tau=0.27408 | |J|=0.97937 | dx1dt=-0.00000 | dx2dt=0.00000

a=2 x2=-1.3 | x1=0.06012 | tau=0.25692 | |J|=0.92295 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-1.2 | x1=0.06292 | tau=0.24069 | |J|=0.86872 | dx1dt=-0.00000 | dx2dt=0.00000

a=2 x2=-1.1 | x1=0.06572 | tau=0.22528 | |J|=0.81671 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-1.0 | x1=0.06846 | tau=0.21058 | |J|=0.76700 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-0.9 | x1=0.07113 | tau=0.19649 | |J|=0.71979 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-0.8 | x1=0.07363 | tau=0.18290 | |J|=0.67538 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-0.7 | x1=0.07590 | tau=0.16965 | |J|=0.63425 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-0.6 | x1=0.07779 | tau=0.15658 | |J|=0.59715 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-0.5 | x1=0.07910 | tau=0.14345 | |J|=0.56533 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-0.4 | x1=0.07949 | tau=0.12988 | |J|=0.54088 | dx1dt=0.00000 | dx2dt=-0.00000

a=2 x2=-0.3 | x1=0.07833 | tau=0.11524 | |J|=0.52774 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2=-0.2 | x1=0.07429 | tau=0.09822 | |J|=0.53446 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2=-0.1 | x1=0.06361 | tau=0.07511 | |J|=0.58588 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 0.1 | x1=0.10609 | tau=0.09421 | |J|=0.39108 | dx1dt=-0.01307 | dx2dt=-0.13069

a=2 x2= 0.2 | x1=0.15063 | tau=0.12560 | |J|=0.16794 | dx1dt=-0.02058 | dx2dt=-0.20581

a=2 x2= 0.3 | x1=0.18383 | tau=0.14512 | |J|=-0.00317 | dx1dt=-0.02465 | dx2dt=-0.24653

a=2 x2= 0.4 | x1=0.21084 | tau=0.15818 | |J|=-0.15140 | dx1dt=-0.02607 | dx2dt=-0.26065

a=2 x2= 0.5 | x1=0.23376 | tau=0.16706 | |J|=-0.28729 | dx1dt=-0.02528 | dx2dt=-0.25276

a=2 x2= 0.6 | x1=0.25373 | tau=0.17297 | |J|=-0.41583 | dx1dt=-0.02260 | dx2dt=-0.22597

a=2 x2= 0.7 | x1=0.27144 | tau=0.17670 | |J|=-0.53974 | dx1dt=-0.01826 | dx2dt=-0.18258

a=2 x2= 0.8 | x1=0.28737 | tau=0.17876 | |J|=-0.66061 | dx1dt=-0.01244 | dx2dt=-0.12438

a=2 x2= 0.9 | x1=0.30186 | tau=0.17954 | |J|=-0.77943 | dx1dt=-0.00528 | dx2dt=-0.05279

a=2 x2= 1.0 | x1=0.35654 | tau=0.21379 | |J|=-1.01536 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 1.1 | x1=0.41463 | tau=0.24970 | |J|=-1.16381 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.2 | x1=0.45861 | tau=0.27307 | |J|=-1.22573 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.3 | x1=0.49633 | tau=0.29074 | |J|=-1.23603 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.4 | x1=0.52986 | tau=0.30458 | |J|=-1.20528 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 1.5 | x1=0.56014 | tau=0.31549 | |J|=-1.13912 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.6 | x1=0.58773 | tau=0.32404 | |J|=-1.04128 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.7 | x1=0.61301 | tau=0.33061 | |J|=-0.91459 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 1.8 | x1=0.63627 | tau=0.33550 | |J|=-0.76129 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 1.9 | x1=0.65774 | tau=0.33894 | |J|=-0.58328 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.0 | x1=0.67759 | tau=0.34113 | |J|=-0.38217 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 2.1 | x1=0.69597 | tau=0.34223 | |J|=-0.15939 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.2 | x1=0.71303 | tau=0.34238 | |J|=0.08381 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.3 | x1=0.72888 | tau=0.34170 | |J|=0.34627 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 2.4 | x1=0.74362 | tau=0.34029 | |J|=0.62698 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.5 | x1=0.75735 | tau=0.33823 | |J|=0.92497 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.6 | x1=0.77014 | tau=0.33562 | |J|=1.23937 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.7 | x1=0.78207 | tau=0.33251 | |J|=1.56934 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.8 | x1=0.79321 | tau=0.32898 | |J|=1.91412 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 2.9 | x1=0.80362 | tau=0.32507 | |J|=2.27295 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 3.0 | x1=0.81334 | tau=0.32084 | |J|=2.64513 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 3.1 | x1=0.82244 | tau=0.31632 | |J|=3.02996 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 3.2 | x1=0.83096 | tau=0.31156 | |J|=3.42677 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 3.3 | x1=0.83894 | tau=0.30659 | |J|=3.83488 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 3.4 | x1=0.84642 | tau=0.30144 | |J|=4.25364 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 3.5 | x1=0.85343 | tau=0.29614 | |J|=4.68238 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 3.6 | x1=0.86001 | tau=0.29071 | |J|=5.12041 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 3.7 | x1=0.86619 | tau=0.28517 | |J|=5.56706 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 3.8 | x1=0.87199 | tau=0.27954 | |J|=6.02163 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 3.9 | x1=0.87744 | tau=0.27384 | |J|=6.48339 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 4.0 | x1=0.88256 | tau=0.26809 | |J|=6.95161 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.1 | x1=0.88737 | tau=0.26229 | |J|=7.42550 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.2 | x1=0.89190 | tau=0.25647 | |J|=7.90427 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.3 | x1=0.89616 | tau=0.25063 | |J|=8.38709 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.4 | x1=0.90017 | tau=0.24477 | |J|=8.87308 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 4.5 | x1=0.90394 | tau=0.23892 | |J|=9.36133 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.6 | x1=0.90749 | tau=0.23307 | |J|=9.85088 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 4.7 | x1=0.91084 | tau=0.22724 | |J|=10.34072 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 4.8 | x1=0.91398 | tau=0.22142 | |J|=10.82979 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.9 | x1=0.91695 | tau=0.21563 | |J|=11.31700 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.0 | x1=0.91973 | tau=0.20987 | |J|=11.80117 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.1 | x1=0.92235 | tau=0.20414 | |J|=12.28106 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.2 | x1=0.92482 | tau=0.19844 | |J|=12.75540 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.3 | x1=0.92714 | tau=0.19279 | |J|=13.22281 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.4 | x1=0.92932 | tau=0.18717 | |J|=13.68186 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.5 | x1=0.93136 | tau=0.18160 | |J|=14.13104 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.6 | x1=0.93328 | tau=0.17607 | |J|=14.56876 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.7 | x1=0.93507 | tau=0.17059 | |J|=14.99334 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.8 | x1=0.93675 | tau=0.16516 | |J|=15.40300 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.9 | x1=0.93831 | tau=0.15978 | |J|=15.79589 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.0 | x1=0.93977 | tau=0.15444 | |J|=16.17003 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.1 | x1=0.94112 | tau=0.14915 | |J|=16.52333 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.2 | x1=0.94237 | tau=0.14391 | |J|=16.85358 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.3 | x1=0.94351 | tau=0.13872 | |J|=17.15846 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.4 | x1=0.94456 | tau=0.13358 | |J|=17.43547 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.5 | x1=0.94551 | tau=0.12848 | |J|=17.68198 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.6 | x1=0.94636 | tau=0.12343 | |J|=17.89516 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.7 | x1=0.94711 | tau=0.11842 | |J|=18.07200 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.8 | x1=0.94776 | tau=0.11346 | |J|=18.20924 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.9 | x1=0.94831 | tau=0.10853 | |J|=18.30337 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.0 | x1=0.94875 | tau=0.10365 | |J|=18.35058 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 7.1 | x1=0.94907 | tau=0.09879 | |J|=18.34664 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.2 | x1=0.94928 | tau=0.09397 | |J|=18.28690 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 7.3 | x1=0.94934 | tau=0.08916 | |J|=18.16611 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.4 | x1=0.94926 | tau=0.08438 | |J|=17.97827 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.5 | x1=0.94901 | tau=0.07961 | |J|=17.71636 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.6 | x1=0.94857 | tau=0.07483 | |J|=17.37197 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.7 | x1=0.94789 | tau=0.07003 | |J|=16.93464 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.8 | x1=0.94691 | tau=0.06520 | |J|=16.39081 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 7.9 | x1=0.94555 | tau=0.06029 | |J|=15.72176 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 8.0 | x1=0.94367 | tau=0.05526 | |J|=14.89947 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 8.1 | x1=0.94100 | tau=0.05000 | |J|=13.87674 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 8.2 | x1=0.93696 | tau=0.04430 | |J|=12.55664 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 8.3 | x1=0.92965 | tau=0.03746 | |J|=10.63581 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 8.4 | x1=0.91792 | tau=0.02908 | |J|=8.07693 | dx1dt=-0.03318 | dx2dt=-0.33178

