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## Курсовой проект

по дисциплине «Математические модели»

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## Задание

22. В МОДЕЛИ 1 была выполнена следующая замена переменных:  $p_2 = k_0 \cdot \tau$ ,  $p_5 = a \cdot \tau$ . При этом  $p_1 = 1$ ,  $p_3 = 20$ ,  $p_4 = 10$ ,  $p_6 = -5$ ,  $k_0 = 1$ . Построить зависимость стационарных решений от параметра  $\tau$ :  $x_2(\tau)$ ,  $x_1(\tau)$  для  $a = 1, 2, 4$ . По оси  $\tau$  целесообразно использовать логарифмический масштаб. На графиках отметить устойчивые и неустойчивые стационарные точки, а также точки вещественной бифуркации и бифуркации Андронова-Хопфа (если они есть!). Априори известно, что  $p_2 > 0$ ,  $0 < x_1 < 1$ , а значения  $x_2$  могут быть различных знаков.

**МОДЕЛЬ N1**

$$\frac{dx_1}{dt} = -p_1 x_1 + p_2 (1 - x_1) \exp\left(\frac{x_2}{1 + x_2 / p_3}\right);$$
$$\frac{dx_2}{dt} = -p_1 x_2 + p_2 p_4 (1 - x_1) \exp\left(\frac{x_2}{1 + x_2 / p_3}\right) - p_5 (x_2 - p_6).$$

## Аналитические преобразования

Для нахождения решений уравнений, необходимо приравнять 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)
```

2) 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  $x_2$ , 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:  $c +$  на  $-$ , или  $c -$  на  $+$ .

### 3) Для точек вещественной бифуркации:

```
C - на +   if (real (BUFLAM1 (g)) < 0 && real (BUFLAM1 (g+1)) > 0) || ...
            (real (BUFLAM2 (g)) < 0 && real (BUFLAM2 (g+1)) > 0)
```

```
C + на -   if (real (BUFLAM1 (g)) > 0 && real (BUFLAM1 (g+1)) < 0) || ...
            (real (BUFLAM2 (g)) > 0 && real (BUFLAM2 (g+1)) < 0)
```

### 4) Для точек комплексной бифуркации (Андропова-Хопфа):

```
C - на +   if (imag (BUFLAM1 (g)) < 0 && imag (BUFLAM1 (g+1)) > 0) || ...
            (imag (BUFLAM2 (g)) < 0 && imag (BUFLAM2 (g+1)) > 0)
```

```
C + 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  $x_2$ , 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-  $x_2$ . 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=[];GRAFTA=[];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 количества 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 количества 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);
            end
        end
    end
end

```

```

        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 a=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
kolc=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
    end
end

```



```

%-----
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 a=%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 количество точек разных типов
fprintf('\n\tПри a=%i',at);
fprintf('\n\tКоличество стационарных устойчивых точек для
x%i(tau):%i',strx,stac);
fprintf('\n\tКоличество стационарных неустойчивых точек для
x%i(tau):%i',strx,nstac);
fprintf('\n\tКоличество точек вещественной бифуркации для
x%i(tau):%i',strx,kolv);
fprintf('\n\tКоличество точек бифуркации Андронова-Хопфа для
x%i(tau):%i',strx,kolk);
fprintf('\n\tКоличество 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  $p_4$ :

$$\text{temp1} = -10 \cdot x_1 - 10 \cdot \tau \cdot \exp(x_2/(x_2/20 + 1)) \cdot (x_1 - 1)$$

Вычтем (1) уравнение из (2):

$$\text{temp2} = 10 \cdot x_1 - x_2 - a \cdot \tau \cdot (x_2 + 5)$$

Выразим  $x_1$ :

$$x_1 = x_2/10 + (a \cdot \tau \cdot (x_2 + 5))/10$$

Подставим  $x_1$  в (1):

$$\text{temp3} = -x_2/10 - (a \cdot \tau \cdot (x_2 + 5))/10 - \tau \cdot \exp(x_2/(x_2/20 + 1)) \cdot (x_2/10 + (a \cdot \tau \cdot (x_2 + 5))/10 - 1)$$

Решим квадратное уравнение по переменной  $\tau$ :

$$\tau_{\text{aut}} =$$

$$-(5 \cdot a - 10 \cdot \exp(x_2/(x_2/20 + 1)) - 10 \cdot (\exp((2 \cdot x_2)/(x_2/20 + 1)) + (x_2^2 \cdot \exp((2 \cdot x_2)/(x_2/20 + 1)))/100 - a \cdot \exp(x_2/(x_2/20 + 1)) + (a^2 \cdot x_2)/10 - (x_2 \cdot \exp((2 \cdot x_2)/(x_2/20 + 1)))/5 + a^2/4 + (a^2 \cdot x_2^2)/100 - (3 \cdot a \cdot x_2 \cdot \exp(x_2/(x_2/20 + 1)))/10 - (a \cdot x_2^2 \cdot \exp(x_2/(x_2/20 + 1)))/50)^{1/2} + a \cdot x_2 + x_2 \cdot \exp(x_2/(x_2/20 + 1)))/(2 \cdot (5 \cdot a \cdot \exp(x_2/(x_2/20 + 1)) + a \cdot x_2 \cdot \exp(x_2/(x_2/20 + 1))))$$

$$-(5 \cdot a - 10 \cdot \exp(x_2/(x_2/20 + 1)) + 10 \cdot (\exp((2 \cdot x_2)/(x_2/20 + 1)) + (x_2^2 \cdot \exp((2 \cdot x_2)/(x_2/20 + 1)))/100 - a \cdot \exp(x_2/(x_2/20 + 1)) + (a^2 \cdot x_2)/10 - (x_2 \cdot \exp((2 \cdot x_2)/(x_2/20 + 1)))/5 + a^2/4 + (a^2 \cdot x_2^2)/100 - (3 \cdot a \cdot x_2 \cdot \exp(x_2/(x_2/20 + 1)))/10 - (a \cdot x_2^2 \cdot \exp(x_2/(x_2/20 + 1)))/50)^{1/2} + a \cdot x_2 + x_2 \cdot \exp(x_2/(x_2/20 + 1)))/(2 \cdot (5 \cdot a \cdot \exp(x_2/(x_2/20 + 1)) + a \cdot x_2 \cdot \exp(x_2/(x_2/20 + 1))))$$

Строим матрицу Якоби:

$$maj =$$

$$[-\tau \cdot \exp(x_2/(x_2/20 + 1)) - 1, \quad \tau \cdot \exp(x_2/(x_2/20 + 1)) \cdot (x_2/(20 \cdot (x_2/20 + 1)^2) - 1/(x_2/20 + 1)) \cdot (x_1 - 1)]$$

$$[-10 \cdot \tau \cdot \exp(x_2/(x_2/20 + 1)), \quad 10 \cdot \tau \cdot \exp(x_2/(x_2/20 + 1)) \cdot (x_2/(20 \cdot (x_2/20 + 1)^2) - 1/(x_2/20 + 1)) \cdot (x_1 - 1) - a \cdot \tau - 1]$$