a=2 x2= 8.5 | x1=0.92676 | tau=0.02843 | |J|=8.76607 | dx1dt=-0.11571 | dx2dt=-1.15707

a=2 x2= 8.6 | x1=0.93562 | tau=0.02780 | |J|=9.48032 | dx1dt=-0.20336 | dx2dt=-2.03359

a=2 x2= 8.7 | x1=0.94450 | tau=0.02719 | |J|=10.22010 | dx1dt=-0.29629 | dx2dt=-2.96292

a=2 x2= 8.8 | x1=0.95340 | tau=0.02659 | |J|=10.98579 | dx1dt=-0.39467 | dx2dt=-3.94669

a=2 x2= 8.9 | x1=0.96232 | tau=0.02602 | |J|=11.77778 | dx1dt=-0.49865 | dx2dt=-4.98655

a=2 x2= 9.0 | x1=0.97127 | tau=0.02545 | |J|=12.59647 | dx1dt=-0.60841 | dx2dt=-6.08415

a=2 x2= 9.1 | x1=0.98023 | tau=0.02491 | |J|=13.44225 | dx1dt=-0.72412 | dx2dt=-7.24117

a=2 x2= 9.2 | x1=0.98922 | tau=0.02437 | |J|=14.31550 | dx1dt=-0.84593 | dx2dt=-8.45934

a=2 x2= 9.3 | x1=0.99823 | tau=0.02386 | |J|=15.21661 | dx1dt=-0.97404 | dx2dt=-9.74038

a=2 x2= 9.3 | x1=0.99823 | tau=0.02386 | |J|=15.21661 | dx1dt=-0.97404 | dx2dt=-9.74038

a=2 x2= 9.2 | x1=0.98922 | tau=0.02437 | |J|=14.31550 | dx1dt=-0.84593 | dx2dt=-8.45934

a=2 x2= 9.1 | x1=0.98023 | tau=0.02491 | |J|=13.44225 | dx1dt=-0.72412 | dx2dt=-7.24117

a=2 x2= 9.0 | x1=0.97127 | tau=0.02545 | |J|=12.59647 | dx1dt=-0.60841 | dx2dt=-6.08415

a=2 x2= 8.9 | x1=0.96232 | tau=0.02602 | |J|=11.77778 | dx1dt=-0.49865 | dx2dt=-4.98655

a=2 x2= 8.8 | x1=0.95340 | tau=0.02659 | |J|=10.98579 | dx1dt=-0.39467 | dx2dt=-3.94669

a=2 x2= 8.7 | x1=0.94450 | tau=0.02719 | |J|=10.22010 | dx1dt=-0.29629 | dx2dt=-2.96292

a=2 x2= 8.6 | x1=0.93562 | tau=0.02780 | |J|=9.48032 | dx1dt=-0.20336 | dx2dt=-2.03359

a=2 x2= 8.5 | x1=0.92676 | tau=0.02843 | |J|=8.76607 | dx1dt=-0.11571 | dx2dt=-1.15707

a=2 x2= 8.4 | x1=0.91792 | tau=0.02908 | |J|=8.07693 | dx1dt=-0.03318 | dx2dt=-0.33178