## 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							

181	1	4	0.60478	1	0.9443	-10.972+0i	-2.0282+0i	276	1	8.7	0.020522	2	0.89811	-5.4333+0i	-1.0408+0i
182	1	4	0.026216	2	0.42359	-0.99113+0i	1.1717+0i	277	1	8.8	0.061881	1	0.9654	-24.23+0i	-1.0743+0i
183	1	4.1	0.58962	1	0.94656	-11.817+0i	-1.9655+0i	278	1	8.8	0.022857	2	0.91154	-6.8919+0i	-1.04+0i
184	1	4.1	0.025438	2	0.43315	-0.9911+0i	1.1846+0i	279	1	8.9	0.049893	1	0.95935	-19.995+0i	-1.062+0i
185	1	4.2	0.57466	1	0.94868	-12.672+0i	-1.9102+0i	280	1	8.9	0.027129	2	0.92771	-9.3757+0i	-1.0416+0i
186	1	4.2	0.024694	2	0.44272	-0.99107+0i	1.1958+0i	281	1	9	0.035995	1	0.95039	-14.635+0i	-1.0471+0i
187	1	4.3	0.55988	1	0.95069	-13.539+0i	-1.8609+0i	282	1	9	0.035995	2	0.95039	-14.635+0i	-1.0471+0i
188	1	4.3	0.023982	2	0.4523	-0.99102+0i	1.2051+0i	283	1	9.1	0.035222	1	0.95966	-15.824+0i	-1.0435+0i
189	1	4.4	0.5453	1	0.95258	-14.417+0i	-1.8164+0i	284	1	9.1	0.035222	2	0.95966	-15.824+0i	-1.0435+0i
190	1	4.4	0.023301	2	0.4619	-0.99096+0i	1.2126+0i	285	1	9.2	0.034469	1	0.96895	-17.052+0i	-1.0404+0i
191	1	4.5	0.53091	1	0.95436	-15.307+0i	-1.776+0i	286	1	9.2	0.034469	2	0.96895	-17.052+0i	-1.0404+0i
192	1	4.5	0.022652	2	0.47152	-0.99089+0i	1.2182+0i	287	1	9.3	0.033736	1	0.97824	-18.319+0i	-1.0376+0i
193	1	4.6	0.51671	1	0.95604	-16.207+0i	-1.739+0i	288	1	9.3	0.033736	2	0.97824	-18.319+0i	-1.0376+0i
194	1	4.6	0.022032	2	0.48115	-0.9908+0i	1.2218+0i	289	1	9.4	0.033023	1	0.98755	-19.627+0i	-1.035+0i
195	1	4.7	0.50271	1	0.95763	-17.119+0i	-1.7048+0i	290	1	9.4	0.033023	2	0.98755	-19.627+0i	-1.035+0i
196	1	4.7	0.02144	2	0.4908	-0.99071+0i	1.2233+0i	291	1	9.5	0.03233	1	0.99688	-20.974+0i	-1.0328+0i
197	1	4.8	0.4889	1	0.95912	-18.04+0i	-1.6732+0i	292	1	9.5	0.03233	2	0.99688	-20.974+0i	-1.0328+0i
198	1	4.8	0.020876	2	0.50046	-0.99059+0i	1.2227+0i	293	1	9.6	NaN	NaN	NaN	NaN+0i	NaN+0i
199	1	4.9	0.47528	1	0.96053	-18.969+0i	-1.6436+0i	294	1	9.6	NaN	NaN	NaN	NaN+0i	NaN+0i
200	1	4.9	0.020339	2	0.51014	-0.99046+0i	1.2199+0i	295	1	9.7	NaN	NaN	NaN	NaN+0i	NaN+0i
201	1	5	0.46186	1	0.96186	-19.906+0i	-1.616+0i	296	1	9.7	NaN	NaN	NaN	NaN+0i	NaN+0i
202	1	5	0.019828	2	0.51983	-0.99031+0i	1.2148+0i	297	1	9.8	NaN	NaN	NaN	NaN+0i	NaN+0i
203	1	5.1	0.44862	1	0.96311	-20.85+0i	-1.59+0i	298	1	9.8	NaN	NaN	NaN	NaN+0i	NaN+0i
204	1	5.1	0.019342	2	0.52954	-0.99014+0i	1.2073+0i	299	1	9.9	NaN	NaN	NaN	NaN+0i	NaN+0i
205	1	5.2	0.43558	1	0.96429	-21.798+0i	-1.5655+0i	300	1	9.9	NaN	NaN	NaN	NaN+0i	NaN+0i
206	1	5.2	0.01888	2	0.53926	-0.98994+0i	1.1973+0i	301	1	10	NaN	NaN	NaN	NaN+0i	NaN+0i
207	1	5.3	0.42272	1	0.9654	-22.749+0i	-1.5423+0i	302	1	10	NaN	NaN	NaN	NaN+0i	NaN+0i
208	1	5.3	0.018442	2	0.549	-0.98972+0i	1.1847+0i	303	2	-5	NaN	NaN	NaN	NaN+0i	NaN+0i
209	1	5.4	0.41004	1	0.96645	-23.701+0i	-1.5203+0i	304	2	-5	NaN	NaN	NaN	NaN+0i	NaN+0i
210	1	5.4	0.018027	2	0.55875	-0.98948+0i	1.1694+0i	305	2	-4.9	26.429	1	0.038583	-1.0407+0i	-53.181+0i
211	1	5.5	0.39755	1	0.96743	-24.652+0i	-1.4993+0i	306	2	-4.9	NaN	NaN	NaN	NaN+0i	NaN+0i
212	1	5.5	0.017634	2	0.56852	-0.9892+0i	1.1512+0i	307	2	-4.8	12.555	1	0.02219	-1.023+0i	-25.725+0i
213	1	5.6	0.38524	1	0.96836	-25.599+0i	-1.4793+0i	308	2	-4.8	NaN	NaN	NaN	NaN+0i	NaN+0i
214	1	5.6	0.017263	2	0.5783	-0.98889+0i	1.1299+0i	309	2	-4.7	8.1188	1	0.017131	-1.0177+0i	-16.945+0i
215	1	5.7	0.37311	1	0.96923	-26.541+0i	-1.4601+0i	310	2	-4.7	NaN	NaN	NaN	NaN+0i	NaN+0i
216	1	5.7	0.016913	2	0.5881	-0.98853+0i	1.1054+0i	311	2	-4.6	5.936	1	0.014876	-1.0154+0i	-12.621+0i
217	1	5.8	0.36115	1	0.97005	-27.474+0i	-1.4418+0i	312	2	-4.6	NaN	NaN	NaN	NaN+0i	NaN+0i
218	1	5.8	0.016583	2	0.59791	-0.98813+0i	1.0775+0i	313	2	-4.5	4.6376	1	0.013758	-1.0143+0i	-10.046+0i
219	1	5.9	0.34937	1	0.97081	-28.396+0i	-1.4241+0i	314	2	-4.5	NaN	NaN	NaN	NaN+0i	NaN+0i
220	1	5.9	0.016274	2	0.60774	-0.98768+0i	1.046+0i	315	2	-4.4	3.7769	1	0.013228	-1.0138+0i	-8.336+0i
221	1	6	0.33775	1	0.97153	-29.304+0i	-1.4072+0i	316	2	-4.4	NaN	NaN	NaN	NaN+0i	NaN+0i
222	1	6	0.015985	2	0.61758	-0.98716+0i	1.0106+0i	317	2	-4.3	3.1647	1	0.013052	-1.0137+0i	-7.117+0i
223	1	6.1	0.3263	1	0.9722	-30.194+0i	-1.3908+0i	318	2	-4.3	NaN	NaN	NaN	NaN+0i	NaN+0i
224	1	6.1	0.015716	2	0.62745	-0.98657+0i	0.97098+0i	319	2	-4.2	2.707	1	0.013117	-1.0138+0i	-6.2032+0i
225	1	6.2	0.31502	1	0.97282	-31.062+0i	-1.375+0i	320	2	-4.2	NaN	NaN	NaN	NaN+0i	NaN+0i
226	1	6.2	0.015467	2	0.63732	-0.9859+0i	0.92694+0i	321	2	-4.1	2.352	1	0.013361	-1.0142+0i	-5.492+0i
227	1	6.3	0.30389	1	0.9734	-31.906+0i	-1.3598+0i	322	2	-4.1	NaN	NaN	NaN	NaN+0i	NaN+0i
228	1	6.3	0.015237	2	0.64722	-0.98512+0i	0.87809+0i	323	2	-4	2.0687	1	0.013747	-1.0147+0i	-4.9219+0i
229	1	6.4	0.29292	1	0.97393	-32.72+0i	-1.345+0i	324	2	-4	NaN	NaN	NaN	NaN+0i	NaN+0i
230	1	6.4	0.015026	2	0.65713	-0.98421+0i	0.82404+0i	325	2	-3.9	1.8375	1	0.014255	-1.0154+0i	-4.4541+0i
231	1	6.5	0.28211	1	0.97442	-33.5+0i	-1.3307+0i	326	2	-3.9	NaN	NaN	NaN	NaN+0i	NaN+0i
232	1	6.5	0.014835	2	0.66706	-0.98315+0i	0.76433+0i	327	2	-3.8	1.6453	1	0.01487	-1.0162+0i	-4.0628+0i
233	1	6.6	0.27144	1	0.97487	-34.243+0i	-1.3168+0i	328	2	-3.8	NaN	NaN	NaN	NaN+0i	NaN+0i
234	1	6.6	0.014664	2	0.67701	-0.9819+0i	0.69846+0i	329	2	-3.7	1.483	1	0.015584	-1.0172+0i	-3.73+0i
235	1	6.7	0.26092	1	0.97528	-34.942+0i	-1.3033+0i	330	2	-3.7	NaN	NaN	NaN	NaN+0i	NaN+0i
236	1	6.7	0.014513	2	0.68698	-0.98041+0i	0.62583+0i	331	2	-3.6	1.3443	1	0.016393	-1.0183+0i	-3.4431+0i
237	1	6.8	0.25055	1	0.97565	-35.593+0i	-1.2902+0i	332	2	-3.6	NaN	NaN	NaN	NaN+0i	NaN+0i
238	1	6.8	0.014383	2	0.69697	-0.9786+0i	0.54575+0i	333	2	-3.5	1.2243	1	0.017292	-1.0197+0i	-3.1925+0i
239	1	6.9	0.24031	1	0.97597	-36.19+0i	-1.2774+0i	334	2	-3.5	NaN	NaN	NaN	NaN+0i	NaN+0i
240	1	6.9	0.014274	2	0.70699	-0.97637+0i	0.45739+0i	335	2	-3.4	1.1196	1	0.018282	-1.0212+0i	-2.9714+0i
241	1	7	0.23021	1	0.97626	-36.726+0i	-1.265+0i	336	2	-3.4	NaN	NaN	NaN	NaN+0i	NaN+0i
242	1	7	0.014187	2	0.71702	-0.97356+0i	0.35979+0i	337	2	-3.3	1.0275	1	0.019361	-1.0229+0i	-2.7743+0i
243	1	7.1	0.22025	1	0.9765	-37.196+0i	-1.2528+0i	338	2	-3.3	NaN	NaN	NaN	NaN+0i	NaN+0i
244	1	7.1	0.014123	2	0.72709	-0.96994+0i	0.25175+0i	339	2	-3.2	0.94592	1	0.02053	-1.0248+0i	-2.597+0i
245	1	7.2	0.2104	1	0.97669	-37.593+0i	-1.2409+0i	340	2	-3.2	NaN	NaN	NaN	NaN+0i	NaN+0i
246	1	7.2	0.014084	2	0.73718	-0.96509+0i	0.13173+0i	341	2	-3.1	0.87313	1	0.021789	-1.0271+0i	-2.4363+0i
247	1	7.3	0.20068	1	0.97684	-37.909+0i	-1.2293+0i	342	2	-3.1	NaN	NaN	NaN	NaN+0i	NaN+0i
248	1	7.3	0.01407	2	0.74731	-0.95829+0i	-0.0023189+0i	343	2	-3	0.80785	1	0.02314	-1.0297+0i	-2.2894+0i
249	1	7.4	0.19108	1	0.97694	-38.137+0i	-1.218+0i	344	2	-3	NaN	NaN	NaN	NaN+0i	NaN+0i
250	1	7.4	0.014085	2	0.75747	-0.94804+0i	-0.15345+0i	345	2	-2.9	0.74901	1	0.024583	-1.0327+0i	-2.1542+0i
251	1	7.5	0.18159	1	0.97699	-38.267+0i	-1.2069+0i	346	2	-2.9	NaN	NaN	NaN	NaN+0i	NaN+0i
252	1	7.5	0.014131	2	0.76766	-0.93059+0i	-0.32727+0i	347	2	-2.8	0.69573	1	0.026119	-1.0363+0i	-2.0288+0i
253	1	7.6	0.17221	1	0.97698	-38.29+0i	-1.196+0i	348	2	-2.8	NaN	NaN	NaN	NaN+0i	NaN+0i
254	1	7.6	0.014211	2	0.77791	-0.89172+0i	-0.5403+0i	349	2	-2.7	0.64728	1	0.027751	-1.0405+0i	-1.9117+0i
255	1	7.7	0.16292	1	0.97691	-38.198+0i	-1.1853+0i	350	2	-2.7	NaN	NaN	NaN	NaN+0i	NaN+0i
256	1	7.7	0.014329	2	0.7882	-0.81336-0.13598i	-0.81336+0.13598i	351	2	-2.6	0.60308	1	0.029477	-1.0457+0i	-1.8014+0i
257	1	7.8	0.15373	1	0.97677	-37.977+0i	-1.1748+0i	352	2	-2.6	NaN	NaN	NaN	NaN+0i	NaN+0i
258	1	7.8	0.01449	2	0.79855	-0.92269-0.22685i	-0.92269+0.22685i	353	2	-2.5	0.5626	1	0.0313	-1.0522+0i	-1.6965+0i
259	1	7.9	0.14462	1	0.97656	-37.617+0i	-1.1645+0i	354	2	-2.5	NaN	NaN	NaN	NaN+0i	NaN+0i
260	1	7.9	0.014702	2	0.80897	-1.0462-0.24521i	-1.0462+0.24521i								

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	1.045+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					