a=2 x2= 8.3 | x1=0.89281 | tau=0.02361 | |J|=5.31095 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 8.2 | x1=0.87517 | tau=0.02090 | |J|=3.94350 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 8.1 | x1=0.86079 | tau=0.01938 | |J|=3.10119 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 8.0 | x1=0.84775 | tau=0.01837 | |J|=2.48436 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.9 | x1=0.83549 | tau=0.01763 | |J|=1.99974 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 7.8 | x1=0.82373 | tau=0.01708 | |J|=1.60363 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.7 | x1=0.81233 | tau=0.01667 | |J|=1.27143 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 7.6 | x1=0.80121 | tau=0.01635 | |J|=0.98776 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.5 | x1=0.79029 | tau=0.01612 | |J|=0.74223 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 7.4 | x1=0.77955 | tau=0.01595 | |J|=0.52750 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 7.3 | x1=0.76895 | tau=0.01583 | |J|=0.33818 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 7.2 | x1=0.75847 | tau=0.01577 | |J|=0.17015 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 7.1 | x1=0.74810 | tau=0.01574 | |J|=0.02024 | dx1dt=-0.00000 | dx2dt=0.00000

a=2 x2= 7.0 | x1=0.73781 | tau=0.01576 | |J|=-0.11409 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.9 | x1=0.72761 | tau=0.01580 | |J|=-0.23487 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.8 | x1=0.71748 | tau=0.01588 | |J|=-0.34378 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.7 | x1=0.70741 | tau=0.01599 | |J|=-0.44219 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.6 | x1=0.69741 | tau=0.01612 | |J|=-0.53125 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 6.5 | x1=0.68746 | tau=0.01629 | |J|=-0.61194 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.4 | x1=0.67756 | tau=0.01648 | |J|=-0.68510 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.3 | x1=0.66772 | tau=0.01669 | |J|=-0.75143 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.2 | x1=0.65792 | tau=0.01693 | |J|=-0.81155 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.1 | x1=0.64816 | tau=0.01719 | |J|=-0.86600 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 6.0 | x1=0.63846 | tau=0.01748 | |J|=-0.91524 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.9 | x1=0.62879 | tau=0.01779 | |J|=-0.95968 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.8 | x1=0.61916 | tau=0.01813 | |J|=-0.99970 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.7 | x1=0.60958 | tau=0.01850 | |J|=-1.03560 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.6 | x1=0.60004 | tau=0.01889 | |J|=-1.06767 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.5 | x1=0.59053 | tau=0.01930 | |J|=-1.09617 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.4 | x1=0.58107 | tau=0.01975 | |J|=-1.12134 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 5.3 | x1=0.57165 | tau=0.02022 | |J|=-1.14337 | dx1dt=0.00000 | dx2dt=-0.00000

a=2 x2= 5.2 | x1=0.56227 | tau=0.02072 | |J|=-1.16245 | dx1dt=-0.00000 | dx2dt=0.00000

a=2 x2= 5.1 | x1=0.55293 | tau=0.02125 | |J|=-1.17875 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 5.0 | x1=0.54364 | tau=0.02182 | |J|=-1.19242 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.9 | x1=0.53438 | tau=0.02242 | |J|=-1.20361 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.8 | x1=0.52517 | tau=0.02305 | |J|=-1.21243 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.7 | x1=0.51601 | tau=0.02372 | |J|=-1.21901 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 4.6 | x1=0.50689 | tau=0.02442 | |J|=-1.22346 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.5 | x1=0.49782 | tau=0.02517 | |J|=-1.22586 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.4 | x1=0.48880 | tau=0.02596 | |J|=-1.22632 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 4.3 | x1=0.47982 | tau=0.02679 | |J|=-1.22493 | dx1dt=0.00000 | dx2dt=-0.00000

a=2 x2= 4.2 | x1=0.47090 | tau=0.02766 | |J|=-1.22175 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 4.1 | x1=0.46204 | tau=0.02859 | |J|=-1.21686 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 4.0 | x1=0.45323 | tau=0.02957 | |J|=-1.21033 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 3.9 | x1=0.44448 | tau=0.03060 | |J|=-1.20224 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 3.8 | x1=0.43579 | tau=0.03170 | |J|=-1.19263 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 3.7 | x1=0.42716 | tau=0.03285 | |J|=-1.18158 | dx1dt=0.00000 | dx2dt=-0.00000

a=2 x2= 3.6 | x1=0.41860 | tau=0.03407 | |J|=-1.16913 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 3.5 | x1=0.41011 | tau=0.03536 | |J|=-1.15535 | dx1dt=-0.00000 | dx2dt=0.00000

a=2 x2= 3.4 | x1=0.40169 | tau=0.03672 | |J|=-1.14028 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 3.3 | x1=0.39335 | tau=0.03816 | |J|=-1.12399 | dx1dt=-0.00000 | dx2dt=0.00000

a=2 x2= 3.2 | x1=0.38510 | tau=0.03969 | |J|=-1.10652 | dx1dt=0.00000 | dx2dt=-0.00000

a=2 x2= 3.1 | x1=0.37693 | tau=0.04131 | |J|=-1.08792 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 3.0 | x1=0.36885 | tau=0.04303 | |J|=-1.06826 | dx1dt=-0.00000 | dx2dt=0.00000

a=2 x2= 2.9 | x1=0.36087 | tau=0.04485 | |J|=-1.04759 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.8 | x1=0.35300 | tau=0.04679 | |J|=-1.02596 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.7 | x1=0.34524 | tau=0.04886 | |J|=-1.00344 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.6 | x1=0.33760 | tau=0.05105 | |J|=-0.98010 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.5 | x1=0.33010 | tau=0.05340 | |J|=-0.95601 | dx1dt=0.00000 | dx2dt=-0.00000