561	2	7.9	0.060291	1	0.94555	-13.46+0i	-1.1681+0i	656	4	-2.5	NaN	NaN	NaN	NaN+0i	NaN+0i
562	2	7.9	0.017632	2	0.83549	-1.4103-0.1036i	-1.4103+0.1036i	657	4	-2.4	0.24599	1	0.015833	-1.0204+0i	-1.7752+0i
563	2	8	0.055257	1	0.94367	-12.892+0i	-1.1557+0i	658	4	-2.4	NaN	NaN	NaN	NaN+0i	NaN+0i
564	2	8	0.018367	2	0.84775	-2.0926+0i	-1.1872+0i	659	4	-2.3	0.22843	1	0.016702	-1.0223+0i	-1.6951+0i
565	2	8.1	0.05	1	0.941	-12.139+0i	-1.1432+0i	660	4	-2.3	NaN	NaN	NaN	NaN+0i	NaN+0i
566	2	8.1	0.019385	2	0.86079	-2.7223+0i	-1.1392+0i	661	4	-2.2	0.21214	1	0.017594	-1.0245+0i	-1.6198+0i
567	2	8.2	0.044304	1	0.93696	-11.109+0i	-1.1303+0i	662	4	-2.2	NaN	NaN	NaN	NaN+0i	NaN+0i
568	2	8.2	0.020897	2	0.87517	-3.5349+0i	-1.1156+0i	663	4	-2.1	0.19699	1	0.018506	-1.0271+0i	-1.5487+0i
569	2	8.3	0.037461	1	0.92965	-9.5297+0i	-1.1161+0i	664	4	-2.1	NaN	NaN	NaN	NaN+0i	NaN+0i
570	2	8.3	0.023614	2	0.89281	-4.8144+0i	-1.1031+0i	665	4	-2	0.18286	1	0.019431	-1.0301+0i	-1.4812+0i
571	2	8.4	0.029076	1	0.91792	-7.3514+0i	-1.0987+0i	666	4	-2	NaN	NaN	NaN	NaN+0i	NaN+0i
572	2	8.4	0.029076	2	0.91792	-7.3514+0i	-1.0987+0i	667	4	-1.9	0.16965	1	0.020363	-1.0338+0i	-1.4169+0i
573	2	8.5	0.028429	1	0.92676	-8.0471+0i	-1.0893+0i	668	4	-1.9	NaN	NaN	NaN	NaN+0i	NaN+0i
574	2	8.5	0.028429	2	0.92676	-8.0471+0i	-1.0893+0i	669	4	-1.8	0.15726	1	0.021292	-1.0385+0i	-1.3551+0i
575	2	8.6	0.0278	1	0.93562	-8.7666+0i	-1.0814+0i	670	4	-1.8	NaN	NaN	NaN	NaN+0i	NaN+0i
576	2	8.6	0.0278	2	0.93562	-8.7666+0i	-1.0814+0i	671	4	-1.7	0.14561	1	0.022211	-1.0448+0i	-1.295+0i
577	2	8.7	0.027188	1	0.9445	-9.5104+0i	-1.0746+0i	672	4	-1.7	NaN	NaN	NaN	NaN+0i	NaN+0i
578	2	8.7	0.027188	2	0.9445	-9.5104+0i	-1.0746+0i	673	4	-1.6	0.13464	1	0.023106	-1.0542+0i	-1.235+0i
579	2	8.8	0.026594	1	0.9534	-10.279+0i	-1.0687+0i	674	4	-1.6	NaN	NaN	NaN	NaN+0i	NaN+0i
580	2	8.8	0.026594	2	0.9534	-10.279+0i	-1.0687+0i	675	4	-1.5	0.12426	1	0.023963	-1.072+0i	-1.1696+0i
581	2	8.9	0.026015	1	0.96232	-11.074+0i	-1.0636+0i	676	4	-1.5	NaN	NaN	NaN	NaN+0i	NaN+0i
582	2	8.9	0.026015	2	0.96232	-11.074+0i	-1.0636+0i	677	4	-1.4	0.11442	1	0.024765	-1.0984-0.044105i	-1.0984+0.044105i
583	2	9	0.025453	1	0.97127	-11.895+0i	-1.059+0i	678	4	-1.4	NaN	NaN	NaN	NaN+0i	NaN+0i
584	2	9	0.025453	2	0.97127	-11.895+0i	-1.059+0i	679	4	-1.3	0.10506	1	0.025492	-1.0774-0.070719i	-1.0774+0.070719i
585	2	9.1	0.024905	1	0.98023	-12.742+0i	-1.055+0i	680	4	-1.3	NaN	NaN	NaN	NaN+0i	NaN+0i
586	2	9.1	0.024905	2	0.98023	-12.742+0i	-1.055+0i	681	4	-1.2	0.096131	1	0.026119	-1.0579-0.083445i	-1.0579+0.083445i
587	2	9.2	0.024373	1	0.98922	-1									

751	4	2.3	0.10006	1	0.52217	-0.8087+0i	0.64696+0i	829	4	6.2	0.053066	1	0.85773	-1.6216-0.94518i	-1.6216+0.94518i
752	4	2.3	0.10006	2	0.52217	-0.8087+0i	0.64696+0i	830	4	6.2	0.022954	2	0.72283	-0.82032+0i	0.33263+0i
753	4	2.4	0.097531	1	0.52869	-0.81063+0i	0.71269+0i	831	4	6.3	0.050739	1	0.85934	-1.6714-0.88836i	-1.6714+0.88836i
754	4	2.4	0.097531	2	0.52869	-0.81063+0i	0.71269+0i	832	4	6.3	0.022815	2	0.73312	-0.78947+0i	0.19078+0i
755	4	2.5	0.09503	1	0.53509	-0.81237+0i	0.77658+0i	833	4	6.4	0.048347	1	0.86046	-1.7108-0.82906i	-1.7108+0.82906i
756	4	2.5	0.09503	2	0.53509	-0.81237+0i	0.77658+0i	834	4	6.4	0.02276	2	0.74379	-0.73938+0i	0.014093+0i
757	4	2.6	0.092559	1	0.54138	-0.81391+0i	0.83843+0i	835	4	6.5	0.045875	1	0.86102	-1.7373-0.77023i	-1.7373+0.77023i
758	4	2.6	0.092559	2	0.54138	-0.81391+0i	0.83843+0i	836	4	6.5	0.022808	2	0.75492	-0.62909+0i	-0.24239+0i
759	4	2.7	0.090125	1	0.54758	-0.81526+0i	0.89805+0i	837	4	6.6	0.043295	1	0.86089	-1.7474-0.7163i	-1.7474+0.7163i
760	4	2.7	0.090125	2	0.54758	-0.81526+0i	0.89805+0i	838	4	6.6	0.022985	2	0.76665	-0.52165-0.27064i	-0.52165+0.27064i
761	4	2.8	0.087732	1	0.55372	-0.8164+0i	0.95524+0i	839	4	6.7	0.040557	1	0.8598	-1.7354-0.67387i	-1.7354+0.67387i
762	4	2.8	0.087732	2	0.55372	-0.8164+0i	0.95524+0i	840	4	6.7	0.023343	2	0.77925	-0.6255-0.43514i	-0.6255+0.43514i
763	4	2.9	0.085384	1	0.55981	-0.81735+0i	1.0098+0i	841	4	6.8	0.037552	1	0.85725	-1.6906-0.65203i	-1.6906+0.65203i
764	4	2.9	0.085384	2	0.55981	-0.81735+0i	1.0098+0i	842	4	6.8	0.023991	2	0.79324	-0.75738-0.55615i	-0.75738+0.55615i
765	4	3	0.083083	1	0.56587	-0.81809+0i	1.0615+0i	843	4	6.9	0.033953	1	0.85162	-1.5837-0.66235i	-1.5837+0.66235i
766	4	3	0.083083	2	0.56587	-0.81809+0i	1.0615+0i	844	4	6.9	0.025257	2	0.81022	-0.94581-0.65452i	-0.94581+0.65452i
767	4	3.1	0.080833	1	0.5719	-0.81863+0i	1.1101+0i	845	4	7	0.028575	1	0.83716	-1.3289-0.68932i	-1.3289+0.68932i
768	4	3.1	0.080833	2	0.5719	-0.81863+0i	1.1101+0i	846	4	7	0.028575	2	0.83716	-1.3289-0.68932i	-1.3289+0.68932i
769	4	3.2	0.078634	1	0.57792	-0.81895+0i	1.1555+0i	847	4	7.1	0.027886	1	0.84497	-1.4651-0.60867i	-1.4651+0.60867i
770	4	3.2	0.078634	2	0.57792	-0.81895+0i	1.1555+0i	848	4	7.1	0.027886	2	0.84497	-1.4651-0.60867i	-1.4651+0.60867i
771	4	3.3	0.076488	1	0.58394	-0.81905+0i	1.1973+0i	849	4	7.2	0.027218	1	0.85282	-1.6081-0.46944i	-1.6081+0.46944i
772	4	3.3	0.076488	2	0.58394	-0.81905+0i	1.1973+0i	850	4	7.2	0.027218	2	0.85282	-1.6081-0.46944i	-1.6081+0.46944i
773	4	3.4	0.074395	1	0.58997	-0.81893+0i	1.2354+0i	851	4	7.3	0.026569	1	0.86072	-1.7581-0.13692i	-1.7581+0.13692i
774	4	3.4	0.074395	2	0.58997	-0.81893+0i	1.2354+0i	852	4	7.3	0.026569	2	0.86072	-1.7581-0.13692i	-1.7581+0.13692i
775	4	3.5	0.072356	1	0.59601	-0.81856+0i	1.2695+0i	853	4	7.4	0.02594	1	0.86866	-2.4062+0i	-1.4244+0i
776	4	3.5	0.072356	2	0.59601	-0.81856+0i	1.2695+0i	854	4	7.4	0.02594	2	0.86866	-2.4062+0i	-1.4244+0i
777	4	3.6	0.07037	1	0.60207	-0.81795+0i	1.2994+0i	855	4	7.5	0.025328	1	0.87664	-2.8319+0i	-1.3275+0i
778	4	3.6	0.07037	2	0.60207	-0.81795+0i	1.2994+0i	856	4	7.5	0.025328	2	0.87664	-2.8319+0i	-1.3275+0i
779	4	3.7	0.071173	1	0.61768	-0.79987+0i	1.2983+0i	857	4	7.6	0.024735	1	0.88466	-3.2331+0i	-1.2701+0i
780	4	3.7	0.065809	2	0.59901	-0.832+0i	1.3407+0i	858	4	7.6	0.024735	2	0.88466	-3.2331+0i	-1.2701+0i
781	4	3.8	0.079074	1	0.65834	-0.71225+0i	1.118+0i	859	4	7.7	0.024158	1	0.89272	-3.6317+0i	-1.2304+0i
782	4	3.8	0.056026	2	0.57721	-0.87019+0i	1.3569+0i	860	4	7.7	0.024158	2	0.89272	-3.6317+0i	-1.2304+0i
783	4	3.9	0.081989	1	0.68188	-0.63793+0i	0.94149+0i	861	4	7.8	0.023599	1	0.90083	-4.0356+0i	-1.2007+0i
784	4	3.9	0.051109	2	0.57195	-0.88367+0i	1.3482+0i	862	4	7.8	0.023599	2	0.90083	-4.0356+0i	-1.2007+0i
785	4	4	0.083552	1	0.70079	-0.5503+0i	0.74057+0i	863	4	7.9	0.023055	1	0.90896	-4.4488+0i	-1.1776+0i
786	4	4	0.047441	2	0.57079	-0.89198+0i	1.3362+0i	864	4	7.9	0.023055	2	0.90896	-4.4488+0i	-1.1776+0i
787	4	4.1	0.084336	1	0.71698	-0.42866+0i	0.49578+0i	865	4	8	0.022527	1	0.91714	-4.8735+0i	-1.1589+0i
788	4	4.1	0.044462	2	0.57184	-0.89773+0i	1.3225+0i	866	4	8	0.022527	2	0.91714	-4.8735+0i	-1.1589+0i
789	4	4.2	0.084583	1	0.73127	-0.15718+0i	0.092346+0i	867	4	8.1	0.022014	1	0.92535	-5.3112+0i	-1.1434+0i
790	4	4.2	0.041942	2	0.57435	-0.9019+0i	1.3077+0i	868	4	8.1	0.022014	2	0.92535	-5.3112+0i	-1.1434+0i
791	4	4.3	0.084427	1	0.74407	-0.10234-0.41956i	-0.10234+0.41956i	869	4	8.2	0.021515	1	0.9336	-5.7631+0i	-1.1304+0i
792	4	4.3	0.039759	2	0.5779	-0.90498+0i	1.2916+0i	870	4	8.2	0.021515	2	0.9336	-5.7631+0i	-1.1304+0i
793	4	4.4	0.083954	1	0.75567	-0.17578-0.59939i	-0.17578+0.59939i	871	4	8.3	0.021031	1	0.94188	-6.23+0i	-1.1193+0i
794	4	4.4	0.037837	2	0.58227	-0.90723+0i	1.274+0i	872	4	8.3	0.021031	2	0.94188	-6.23+0i	-1.1193+0i
795	4	4.5	0.083223	1	0.76625	-0.25236-0.72955i	-0.25236+0.72955i	873	4	8.4	0.02056	1	0.9502	-6.7124+0i	-1.1097+0i
796	4	4.5	0.036126	2	0.58728	-0.90881+0i	1.2549+0i	874	4	8.4	0.02056	2	0.9502	-6.7124+0i	-1.1097+0i
797	4	4.6	0.082276	1	0.77594	-0.33169-0.83251i	-0.33169+0.83251i	875	4	8.5	0.020102	1	0.95855	-7.2111+0i	-1.1014+0i
798	4	4.6	0.034591	2	0.59283	-0.90982+0i	1.234+0i	876	4	8.5	0.020102	2	0.95855	-7.2111+0i	-1.1014+0i
799	4	4.7	0.081148	1	0.78486	-0.4134-0.91654i	-0.4134+0.91654i	877	4	8.6	0.019658	1	0.96694	-7.7264+0i	-1.094+0i
800	4	4.7	0.033205	2	0.59884	-0.91033+0i	1.211+0i	878	4	8.6	0.019658	2	0.96694	-7.7264+0i	-1.094+0i
801	4	4.8	0.079866	1	0.79308	-0.49714-0.98567i	-0.49714+0.98567i	879	4	8.7	0.019225	1	0.97535	-8.259+0i	-1.0875+0i
802	4	4.8	0.031949	2	0.60524	-0.91036+0i	1.1856+0i	880	4	8.7	0.019225	2	0.97535	-8.259+0i	-1.0875+0i
803	4	4.9	0.078451	1	0.80067	-0.5825-1.0422i	-0.5825+1.0422i	881	4	8.8	0.018804	1	0.9838	-8.809+0i	-1.0817+0i
804	4	4.9	0.030806	2	0.61199	-0.90993+0i	1.1577+0i	882	4	8.8	0.018804	2	0.9838	-8.809+0i	-1.0817+0i
805	4	5	0.07692	1	0.80768	-0.66912-1.0875i	-0.66912+1.0875i	883	4	8.9	0.018395	1	0.99228	-9.3771+0i	-1.0764+0i
806	4	5	0.029764	2	0.61906	-0.90903+0i	1.1269+0i	884	4	8.9	0.018395	2	0.99228	-9.3771+0i	-1.0764+0i
807	4	5.1	0.075289	1	0.81417	-0.75657-1.1226i	-0.75657+1.1226i	885	4	9	NaN	NaN	NaN	NaN+0i	NaN+0i
808	4	5.1	0.028813	2	0.62641	-0.90766+0i	1.0928+0i	886	4	9	NaN	NaN	NaN	NaN+0i	NaN+0i
809	4	5.2	0.07357	1	0.82016	-0.84443-1.148i	-0.84443+1.148i	887	4	9.1	NaN	NaN	NaN	NaN+0i	NaN+0i
810	4	5.2	0.027946	2	0.63402	-0.90577+0i	1.0552+0i	888	4	9.1	NaN	NaN	NaN	NaN+0i	NaN+0i
811	4	5.3	0.071772	1	0.8257	-0.93224-1.1642i	-0.93224+1.1642i	889	4	9.2	NaN	NaN	NaN	NaN+0i	NaN+0i
812	4	5.3	0.027155	2	0.64188	-0.90331+0i	1.0135+0i	890	4	9.2	NaN	NaN	NaN	NaN+0i	NaN+0i
813	4	5.4	0.069906	1	0.83081	-1.0195-1.1716i	-1.0195+1.1716i	891	4	9.3	NaN	NaN	NaN	NaN+0i	NaN+0i
814	4	5.4	0.026435	2	0.64997	-0.9002+0i	0.96738+0i	892	4	9.3	NaN	NaN	NaN	NaN+0i	NaN+0i
815	4	5.5	0.067977	1	0.8355	-1.1057-1.1704i	-1.1057+1.1704i	893	4	9.4	NaN	NaN	NaN	NaN+0i	NaN+0i
816	4	5.5	0.025783	2	0.65829	-0.89632+0i	0.9162+0i	894	4	9.4	NaN	NaN	NaN	NaN+0i	NaN+0i
817	4	5.6	0.065992	1	0.8398	-1.1903-1.1609i	-1.1903+1.1609i	895	4	9.5	NaN	NaN	NaN	NaN+0i	NaN+0i
818	4	5.6	0.025194	2	0.66682	-0.89152+0i	0.85931+0i	896	4	9.5	NaN	NaN	NaN	NaN+0i	NaN+0i
819	4	5.7	0.063955	1	0.84373	-1.2726-1.1432i	-1.2726+1.1432i	897	4	9.6	NaN	NaN	NaN	NaN+0i	NaN+0i
820	4	5.7	0.024667	2	0.67557	-0.88559+0i	0.79591+0i	898	4	9.6	NaN	NaN	NaN	NaN+0i	NaN+0i
821	4	5.8	0.06187	1	0.84728	-1.3519-1.1176i	-1.3519+1.1176i	899	4	9.7	NaN	NaN	NaN	NaN+0i	NaN+0i
822	4	5.8	0.024201	2	0.68455	-0.87822+0i	0.725+0i	900	4	9.7	NaN	NaN	NaN	NaN+0i	NaN+0i
823	4	5.9	0.059738	1	0.85046	-1.4274-1.0846i	-1.4274+1.0846i	901	4	9.8	NaN	NaN	NaN	NaN+0i	NaN+0i
824	4	5.9	0.023794	2	0.69374	-0.86896+0i	0.6453+0i	902	4	9.8</					