a=2 x2= 2.4 | x1=0.32274 | tau=0.05591 | |J|=-0.93125 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 2.3 | x1=0.31555 | tau=0.05860 | |J|=-0.90592 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 2.2 | x1=0.30854 | tau=0.06149 | |J|=-0.88012 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.1 | x1=0.30174 | tau=0.06460 | |J|=-0.85401 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 2.0 | x1=0.29517 | tau=0.06798 | |J|=-0.82773 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 1.9 | x1=0.28887 | tau=0.07164 | |J|=-0.80149 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 1.8 | x1=0.28290 | tau=0.07566 | |J|=-0.77557 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.7 | x1=0.27732 | tau=0.08009 | |J|=-0.75032 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.6 | x1=0.27223 | tau=0.08503 | |J|=-0.72624 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 1.5 | x1=0.26779 | tau=0.09061 | |J|=-0.70406 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.4 | x1=0.26422 | tau=0.09705 | |J|=-0.68491 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.3 | x1=0.26192 | tau=0.10470 | |J|=-0.67067 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 1.2 | x1=0.26166 | tau=0.11424 | |J|=-0.66493 | dx1dt=0.00000 | dx2dt=-0.00000

a=2 x2= 1.1 | x1=0.26529 | tau=0.12729 | |J|=-0.67595 | dx1dt=-0.00000 | dx2dt=-0.00000

a=2 x2= 1.0 | x1=0.28047 | tau=0.15039 | |J|=-0.73612 | dx1dt=0.00000 | dx2dt=0.00000

a=2 x2= 0.9 | x1=0.30186 | tau=0.17954 | |J|=-0.77943 | dx1dt=-0.00528 | dx2dt=-0.05279

a=2 x2= 0.8 | x1=0.28737 | tau=0.17876 | |J|=-0.66061 | dx1dt=-0.01244 | dx2dt=-0.12438

a=2 x2= 0.7 | x1=0.27144 | tau=0.17670 | |J|=-0.53974 | dx1dt=-0.01826 | dx2dt=-0.18258

a=2 x2= 0.6 | x1=0.25373 | tau=0.17297 | |J|=-0.41583 | dx1dt=-0.02260 | dx2dt=-0.22597

a=2 x2= 0.5 | x1=0.23376 | tau=0.16706 | |J|=-0.28729 | dx1dt=-0.02528 | dx2dt=-0.25276

a=2 x2= 0.4 | x1=0.21084 | tau=0.15818 | |J|=-0.15140 | dx1dt=-0.02607 | dx2dt=-0.26065

a=2 x2= 0.3 | x1=0.18383 | tau=0.14512 | |J|=-0.00317 | dx1dt=-0.02465 | dx2dt=-0.24653

a=2 x2= 0.2 | x1=0.15063 | tau=0.12560 | |J|=0.16794 | dx1dt=-0.02058 | dx2dt=-0.20581

a=2 x2= 0.1 | x1=0.10609 | tau=0.09421 | |J|=0.39108 | dx1dt=-0.01307 | dx2dt=-0.13069

a=4 x2=-4.9 | x1=0.01895 | tau=12.72386 | |J|=52.56556 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-4.8 | x1=0.01097 | tau=6.13714 | |J|=25.64204 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-4.7 | x1=0.00849 | tau=3.98739 | |J|=16.94964 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-4.6 | x1=0.00738 | tau=2.92110 | |J|=12.65426 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-4.5 | x1=0.00682 | tau=2.28412 | |J|=10.09251 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-4.4 | x1=0.00656 | tau=1.86067 | |J|=8.39060 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-4.3 | x1=0.00647 | tau=1.55883 | |J|=7.17742 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-4.2 | x1=0.00650 | tau=1.33282 | |J|=6.26853 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-4.1 | x1=0.00662 | tau=1.15728 | |J|=5.56188 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-4.0 | x1=0.00681 | tau=1.01701 | |J|=4.99645 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-3.9 | x1=0.00705 | tau=0.90239 | |J|=4.53348 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-3.8 | x1=0.00735 | tau=0.80698 | |J|=4.14720 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-3.7 | x1=0.00769 | tau=0.72633 | |J|=3.81979 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-3.6 | x1=0.00808 | tau=0.65729 | |J|=3.53853 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-3.5 | x1=0.00851 | tau=0.59752 | |J|=3.29411 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-3.4 | x1=0.00899 | tau=0.54529 | |J|=3.07956 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-3.3 | x1=0.00950 | tau=0.49927 | |J|=2.88954 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-3.2 | x1=0.01006 | tau=0.45841 | |J|=2.71991 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-3.1 | x1=0.01065 | tau=0.42191 | |J|=2.56742 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-3.0 | x1=0.01128 | tau=0.38910 | |J|=2.42944 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-2.9 | x1=0.01195 | tau=0.35946 | |J|=2.30387 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-2.8 | x1=0.01266 | tau=0.33257 | |J|=2.18899 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-2.7 | x1=0.01340 | tau=0.30805 | |J|=2.08339 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-2.6 | x1=0.01418 | tau=0.28560 | |J|=1.98589 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-2.5 | x1=0.01499 | tau=0.26499 | |J|=1.89551 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-2.4 | x1=0.01583 | tau=0.24599 | |J|=1.81144 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-2.3 | x1=0.01670 | tau=0.22843 | |J|=1.73297 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-2.2 | x1=0.01759 | tau=0.21214 | |J|=1.65954 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-2.1 | x1=0.01851 | tau=0.19699 | |J|=1.59063 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-2.0 | x1=0.01943 | tau=0.18286 | |J|=1.52586 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-1.9 | x1=0.02036 | tau=0.16965 | |J|=1.46486 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-1.8 | x1=0.02129 | tau=0.15726 | |J|=1.40736 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-1.7 | x1=0.02221 | tau=0.14561 | |J|=1.35311 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-1.6 | x1=0.02311 | tau=0.13464 | |J|=1.30195 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-1.5 | x1=0.02396 | tau=0.12426 | |J|=1.25373 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-1.4 | x1=0.02476 | tau=0.11442 | |J|=1.20836 | dx1dt=0.00000 | dx2dt=-0.00000

a=4 x2=-1.3 | x1=0.02549 | tau=0.10506 | |J|=1.16581 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-1.2 | x1=0.02612 | tau=0.09613 | |J|=1.12606 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-1.1 | x1=0.02662 | tau=0.08757 | |J|=1.08918 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-1.0 | x1=0.02695 | tau=0.07934 | |J|=1.05528 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-0.9 | x1=0.02706 | tau=0.07138 | |J|=1.02454 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-0.8 | x1=0.02691 | tau=0.06364 | |J|=0.99723 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-0.7 | x1=0.02642 | tau=0.05606 | |J|=0.97372 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-0.6 | x1=0.02550 | tau=0.04858 | |J|=0.95452 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-0.5 | x1=0.02404 | tau=0.04113 | |J|=0.94035 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-0.4 | x1=0.02187 | tau=0.03362 | |J|=0.93218 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2=-0.3 | x1=0.01877 | tau=0.02594 | |J|=0.93141 | dx1dt=0.00000 | dx2dt=-0.00000