При  $a=1$ :

Количество стационарных устойчивых точек для  $x_1(\tau)$ :151  
Количество стационарных неустойчивых точек для  $x_1(\tau)$ :88  
Количество точек вещественной бифуркации для  $x_1(\tau)$ :5  
Количество точек бифуркации Андронова-Хопфа для  $x_1(\tau)$ :0  
Количество других точек для  $x_1(\tau)$ :0

Количество стационарных устойчивых точек для  $x_2(\tau)$ :151  
Количество стационарных неустойчивых точек для  $x_2(\tau)$ :88  
Количество точек вещественной бифуркации для  $x_2(\tau)$ :5  
Количество точек бифуркации Андронова-Хопфа для  $x_2(\tau)$ :0  
Количество других точек для  $x_2(\tau)$ :0

При  $a=2$ :

Количество стационарных устойчивых точек для  $x_1(\tau)$ :142  
Количество стационарных неустойчивых точек для  $x_1(\tau)$ :92  
Количество точек вещественной бифуркации для  $x_1(\tau)$ :5  
Количество точек бифуркации Андронова-Хопфа для  $x_1(\tau)$ :0  
Количество других точек для  $x_1(\tau)$ :0

Количество стационарных устойчивых точек для  $x_2(\tau)$ :142  
Количество стационарных неустойчивых точек для  $x_2(\tau)$ :92  
Количество точек вещественной бифуркации для  $x_2(\tau)$ :5  
Количество точек бифуркации Андронова-Хопфа для  $x_2(\tau)$ :0  
Количество других точек для  $x_2(\tau)$ :0

При  $a=4$ :

Количество стационарных устойчивых точек для  $x_1(\tau)$ :138  
Количество стационарных неустойчивых точек для  $x_1(\tau)$ :80  
Количество точек вещественной бифуркации для  $x_1(\tau)$ :4  
Количество точек бифуркации Андронова-Хопфа для  $x_1(\tau)$ :0  
Количество других точек для  $x_1(\tau)$ :0

Количество стационарных устойчивых точек для  $x_2(\tau)$ :138  
Количество стационарных неустойчивых точек для  $x_2(\tau)$ :80  
Количество точек вещественной бифуркации для  $x_2(\tau)$ :4  
Количество точек бифуркации Андронова-Хопфа для  $x_2(\tau)$ :0  
Количество других точек для  $x_2(\tau)$ :0



## Точки, по которым строим график:

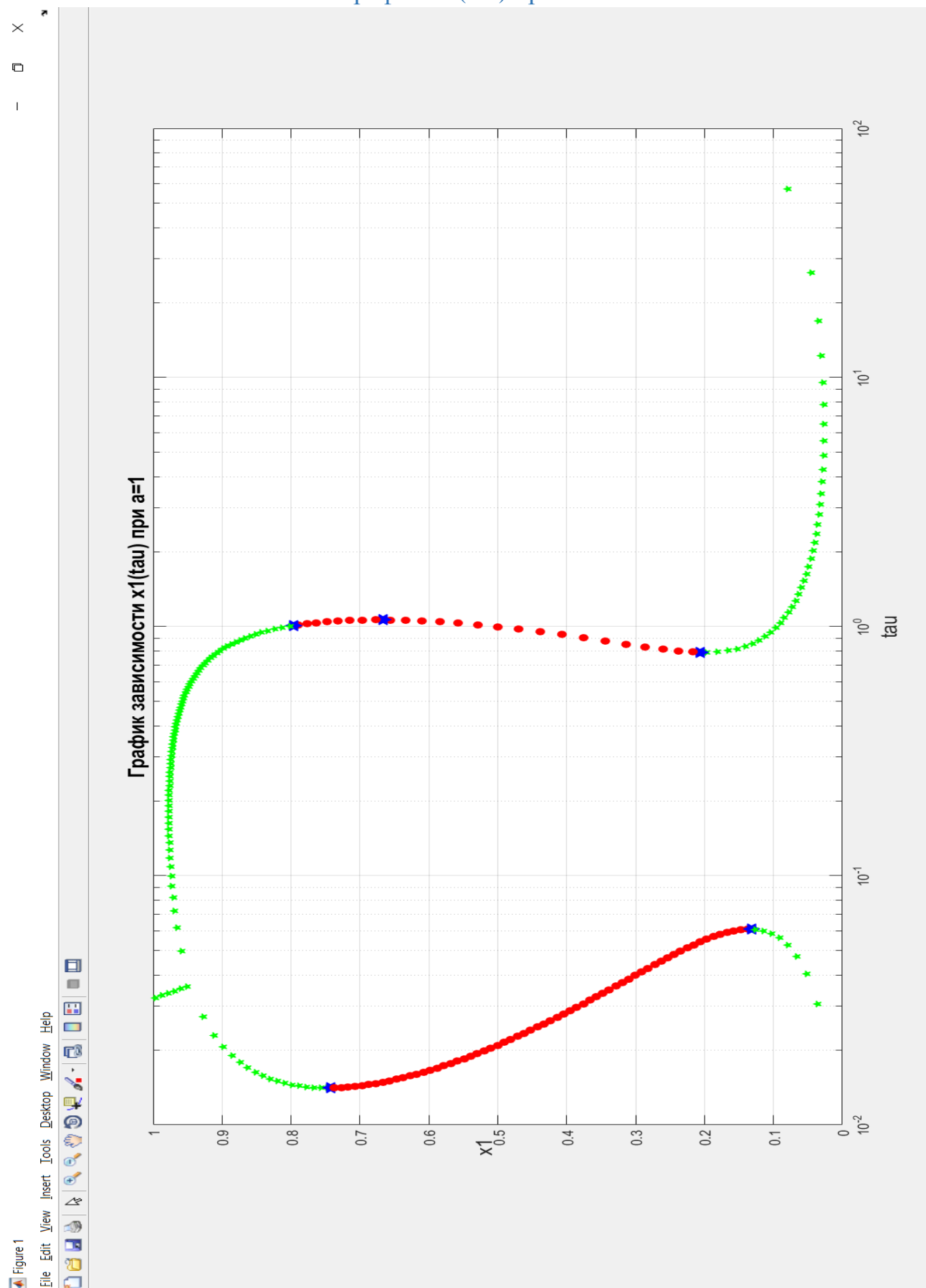
N	a	x2	tau	x1	LAM1	LAM2
1	1	-4.9	56.961	0.079607	-1.0887+0i	-56.562+0i
2	1	-4.8	26.266	0.045325	-1.0489+0i	-26.48+0i
3	1	-4.7	16.829	0.034868	-1.0375+0i	-17.232+0i
4	1	-4.6	12.256	0.030236	-1.0325+0i	-12.745+0i
5	1	-4.5	9.559	0.027951	-1.0302+0i	-10.092+0i
6	1	-4.4	7.7813	0.026875	-1.0293+0i	-8.3378+0i
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						

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		

371	2	8.2	0.044304	0.93696	-11.109+0i	-1.1303+0i	466	2	1	0.15039	0.28047	-0.93442+0i	0.78778+0i
372	2	8.3	0.037461	0.92965	-9.5297+0i	-1.1161+0i	467	2	0.9	0.17954	0.30186	-0.91752+0i	0.84949+0i
373	2	8.4	0.029076	0.91792	-7.3514+0i	-1.0987+0i	468	2	0.8	0.17876	0.28737	-0.91973+0i	0.71827+0i
374	2	8.5	0.028429	0.92676	-8.0471+0i	-1.0893+0i	469	2	0.7	0.1767	0.27144	-0.92252+0i	0.58507+0i
375	2	8.6	0.0278	0.93562	-8.7666+0i	-1.0814+0i	470	2	0.6	0.17297	0.25373	-0.92606+0i	0.44903+0i
376	2	8.7	0.027188	0.9445	-9.5104+0i	-1.0746+0i	471	2	0.5	0.16706	0.23376	-0.93054+0i	0.30874+0i
377	2	8.8	0.026594	0.9534	-10.279+0i	-1.0687+0i	472	2	0.4	0.15818	0.21084	-0.93624+0i	0.16172+0i
378	2	8.9	0.026015	0.96232	-11.074+0i	-1.0636+0i	473	2	0.3	0.14512	0.18383	-0.94359+0i	0.0033608+0i
379	2	9	0.025453	0.97127	-11.895+0i	-1.059+0i	474	2	0.2	0.1256	0.15063	-0.95331+0i	-0.17617+0i
380	2	9.1	0.024905	0.98023	-12.742+0i	-1.055+0i	475	2	0.1	0.094209	0.10609	-0.96708+0i	-0.40439+0i
381	2	9.2	0.024373	0.98922	-13.616+0i	-1.0514+0i	476	4	-4.9	12.724	0.018954	-1.0194+0i	-51.563+0i
382	2	9.3	0.023855	0.99823	-14.518+0i	-1.0481+0i	477	4	-4.8	6.1371	0.010971	-1.0112+0i	-25.359+0i
383	2	9.3	0.023855	0.99823	-14.518+0i	-1.0481+0i	478	4	-4.7	3.9874	0.0084874	-1.0086+0i	-16.804+0i
384	2	9.2	0.024373	0.98922	-13.616+0i	-1.0514+0i	479	4	-4.6	2.9211	0.0073764	-1.0075+0i	-12.56+0i
385	2	9.1	0.024905	0.98023	-12.742+0i	-1.055+0i	480	4	-4.5	2.2841	0.0068239	-1.007+0i	-10.023+0i
386	2	9	0.025453	0.97127	-11.895+0i	-1.059+0i	481	4	-4.4	1.8607	0.0065606	-1.0067+0i	-8.3347+0i
387	2	8.9	0.026015	0.96232	-11.074+0i	-1.0636+0i	482	4	-4.3	1.5588	0.006472	-1.0066+0i	-7.1302+0i
388	2	8.8	0.026594	0.9534	-10.279+0i	-1.0687+0i	483	4	-4.2	1.3328	0.0065018	-1.0067+0i	-6.227+0i
389	2	8.7	0.027188	0.9445	-9.5104+0i	-1.0746+0i	484	4	-4.1	1.1573	0.006619	-1.0068+0i	-5.5242+0i
390	2	8.6	0.0278	0.93562	-8.7666+0i	-1.0814+0i	485	4	-4	1.017	0.006806	-1.007+0i	-4.9615+0i
391	2	8.5	0.028429	0.92676	-8.0471+0i	-1.0893+0i	486	4	-3.9	0.90239	0.0070516	-1.0073+0i	-4.5005+0i
392	2	8.4	0.029076	0.91792	-7.3514+0i	-1.0987+0i	487	4	-3.8	0.80698	0.007349	-1.0077+0i	-4.1156+0i
393	2	8.3	0.023614	0.89281	-4.8144+0i	-1.1031+0i	488	4	-3.7	0.72633	0.0076938	-1.0081+0i	-3.7892+0i
394	2	8.2	0.020897	0.87517	-3.5349+0i	-1.1156+0i	489	4	-3.6	0.65729	0.008083	-1.0085+0i	-3.5086+0i
395	2	8.1	0.019385	0.86079	-2.7223+0i	-1.1392+0i	490	4	-3.5	0.59752	0.0085149	-1.0091+0i	-3.2645+0i
396	2	8	0.018367	0.84775	-2.0926+0i	-1.1872+0i	491	4	-3.4	0.54529	0.0089882	-1.0096+0i	-3.0501+0i
397	2	7.9	0.017632	0.83549	-1.4103-0.1036i	-1.4103+0.1036i	492	4	-3.3	0.49927	0.009502	-1.0103+0i	-2.8601+0i
398	2	7.8	0.017083	0.82373	-1.222-0.33225i	-1.222+0.33225i	493	4	-3.2	0.45841	0.010056	-1.011+0i	-2.6903+0i
399	2	7.7	0.016667	0.81233	-1.0636-0.3745i	-1.0636+0.3745i	494	4	-3.1	0.42191	0.010649	-1.0118+0i	-2.5374+0i
400	2	7.6	0.016352	0.80121	-0.92797-0.35584i	-0.92797+0.35584i	495	4	-3	0.3891	0.011281	-1.0127+0i	-2.399+0i
401	2	7.5	0.016118	0.79029	-0.81037-0.29244i	-0.81037+0.29244i	496	4	-2.9	0.35946	0.011951	-1.0137+0i	-2.2728+0i
402	2	7.4	0.015948	0.77955	-0.70735-0.16478i	-0.70735+0.16478i	497	4	-2.8	0.33257	0.012658	-1.0147+0i	-2.1572+0i
403	2	7.3	0.015834	0.76895	-0.62074+0i	-0.41204+0i	498	4	-2.7	0.30805	0.013402	-1.0159+0i	-2.0507+0i
404	2	7.2	0.015768	0.75847	-0.87713+0i	-0.19399+0i	499	4	-2.6	0.2856	0.01418	-1.0173+0i	-1.9522+0i
405	2	7.1	0.015743	0.7481	-0.90435+0i	-0.022381+0i	500	4	-2.5	0.26499	0.014991	-1.0187+0i	-1.8606+0i
406	2	7	0.015756	0.73781	-0.9211+0i	0.12386+0i	501	4	-2.4	0.24599	0.015833	-1.0204+0i	-1.7752+0i
407	2	6.9	0.015803	0.72761	-0.93256+0i	0.25186+0i	502	4	-2.3	0.22843	0.016702	-1.0223+0i	-1.6951+0i
408	2	6.8	0.015881	0.71748	-0.94092+0i	0.36536+0i	503	4	-2.2	0.21214	0.017594	-1.0245+0i	-1.6198+0i
409	2	6.7	0.015989	0.70741	-0.94729+0i	0.46679+0i	504	4	-2.1	0.19699	0.018506	-1.0271+0i	-1.5487+0i
410	2	6.6	0.016124	0.69741	-0.95229+0i	0.55786+0i	505	4	-2	0.18286	0.019431	-1.0301+0i	-1.4812+0i
411	2	6.5	0.016287	0.68746	-0.95631+0i	0.6399+0i	506	4	-1.9	0.16965	0.020363	-1.0338+0i	-1.4169+0i
412	2	6.4	0.016475	0.67756	-0.9596+0i	0.71394+0i	507	4	-1.8	0.15726	0.021292	-1.0385+0i	-1.3551+0i
413	2	6.3	0.016689	0.66772	-0.96234+0i	0.78084+0i	508	4	-1.7	0.14561	0.022211	-1.0448+0i	-1.295+0i
414	2	6.2	0.016928	0.65792	-0.96464+0i	0.8413+0i	509	4	-1.6	0.13464	0.023106	-1.0542+0i	-1.235+0i
415	2	6.1	0.017191	0.64816	-0.96659+0i	0.89593+0i	510	4	-1.5	0.12426	0.023963	-1.072+0i	-1.1696+0i
416	2	6	0.01748	0.63846	-0.96826+0i	0.94524+0i	511	4	-1.4	0.11442	0.024765	-1.0984-0.044105i	-1.0984+0.044105i
417	2	5.9	0.017793	0.62879	-0.9697+0i	0.98967+0i	512	4	-1.3	0.10506	0.025492	-1.0774-0.070719i	-1.0774+0.070719i
418	2	5.8	0.018131	0.61916	-0.97095+0i	1.0296+0i	513	4	-1.2	0.096131	0.026119	-1.0579-0.083445i	-1.0579+0.083445i
419	2	5.7	0.018495	0.60958	-0.97204+0i	1.0654+0i	514	4	-1.1	0.087574	0.026615	-1.0398-0.089409i	-1.0398+0.089409i
420	2	5.6	0.018885	0.60004	-0.97298+0i	1.0973+0i	515	4	-1	0.079341	0.026945	-1.0232-0.090818i	-1.0232+0.090818i
421	2	5.5	0.019302	0.59053	-0.97381+0i	1.1257+0i	516	4	-0.9	0.07138	0.027063	-1.0083-0.088731i	-1.0083+0.088731i
422	2	5.4	0.019746	0.58107	-0.97453+0i	1.1506+0i	517	4	-0.8	0.063639	0.026913	-0.99509-0.083763i	-0.99509+0.083763i
423	2	5.3	0.020219	0.57165	-0.97516+0i	1.1725+0i	518	4	-0.7	0.05606	0.026424	-0.98382-0.076316i	-0.98382+0.076316i
424	2	5.2	0.020721	0.56227	-0.97571+0i	1.1914+0i	519	4	-0.6	0.048582	0.025505	-0.97472-0.066684i	-0.97472+0.066684i
425	2	5.1	0.021254	0.55293	-0.97618+0i	1.2075+0i	520	4	-0.5	0.041132	0.024038	-0.96815-0.055116i	-0.96815+0.055116i
426	2	5	0.021818	0.54364	-0.9766+0i	1.221+0i	521	4	-0.4	0.033623	0.021866	-0.96459-0.041861i	-0.96459+0.041861i
427	2	4.9	0.022416	0.53438	-0.97695+0i	1.232+0i	522	4	-0.3	0.025943	0.018772	-0.96471-0.027201i	-0.96471+0.027201i
428	2	4.8	0.023048	0.52517	-0.97725+0i	1.2407+0i	523	4	-0.2	0.017942	0.014448	-0.96951-0.011056i	-0.96951+0.011056i
429	2	4.7	0.023716	0.51601	-0.97775+0i	1.2471+0i	524	4	-0.1	0.0094052	0.0084341	-0.98831+0i	-0.97262+0i
430	2	4.6	0.024422	0.50689	-0.9777+0i	1.2514+0i	525	4	0.5	0.11813	0.30988	-0.70055-0.035234i	-0.70055+0.035234i
431	2	4.5	0.025168	0.49782	-0.97786+0i	1.2536+0i	526	4	0.6	0.12231	0.33397	-0.7296+0i	-0.60376+0i
432	2	4.4	0.025955	0.4888	-0.97798+0i	1.2539+0i	527	4	0.7	0.12494	0.35487	-0.74238+0i	-0.52331+0i
433	2	4.3	0.026787	0.47982	-0.97806+0i	1.2524+0i	528	4	0.8	0.12641	0.37326	-0.75049+0i	-0.4472+0i
434	2	4.2	0.027665	0.4709	-0.9781+0i	1.2491+0i	529	4	0.9	0.12695	0.38961	-0.75704+0i	-0.37215+0i
435	2	4.1	0.028592	0.46204	-0.97811+0i	1.2441+0i	530	4	1	0.12679	0.4043	-0.7628+0i	-0.29736+0i
436	2	4	0.029571	0.45323	-0.97809+0i	1.2374+0i	531	4	1.1	0.12606	0.4176	-0.76804+0i	-0.22259+0i
437	2	3.9	0.030604	0.44448	-0.97803+0i	1.2292+0i	532	4	1.2	0.12489	0.42973	-0.77289+0i	-0.14778+0i
438	2	3.8	0.031696	0.43579	-0.97794+0i	1.2195+0i	533	4	1.3	0.12337	0.44089	-0.77741+0i	-0.072976+0i
439	2	3.7	0.03285	0.42716	-0.97782+0i	1.2084+0i	534	4	1.4	0.12157	0.45122	-0.78163+0i	0.0017247+0i
440	2	3.6	0.034069	0.4186	-0.97766+0i	1.1958+0i	535	4	1.5	0.11955	0.46084	-0.78557+0i	0.076213+0i
441	2	3.5	0.035358	0.41011	-0.97747+0i	1.182+0i	536	4	1.6	0.11737	0.46986	-0.78926+0i	0.15036+0i
442	2	3.4	0.036721	0.40169	-0.97724+0i	1.1668+0i	537	4	1.7	0.11506	0.47836	-0.79271+0i	0.22402+0i
443	2	3.3	0.038164	0.39335	-0.97699+0i	1.1505+0i	538	4	1.8	0.11266	0.48643	-0.79592+0i	0.29704+0i
444	2	3.2	0.039692	0.3851	-0.97669+0i	1.1329+0i	539	4	1.9	0.11019	0.49412	-0.7989+0i	0.36927+0i
445	2	3.1	0.041312	0.37693	-0.97636+0i	1.1143+0i	540	4	2	0.10768	0.5015	-0.80166+0i	0.44055+0i
446	2	3	0.04303	0.36885	-0.97599+0i	1.0945+0i	541	4	2.1	0.10514	0.5086	-0.80421+0i	0.51071+0i
447	2	2.9	0.044854	0.36087	-0.97558+0i	1.0738+0i	542	4	2.2	0.1026	0.51548	-0.80656+0i	0.57957+0i
448	2	2.8	0.046792	0.353	-0.97512+0i	1.0521+0i	543	4	2.3	0.10006	0.5		