a=4 x2=-0.2 | x1=0.01445 | tau=0.01794 | |J|=0.94007 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2=-0.1 | x1=0.00843 | tau=0.00941 | |J|=0.96126 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 0.5 | x1=0.30988 | tau=0.11813 | |J|=0.49202 | dx1dt=-0.17710 | dx2dt=-1.77101

a=4 x2= 0.6 | x1=0.33397 | tau=0.12231 | |J|=0.44050 | dx1dt=-0.18811 | dx2dt=-1.88111

a=4 x2= 0.7 | x1=0.35487 | tau=0.12494 | |J|=0.38849 | dx1dt=-0.19635 | dx2dt=-1.96353

a=4 x2= 0.8 | x1=0.37326 | tau=0.12641 | |J|=0.33562 | dx1dt=-0.20229 | dx2dt=-2.02288

a=4 x2= 0.9 | x1=0.38961 | tau=0.12695 | |J|=0.28173 | dx1dt=-0.20626 | dx2dt=-2.06260

a=4 x2= 1.0 | x1=0.40430 | tau=0.12679 | |J|=0.22683 | dx1dt=-0.20853 | dx2dt=-2.08535

a=4 x2= 1.1 | x1=0.41760 | tau=0.12606 | |J|=0.17095 | dx1dt=-0.20932 | dx2dt=-2.09323

a=4 x2= 1.2 | x1=0.42973 | tau=0.12489 | |J|=0.11421 | dx1dt=-0.20880 | dx2dt=-2.08797

a=4 x2= 1.3 | x1=0.44089 | tau=0.12337 | |J|=0.05673 | dx1dt=-0.20710 | dx2dt=-2.07100

a=4 x2= 1.4 | x1=0.45122 | tau=0.12157 | |J|=-0.00135 | dx1dt=-0.20435 | dx2dt=-2.04353

a=4 x2= 1.5 | x1=0.46084 | tau=0.11955 | |J|=-0.05987 | dx1dt=-0.20066 | dx2dt=-2.00660

a=4 x2= 1.6 | x1=0.46986 | tau=0.11737 | |J|=-0.11867 | dx1dt=-0.19611 | dx2dt=-1.96110

a=4 x2= 1.7 | x1=0.47836 | tau=0.11506 | |J|=-0.17758 | dx1dt=-0.19078 | dx2dt=-1.90783

a=4 x2= 1.8 | x1=0.48643 | tau=0.11266 | |J|=-0.23642 | dx1dt=-0.18475 | dx2dt=-1.84750

a=4 x2= 1.9 | x1=0.49412 | tau=0.11019 | |J|=-0.29501 | dx1dt=-0.17807 | dx2dt=-1.78072

a=4 x2= 2.0 | x1=0.50150 | tau=0.10768 | |J|=-0.35318 | dx1dt=-0.17081 | dx2dt=-1.70808

a=4 x2= 2.1 | x1=0.50860 | tau=0.10514 | |J|=-0.41072 | dx1dt=-0.16301 | dx2dt=-1.63009

a=4 x2= 2.2 | x1=0.51548 | tau=0.10260 | |J|=-0.46746 | dx1dt=-0.15473 | dx2dt=-1.54725

a=4 x2= 2.3 | x1=0.52217 | tau=0.10006 | |J|=-0.52319 | dx1dt=-0.14600 | dx2dt=-1.46001

a=4 x2= 2.4 | x1=0.52869 | tau=0.09753 | |J|=-0.57773 | dx1dt=-0.13688 | dx2dt=-1.36879

a=4 x2= 2.5 | x1=0.53509 | tau=0.09503 | |J|=-0.63087 | dx1dt=-0.12740 | dx2dt=-1.27401

a=4 x2= 2.6 | x1=0.54138 | tau=0.09256 | |J|=-0.68241 | dx1dt=-0.11761 | dx2dt=-1.17606

a=4 x2= 2.7 | x1=0.54758 | tau=0.09012 | |J|=-0.73214 | dx1dt=-0.10753 | dx2dt=-1.07531

a=4 x2= 2.8 | x1=0.55372 | tau=0.08773 | |J|=-0.77986 | dx1dt=-0.09721 | dx2dt=-0.97214

a=4 x2= 2.9 | x1=0.55981 | tau=0.08538 | |J|=-0.82535 | dx1dt=-0.08669 | dx2dt=-0.86691

a=4 x2= 3.0 | x1=0.56587 | tau=0.08308 | |J|=-0.86839 | dx1dt=-0.07600 | dx2dt=-0.75999

a=4 x2= 3.1 | x1=0.57190 | tau=0.08083 | |J|=-0.90877 | dx1dt=-0.06517 | dx2dt=-0.65172

a=4 x2= 3.2 | x1=0.57792 | tau=0.07863 | |J|=-0.94626 | dx1dt=-0.05425 | dx2dt=-0.54248

a=4 x2= 3.3 | x1=0.58394 | tau=0.07649 | |J|=-0.98064 | dx1dt=-0.04326 | dx2dt=-0.43261

a=4 x2= 3.4 | x1=0.58997 | tau=0.07439 | |J|=-1.01168 | dx1dt=-0.03225 | dx2dt=-0.32249

a=4 x2= 3.5 | x1=0.59601 | tau=0.07236 | |J|=-1.03915 | dx1dt=-0.02125 | dx2dt=-0.21249

a=4 x2= 3.6 | x1=0.60207 | tau=0.07037 | |J|=-1.06281 | dx1dt=-0.01030 | dx2dt=-0.10297

a=4 x2= 3.7 | x1=0.61768 | tau=0.07117 | |J|=-1.03847 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 3.8 | x1=0.65834 | tau=0.07907 | |J|=-0.79633 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 3.9 | x1=0.68188 | tau=0.08199 | |J|=-0.60060 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.0 | x1=0.70079 | tau=0.08355 | |J|=-0.40753 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.1 | x1=0.71698 | tau=0.08434 | |J|=-0.21252 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.2 | x1=0.73127 | tau=0.08458 | |J|=-0.01452 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.3 | x1=0.74407 | tau=0.08443 | |J|=0.18651 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.4 | x1=0.75567 | tau=0.08395 | |J|=0.39017 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.5 | x1=0.76625 | tau=0.08322 | |J|=0.59592 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.6 | x1=0.77594 | tau=0.08228 | |J|=0.80309 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.7 | x1=0.78486 | tau=0.08115 | |J|=1.01094 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.8 | x1=0.79308 | tau=0.07987 | |J|=1.21868 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.9 | x1=0.80067 | tau=0.07845 | |J|=1.42546 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.0 | x1=0.80768 | tau=0.07692 | |J|=1.63041 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.1 | x1=0.81417 | tau=0.07529 | |J|=1.83257 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 5.2 | x1=0.82016 | tau=0.07357 | |J|=2.03095 | dx1dt=-0.00000 | dx2dt=0.00000

a=4 x2= 5.3 | x1=0.82570 | tau=0.07177 | |J|=2.22450 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.4 | x1=0.83081 | tau=0.06991 | |J|=2.41208 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 5.5 | x1=0.83550 | tau=0.06798 | |J|=2.59248 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.6 | x1=0.83980 | tau=0.06599 | |J|=2.76437 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 5.7 | x1=0.84373 | tau=0.06395 | |J|=2.92631 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 5.8 | x1=0.84728 | tau=0.06187 | |J|=3.07670 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 5.9 | x1=0.85046 | tau=0.05974 | |J|=3.21376 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.0 | x1=0.85327 | tau=0.05756 | |J|=3.33547 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.1 | x1=0.85570 | tau=0.05534 | |J|=3.43947 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.2 | x1=0.85773 | tau=0.05307 | |J|=3.52298 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.3 | x1=0.85934 | tau=0.05074 | |J|=3.58262 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.4 | x1=0.86046 | tau=0.04835 | |J|=3.61405 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.5 | x1=0.86102 | tau=0.04587 | |J|=3.61147 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.6 | x1=0.86089 | tau=0.04329 | |J|=3.56652 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.7 | x1=0.85980 | tau=0.04056 | |J|=3.46572 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.8 | x1=0.85725 | tau=0.03755 | |J|=3.28311 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.9 | x1=0.85162 | tau=0.03395 | |J|=2.94693 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 7.0 | x1=0.83716 | tau=0.02857 | |J|=2.24112 | dx1dt=-0.00608 | dx2dt=-0.06076

a=4 x2= 7.1 | x1=0.84497 | tau=0.02789 | |J|=2.51692 | dx1dt=-0.02943 | dx2dt=-0.29427

a=4 x2= 7.2 | x1=0.85282 | tau=0.02722 | |J|=2.80637 | dx1dt=-0.05501 | dx2dt=-0.55013

a=4 x2= 7.3 | x1=0.86072 | tau=0.02657 | |J|=3.10974 | dx1dt=-0.08292 | dx2dt=-0.82923

a=4 x2= 7.4 | x1=0.86866 | tau=0.02594 | |J|=3.42733 | dx1dt=-0.11325 | dx2dt=-1.13250

a=4 x2= 7.5 | x1=0.87664 | tau=0.02533 | |J|=3.75944 | dx1dt=-0.14608 | dx2dt=-1.46085

a=4 x2= 7.6 | x1=0.88466 | tau=0.02473 | |J|=4.10634 | dx1dt=-0.18152 | dx2dt=-1.81523

a=4 x2= 7.7 | x1=0.89272 | tau=0.02416 | |J|=4.46834 | dx1dt=-0.21966 | dx2dt=-2.19660

a=4 x2= 7.8 | x1=0.90083 | tau=0.02360 | |J|=4.84571 | dx1dt=-0.26059 | dx2dt=-2.60594

a=4 x2= 7.9 | x1=0.90896 | tau=0.02306 | |J|=5.23875 | dx1dt=-0.30442 | dx2dt=-3.04425

a=4 x2= 8.0 | x1=0.91714 | tau=0.02253 | |J|=5.64775 | dx1dt=-0.35125 | dx2dt=-3.51253

a=4 x2= 8.1 | x1=0.92535 | tau=0.02201 | |J|=6.07299 | dx1dt=-0.40118 | dx2dt=-4.01182

a=4 x2= 8.2 | x1=0.93360 | tau=0.02152 | |J|=6.51475 | dx1dt=-0.45432 | dx2dt=-4.54315

a=4 x2= 8.3 | x1=0.94188 | tau=0.02103 | |J|=6.97334 | dx1dt=-0.51076 | dx2dt=-5.10760

a=4 x2= 8.4 | x1=0.95020 | tau=0.02056 | |J|=7.44902 | dx1dt=-0.57062 | dx2dt=-5.70622

a=4 x2= 8.5 | x1=0.95855 | tau=0.02010 | |J|=7.94208 | dx1dt=-0.63401 | dx2dt=-6.34012

a=4 x2= 8.6 | x1=0.96694 | tau=0.01966 | |J|=8.45281 | dx1dt=-0.70104 | dx2dt=-7.01041

a=4 x2= 8.7 | x1=0.97535 | tau=0.01923 | |J|=8.98148 | dx1dt=-0.77182 | dx2dt=-7.71821

a=4 x2= 8.8 | x1=0.98380 | tau=0.01880 | |J|=9.52839 | dx1dt=-0.84647 | dx2dt=-8.46466

a=4 x2= 8.9 | x1=0.99228 | tau=0.01840 | |J|=10.09380 | dx1dt=-0.92509 | dx2dt=-9.25091

a=4 x2= 8.9 | x1=0.99228 | tau=0.01840 | |J|=10.09380 | dx1dt=-0.92509 | dx2dt=-9.25091

a=4 x2= 8.8 | x1=0.98380 | tau=0.01880 | |J|=9.52839 | dx1dt=-0.84647 | dx2dt=-8.46466