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	0.070737	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  $x_1(\tau)$  при  $a=1$



Графи  $x_2(\tau)$  при  $a=1$

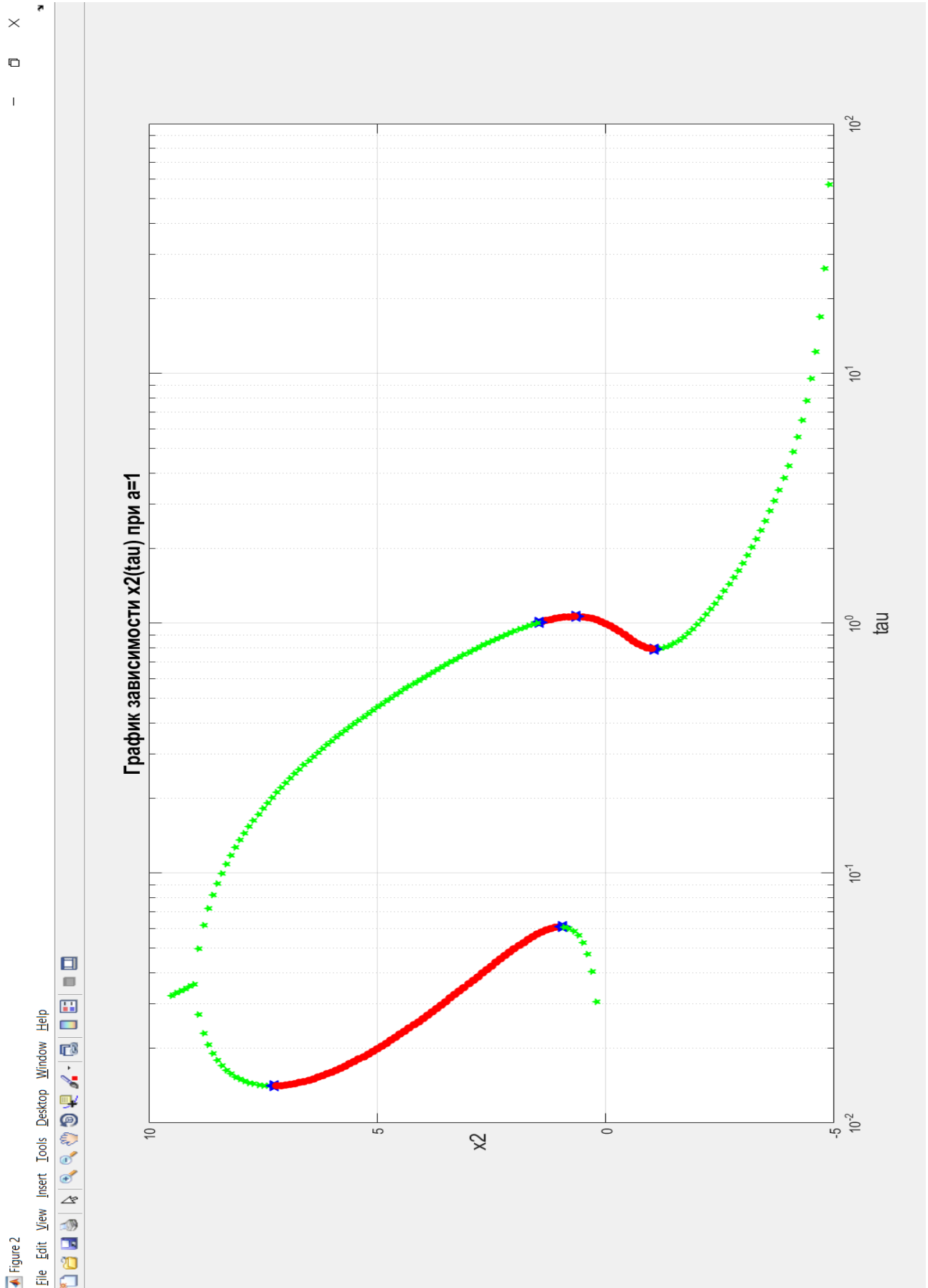


График  $x_1(\tau)$  при  $a=2$