a=4 x2= 8.7 | x1=0.97535 | tau=0.01923 | |J|=8.98148 | dx1dt=-0.77182 | dx2dt=-7.71821

a=4 x2= 8.6 | x1=0.96694 | tau=0.01966 | |J|=8.45281 | dx1dt=-0.70104 | dx2dt=-7.01041

a=4 x2= 8.5 | x1=0.95855 | tau=0.02010 | |J|=7.94208 | dx1dt=-0.63401 | dx2dt=-6.34012

a=4 x2= 8.4 | x1=0.95020 | tau=0.02056 | |J|=7.44902 | dx1dt=-0.57062 | dx2dt=-5.70622

a=4 x2= 8.3 | x1=0.94188 | tau=0.02103 | |J|=6.97334 | dx1dt=-0.51076 | dx2dt=-5.10760

a=4 x2= 8.2 | x1=0.93360 | tau=0.02152 | |J|=6.51475 | dx1dt=-0.45432 | dx2dt=-4.54315

a=4 x2= 8.1 | x1=0.92535 | tau=0.02201 | |J|=6.07299 | dx1dt=-0.40118 | dx2dt=-4.01182

a=4 x2= 8.0 | x1=0.91714 | tau=0.02253 | |J|=5.64775 | dx1dt=-0.35125 | dx2dt=-3.51253

a=4 x2= 7.9 | x1=0.90896 | tau=0.02306 | |J|=5.23875 | dx1dt=-0.30442 | dx2dt=-3.04425

a=4 x2= 7.8 | x1=0.90083 | tau=0.02360 | |J|=4.84571 | dx1dt=-0.26059 | dx2dt=-2.60594

a=4 x2= 7.7 | x1=0.89272 | tau=0.02416 | |J|=4.46834 | dx1dt=-0.21966 | dx2dt=-2.19660

a=4 x2= 7.6 | x1=0.88466 | tau=0.02473 | |J|=4.10634 | dx1dt=-0.18152 | dx2dt=-1.81523

a=4 x2= 7.5 | x1=0.87664 | tau=0.02533 | |J|=3.75944 | dx1dt=-0.14608 | dx2dt=-1.46085

a=4 x2= 7.4 | x1=0.86866 | tau=0.02594 | |J|=3.42733 | dx1dt=-0.11325 | dx2dt=-1.13250

a=4 x2= 7.3 | x1=0.86072 | tau=0.02657 | |J|=3.10974 | dx1dt=-0.08292 | dx2dt=-0.82923

a=4 x2= 7.2 | x1=0.85282 | tau=0.02722 | |J|=2.80637 | dx1dt=-0.05501 | dx2dt=-0.55013

a=4 x2= 7.1 | x1=0.84497 | tau=0.02789 | |J|=2.51692 | dx1dt=-0.02943 | dx2dt=-0.29427

a=4 x2= 7.0 | x1=0.83716 | tau=0.02857 | |J|=2.24112 | dx1dt=-0.00608 | dx2dt=-0.06076

a=4 x2= 6.9 | x1=0.81022 | tau=0.02526 | |J|=1.32296 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.8 | x1=0.79324 | tau=0.02399 | |J|=0.88293 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.7 | x1=0.77925 | tau=0.02334 | |J|=0.58059 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.6 | x1=0.76665 | tau=0.02299 | |J|=0.34537 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.5 | x1=0.75492 | tau=0.02281 | |J|=0.15248 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.4 | x1=0.74379 | tau=0.02276 | |J|=-0.01042 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.3 | x1=0.73312 | tau=0.02281 | |J|=-0.15062 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.2 | x1=0.72283 | tau=0.02295 | |J|=-0.27286 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 6.1 | x1=0.71287 | tau=0.02317 | |J|=-0.38044 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 6.0 | x1=0.70318 | tau=0.02345 | |J|=-0.47579 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 5.9 | x1=0.69374 | tau=0.02379 | |J|=-0.56074 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.8 | x1=0.68455 | tau=0.02420 | |J|=-0.63671 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.7 | x1=0.67557 | tau=0.02467 | |J|=-0.70485 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 5.6 | x1=0.66682 | tau=0.02519 | |J|=-0.76609 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.5 | x1=0.65829 | tau=0.02578 | |J|=-0.82120 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 5.4 | x1=0.64997 | tau=0.02644 | |J|=-0.87083 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.3 | x1=0.64188 | tau=0.02715 | |J|=-0.91553 | dx1dt=0.00000 | dx2dt=-0.00000

a=4 x2= 5.2 | x1=0.63402 | tau=0.02795 | |J|=-0.95575 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.1 | x1=0.62641 | tau=0.02881 | |J|=-0.99192 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 5.0 | x1=0.61906 | tau=0.02976 | |J|=-1.02437 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.9 | x1=0.61199 | tau=0.03081 | |J|=-1.05343 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.8 | x1=0.60524 | tau=0.03195 | |J|=-1.07935 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.7 | x1=0.59884 | tau=0.03321 | |J|=-1.10238 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.6 | x1=0.59283 | tau=0.03459 | |J|=-1.12271 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.5 | x1=0.58728 | tau=0.03613 | |J|=-1.14049 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.4 | x1=0.58227 | tau=0.03784 | |J|=-1.15585 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.3 | x1=0.57790 | tau=0.03976 | |J|=-1.16884 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.2 | x1=0.57435 | tau=0.04194 | |J|=-1.17939 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 4.1 | x1=0.57184 | tau=0.04446 | |J|=-1.18727 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 4.0 | x1=0.57079 | tau=0.04744 | |J|=-1.19183 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 3.9 | x1=0.57195 | tau=0.05111 | |J|=-1.19141 | dx1dt=0.00000 | dx2dt=0.00000

a=4 x2= 3.8 | x1=0.57721 | tau=0.05603 | |J|=-1.18076 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 3.7 | x1=0.59901 | tau=0.06581 | |J|=-1.11548 | dx1dt=-0.00000 | dx2dt=-0.00000

a=4 x2= 3.6 | x1=0.60207 | tau=0.07037 | |J|=-1.06281 | dx1dt=-0.01030 | dx2dt=-0.10297