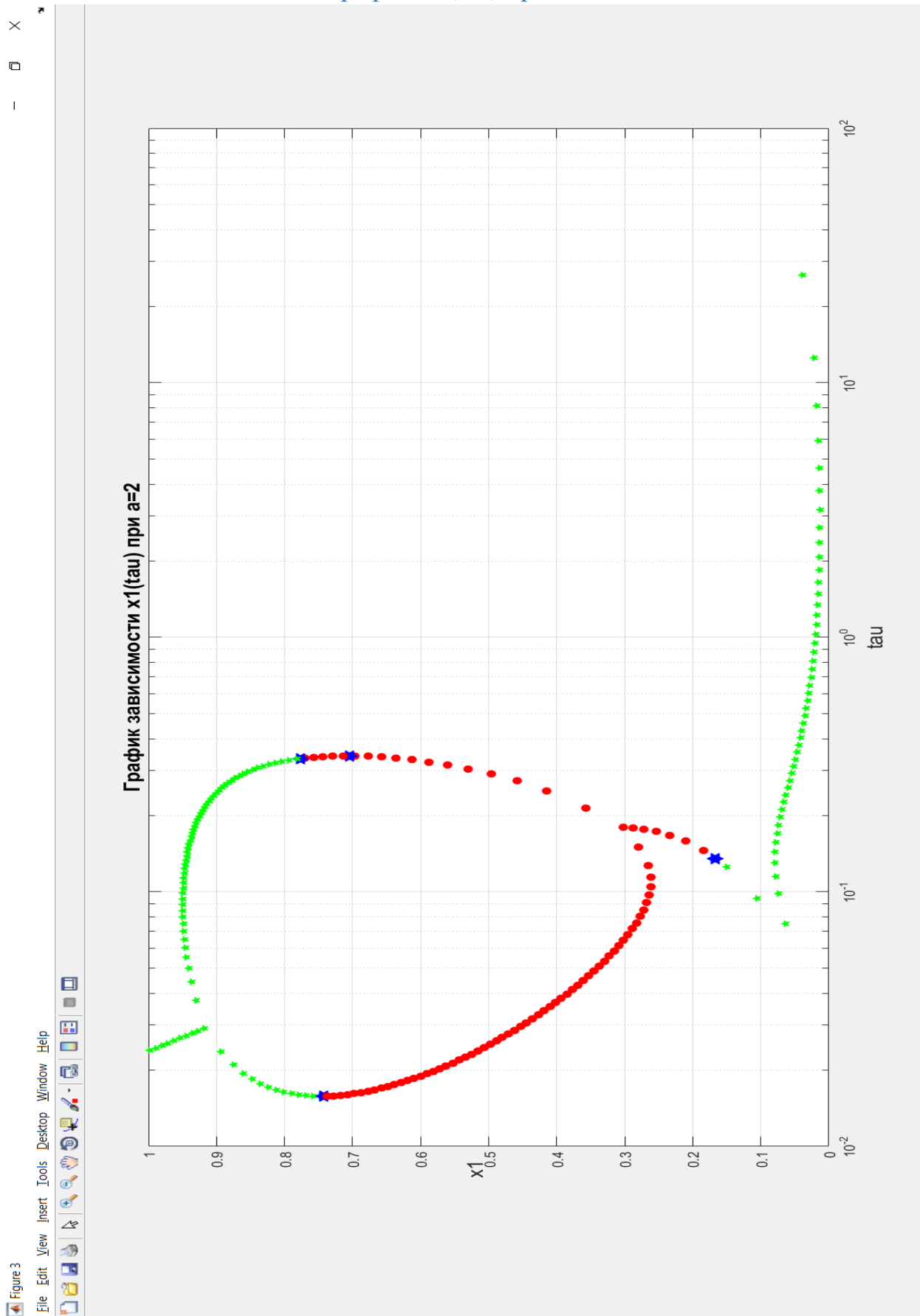


График  $x_2(\tau)$  при  $a=2$

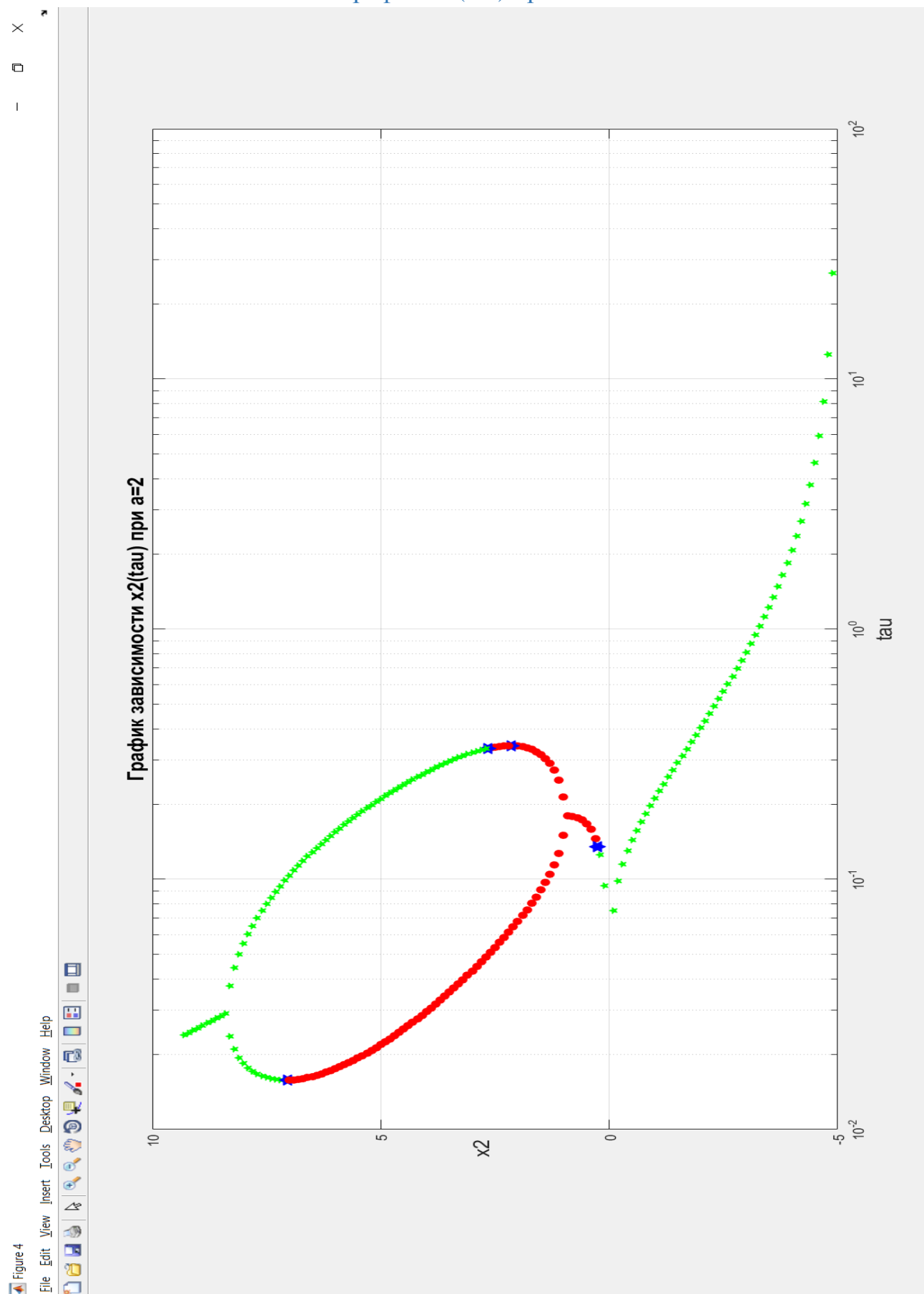




График  $x_1(\tau)$  при  $a=4$

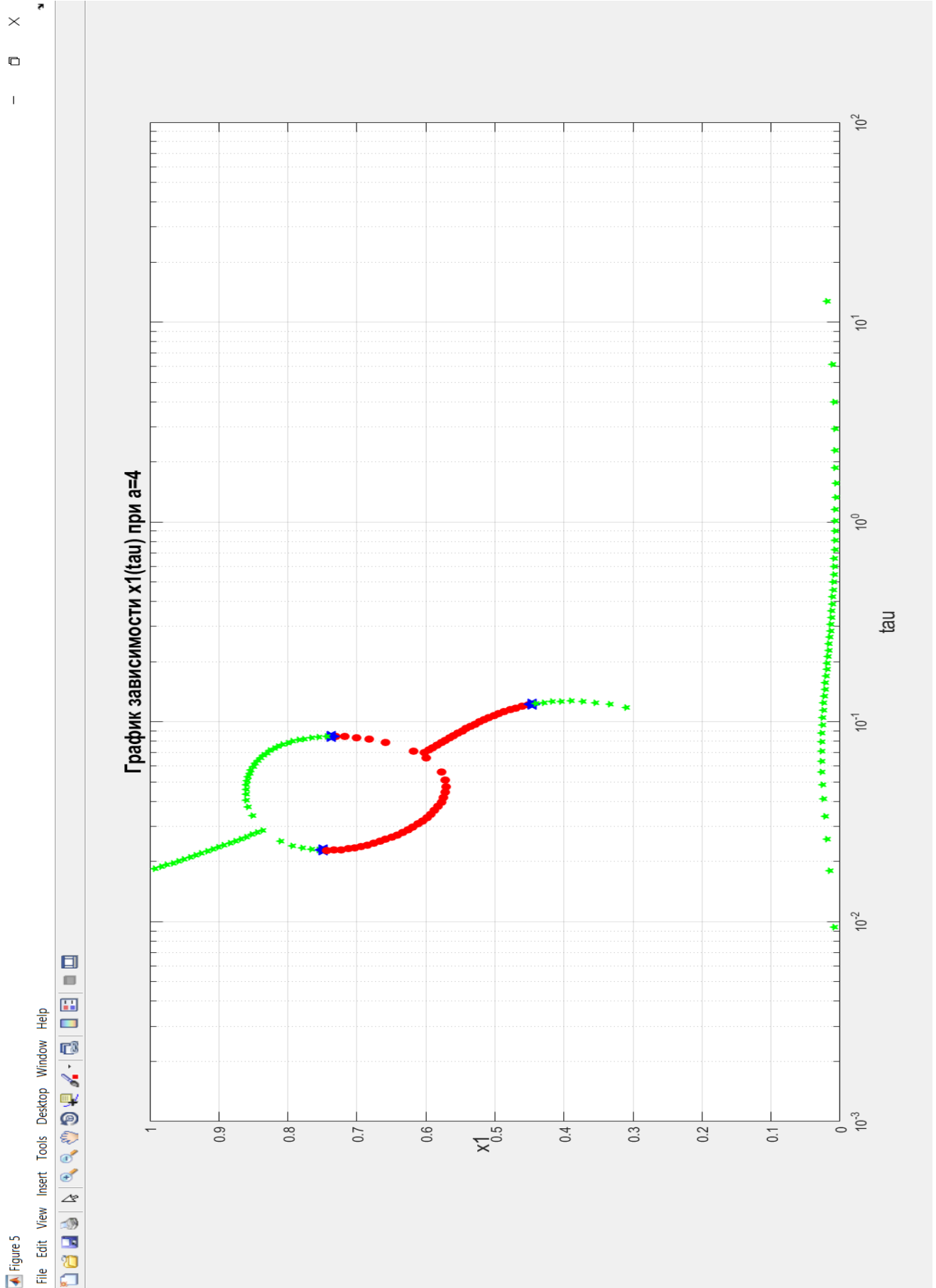
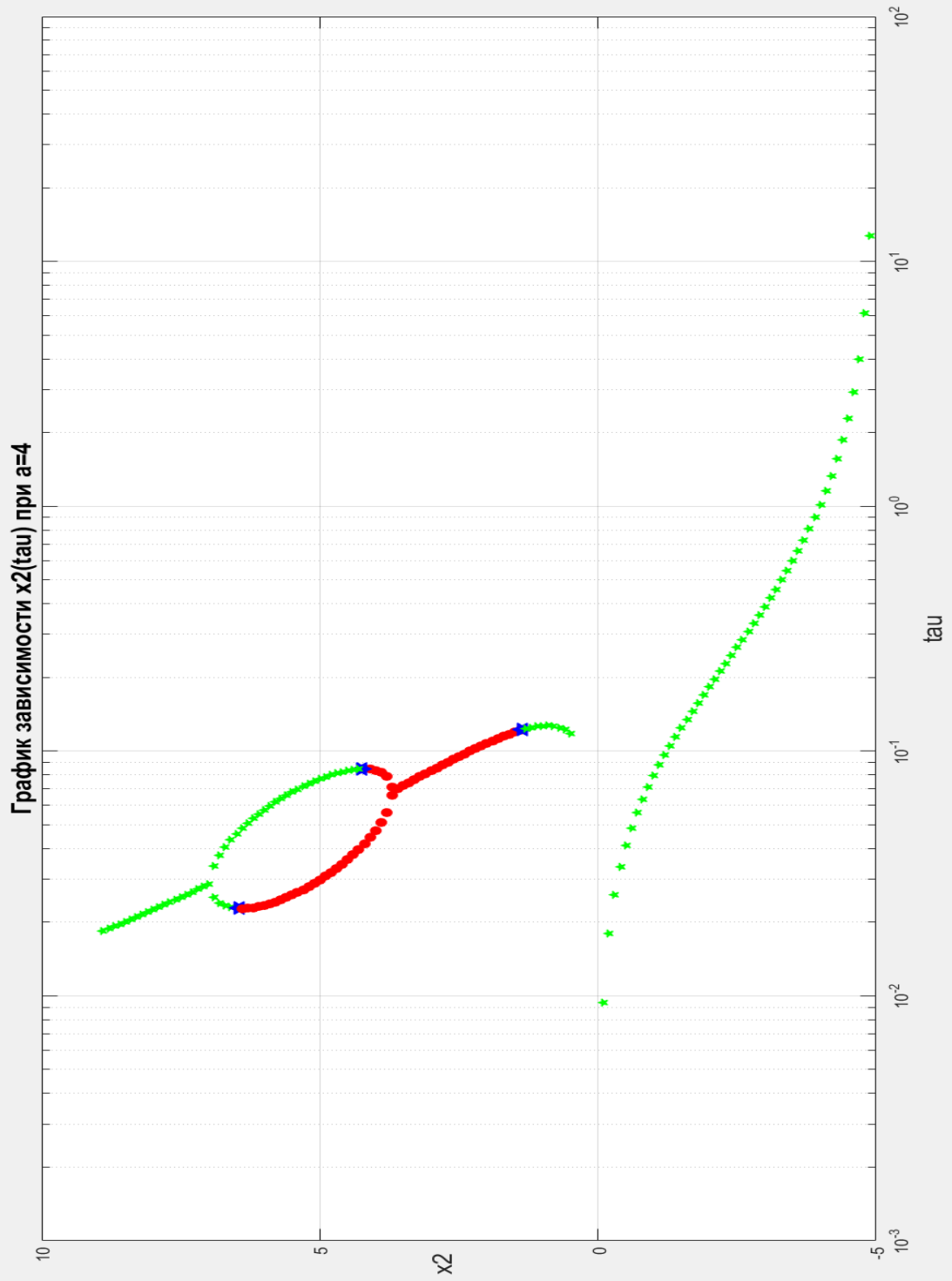
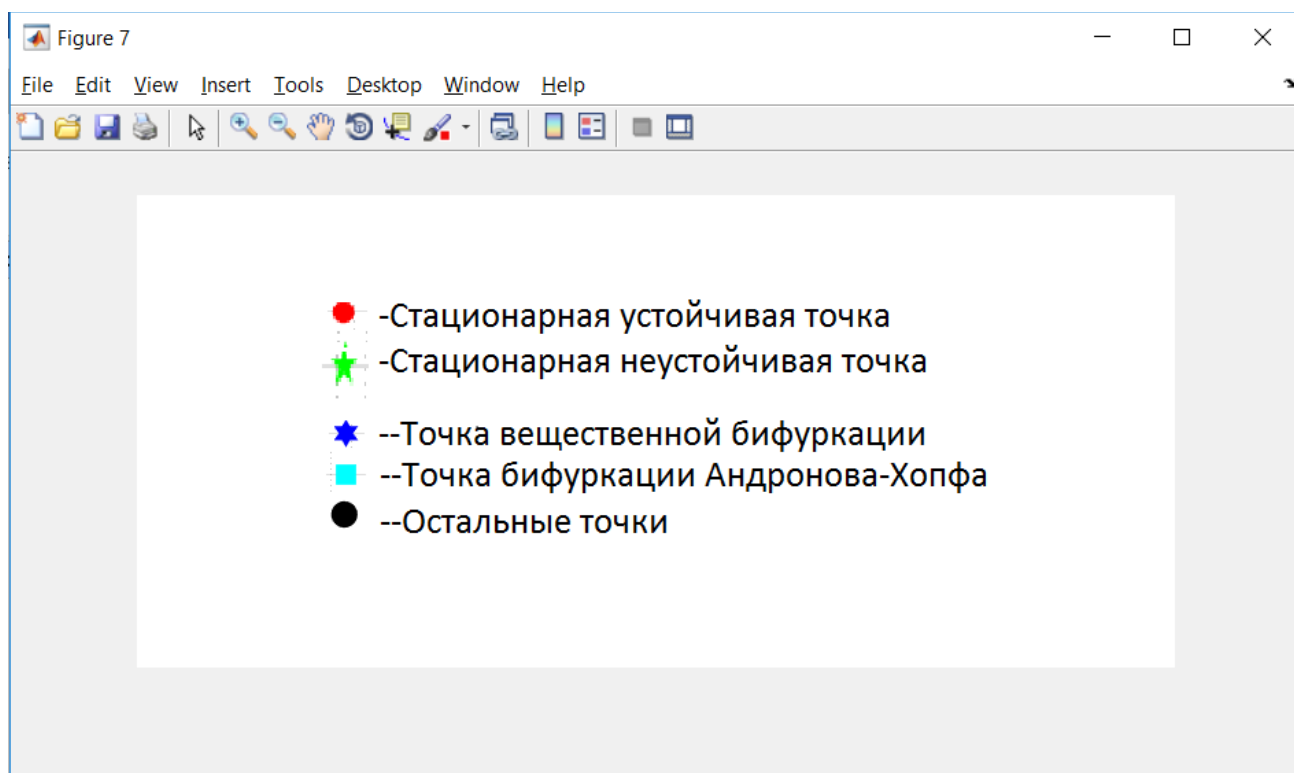