a=4 x2= 3.5 | x1=0.59601 | tau=0.07236 | |J|=-1.03915 | dx1dt=-0.02125 | dx2dt=-0.21249

a=4 x2= 3.4 | x1=0.58997 | tau=0.07439 | |J|=-1.01168 | dx1dt=-0.03225 | dx2dt=-0.32249

a=4 x2= 3.3 | x1=0.58394 | tau=0.07649 | |J|=-0.98064 | dx1dt=-0.04326 | dx2dt=-0.43261

a=4 x2= 3.2 | x1=0.57792 | tau=0.07863 | |J|=-0.94626 | dx1dt=-0.05425 | dx2dt=-0.54248

a=4 x2= 3.1 | x1=0.57190 | tau=0.08083 | |J|=-0.90877 | dx1dt=-0.06517 | dx2dt=-0.65172

a=4 x2= 3.0 | x1=0.56587 | tau=0.08308 | |J|=-0.86839 | dx1dt=-0.07600 | dx2dt=-0.75999

a=4 x2= 2.9 | x1=0.55981 | tau=0.08538 | |J|=-0.82535 | dx1dt=-0.08669 | dx2dt=-0.86691

a=4 x2= 2.8 | x1=0.55372 | tau=0.08773 | |J|=-0.77986 | dx1dt=-0.09721 | dx2dt=-0.97214

a=4 x2= 2.7 | x1=0.54758 | tau=0.09012 | |J|=-0.73214 | dx1dt=-0.10753 | dx2dt=-1.07531

a=4 x2= 2.6 | x1=0.54138 | tau=0.09256 | |J|=-0.68241 | dx1dt=-0.11761 | dx2dt=-1.17606

a=4 x2= 2.5 | x1=0.53509 | tau=0.09503 | |J|=-0.63087 | dx1dt=-0.12740 | dx2dt=-1.27401

a=4 x2= 2.4 | x1=0.52869 | tau=0.09753 | |J|=-0.57773 | dx1dt=-0.13688 | dx2dt=-1.36879

a=4 x2= 2.3 | x1=0.52217 | tau=0.10006 | |J|=-0.52319 | dx1dt=-0.14600 | dx2dt=-1.46001

a=4 x2= 2.2 | x1=0.51548 | tau=0.10260 | |J|=-0.46746 | dx1dt=-0.15473 | dx2dt=-1.54725

a=4 x2= 2.1 | x1=0.50860 | tau=0.10514 | |J|=-0.41072 | dx1dt=-0.16301 | dx2dt=-1.63009

a=4 x2= 2.0 | x1=0.50150 | tau=0.10768 | |J|=-0.35318 | dx1dt=-0.17081 | dx2dt=-1.70808

a=4 x2= 1.9 | x1=0.49412 | tau=0.11019 | |J|=-0.29501 | dx1dt=-0.17807 | dx2dt=-1.78072

a=4 x2= 1.8 | x1=0.48643 | tau=0.11266 | |J|=-0.23642 | dx1dt=-0.18475 | dx2dt=-1.84750

a=4 x2= 1.7 | x1=0.47836 | tau=0.11506 | |J|=-0.17758 | dx1dt=-0.19078 | dx2dt=-1.90783

a=4 x2= 1.6 | x1=0.46986 | tau=0.11737 | |J|=-0.11867 | dx1dt=-0.19611 | dx2dt=-1.96110

a=4 x2= 1.5 | x1=0.46084 | tau=0.11955 | |J|=-0.05987 | dx1dt=-0.20066 | dx2dt=-2.00660

a=4 x2= 1.4 | x1=0.45122 | tau=0.12157 | |J|=-0.00135 | dx1dt=-0.20435 | dx2dt=-2.04353

a=4 x2= 1.3 | x1=0.44089 | tau=0.12337 | |J|=0.05673 | dx1dt=-0.20710 | dx2dt=-2.07100

a=4 x2= 1.2 | x1=0.42973 | tau=0.12489 | |J|=0.11421 | dx1dt=-0.20880 | dx2dt=-2.08797

a=4 x2= 1.1 | x1=0.41760 | tau=0.12606 | |J|=0.17095 | dx1dt=-0.20932 | dx2dt=-2.09323

a=4 x2= 1.0 | x1=0.40430 | tau=0.12679 | |J|=0.22683 | dx1dt=-0.20853 | dx2dt=-2.08535

a=4 x2= 0.9 | x1=0.38961 | tau=0.12695 | |J|=0.28173 | dx1dt=-0.20626 | dx2dt=-2.06260

a=4 x2= 0.8 | x1=0.37326 | tau=0.12641 | |J|=0.33562 | dx1dt=-0.20229 | dx2dt=-2.02288

a=4 x2= 0.7 | x1=0.35487 | tau=0.12494 | |J|=0.38849 | dx1dt=-0.19635 | dx2dt=-1.96353

a=4 x2= 0.6 | x1=0.33397 | tau=0.12231 | |J|=0.44050 | dx1dt=-0.18811 | dx2dt=-1.88111

a=4 x2= 0.5 | x1=0.30988 | tau=0.11813 | |J|=0.49202 | dx1dt=-0.17710 | dx2dt=-1.77101

# **Вывод**

Для реализации поставленной задачи была использована система MatLab R2016b.

В ходе работы были найдены стационарные устойчивые и неустойчивые точки, точки вещественной бифуркации (приблизительно), а вот точки бифуркации Андронова-Хопфа так и не нашлись, хотя искали целые диапазоны значений, на которых должны были быть эти самые точки.

# **Список используемой литературы**

1. С.М.Устинов, В.А.Зимницкий. Вычислительная математика. – СПб.: БХВ-Петербург, 2009. – 336с. – (Учебное пособие.)

2. Официальная документация на сайте MatLab (mathworks.com);

3. Математические расчеты в MATLAB: методические указания / сост.:

Н.Ф. Антипенко, Т.А. Санькова. Омск: СибАДИ, 2010, 56 с.

4. Учебное пособие по MatLab, Гаспарян О. Н.

5. Использование пакета Matlab в научной и учебной работе,Золотых Н.Ю.

6. MATLAB. Полный самоучитель. – М.: ДМК Пресс, 2012.– 768 с.: ил. Дьяконов В. П.