График  $x_2(\tau)$  при  $a=4$



## Легенда для точек ко всем графикам



## Блок проверки

Возьмем по 2 точки на основе полученных графиков для каждого  $a$  и выполним проверку. Для этого подставим полученные значения  $a, \tau, x_1, x_2$  в исходную систему уравнений, затем вычислим определитель матрицы Якоби.

### Список произвольно выбранных точек:

$a=1 \mid x_2=-0.5 \mid \tau=0.87532 \mid x_1=0.34390 \mid L_1=-0.76913 \mid L_2=0.98723 \mid \det J=-0.7593 \mid dx_1dt=-8.2394e-06 \mid dx_2dt=-2.2394e-05$   
 $a=1 \mid x_2=4.1 \mid \tau=0.02544 \mid x_1=0.43315 \mid L_1=-0.9911 \mid L_2=1.1846 \mid \det J=-1.1742 \mid dx_1dt=2.9332e-05 \mid dx_2dt=2.8932e-04$

$a=2 \mid x_2=2.4 \mid \tau=0.34029 \mid x_1=0.74362 \mid L_1=0.17352+0.77258i \mid L_2=0.17352-0.77258i \mid \det J=0.6269$   
 $dx_1dt=2.2775e-05 \mid dx_2dt=1.3575e-04$

$a=2 \mid x_2=4.4 \mid \tau=0.02596 \mid x_1=0.48880 \mid L_1=-0.97798 \mid L_2=1.2539 \mid \det J=-1.2267 \mid dx_1dt=8.1385e-05 \mid dx_2dt=7.6585e-04$

$a=4 \mid x_2=3.2 \mid \tau=0.07863 \mid x_1=0.57792 \mid L_1=-0.81895 \mid L_2=1.1555 \mid \det J=-0.9462 \mid dx_1dt=-0.0543 \mid dx_2dt=-0.5426$

$a=4 \mid x_2=4.0 \mid \tau=0.04744 \mid x_1=0.57079 \mid L_1=-0.89198 \mid L_2=1.3362 \mid \det J=-1.1918 \mid dx_1dt=-1.7835e-05 \mid dx_2dt=-1.1835e-04$

Из-за погрешностей при вычислении матрицы Якоби и исходной системы уравнений мы получили около нулевые значения. Учитывая величину чисел, участвующих в расчетах значение  $\det J, dx_1dt, dx_2dt$  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=-0.9   x1=0.23724   tau=0.79815    J =-0.24382   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=-0.8   x1=0.26059   tau=0.81092    J =-0.37842   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=-0.7   x1=0.28631   tau=0.82863    J =-0.51234   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=-0.6   x1=0.31421   tau=0.85047    J =-0.64114   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=-0.5   x1=0.34390   tau=0.87532    J =-0.75930   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=-0.4   x1=0.37485   tau=0.90184    J =-0.86083   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=-0.3   x1=0.40647   tau=0.92866    J =-0.93997   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=-0.2   x1=0.43818   tau=0.95455    J =-0.99182   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=-0.1   x1=0.46949   tau=0.97856    J =-1.01267   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=0.0   x1=0.50000   tau=1.00000    J =1.00000   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=0.1   x1=0.52941   tau=1.01846    J =0.95235   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=0.2   x1=0.55754   tau=1.03374    J =0.86910   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=0.3   x1=0.58428   tau=1.04580    J =0.75028   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=0.4   x1=0.60956   tau=1.05473    J =0.59631   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=0.5   x1=0.63337   tau=1.06068    J =0.40790   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=0.6   x1=0.65575   tau=1.06384    J =0.18591   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=0.7   x1=0.67673   tau=1.06443    J =0.06872   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=0.8   x1=0.69636   tau=1.06270    J =0.35503   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=0.9   x1=0.71472   tau=1.05885    J =0.67207   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=1.0   x1=0.73187   tau=1.05312    J =1.01892   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=1.1   x1=0.74788   tau=1.04571    J =1.39473   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=1.2   x1=0.76282   tau=1.03681    J =1.79868   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=1.3   x1=0.77677   tau=1.02661    J =2.23003   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=1.4   x1=0.78977   tau=1.01527    J =2.68806   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=1.5   x1=0.80191   tau=1.00294    J =3.17215   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=1.6   x1=0.81324   tau=0.98975    J =3.68169   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=1.7   x1=0.82381   tau=0.97583    J =4.21613   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=1.8   x1=0.83367   tau=0.96129    J =4.77494   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=1.9   x1=0.84289   tau=0.94621    J =5.35764   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=2.0   x1=0.85149   tau=0.93071    J =5.96376   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=2.1   x1=0.85954   tau=0.91484    J =6.59284   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=2.2   x1=0.86705   tau=0.89869    J =7.24446   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=2.3   x1=0.87408   tau=0.88231    J =7.91819   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=2.4   x1=0.88066   tau=0.86576    J =8.61357   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=2.5   x1=0.88682   tau=0.84909    J =9.33019   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=2.6   x1=0.89258   tau=0.83234    J =10.06759   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=2.7   x1=0.89798   tau=0.81556    J =10.82530   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=2.8   x1=0.90304   tau=0.79877    J =11.60284   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=2.9   x1=0.90778   tau=0.78200    J =12.39969   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=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|=42.00000 | 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|=16.51296 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.1 | x1=0.95966 | tau=0.03522 | |J|=17.74038 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.2 | x1=0.96895 | tau=0.03447 | |J|=19.00734 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.3 | x1=0.97824 | tau=0.03302 | |J|=20.31438 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.4 | x1=0.98755 | tau=0.03233 | |J|=21.66202 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.5 | x1=0.99688 | tau=0.03233 | |J|=21.66202 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.6 | x1=0.99688 | tau=0.03233 | |J|=21.66202 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.7 | x1=0.98755 | tau=0.03302 | |J|=20.31438 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.8 | x1=0.97824 | tau=0.03374 | |J|=19.00734 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 9.9 | x1=0.96895 | tau=0.03447 | |J|=17.74038 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.0 | x1=0.95966 | tau=0.03522 | |J|=16.51296 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.1 | x1=0.95039 | tau=0.03600 | |J|=15.32452 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.2 | x1=0.92771 | tau=0.02713 | |J|=9.76541 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.3 | x1=0.91154 | tau=0.02286 | |J|=7.16737 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.4 | x1=0.89811 | tau=0.02052 | |J|=5.65498 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.5 | x1=0.88578 | tau=0.01896 | |J|=4.58933 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.6 | x1=0.87405 | tau=0.01782 | |J|=3.77689 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.7 | x1=0.86271 | tau=0.01695 | |J|=3.12900 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.8 | x1=0.85164 | tau=0.01627 | |J|=2.59679 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 10.9 | x1=0.84078 | tau=0.01574 | |J|=2.15027 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.0 | x1=0.83006 | tau=0.01531 | |J|=1.76961 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.1 | x1=0.81946 | tau=0.01497 | |J|=1.44105 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.2 | x1=0.80897 | tau=0.01470 | |J|=1.15460 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.3 | x1=0.79855 | tau=0.01449 | |J|=0.90283 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.4 | x1=0.78820 | tau=0.01433 | |J|=0.68004 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.5 | x1=0.77791 | tau=0.01421 | |J|=0.48180 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.6 | x1=0.76766 | tau=0.01413 | |J|=0.30456 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.7 | x1=0.75747 | tau=0.01409 | |J|=0.14548 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.8 | x1=0.74731 | tau=0.01407 | |J|=0.00222 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 11.9 | x1=0.73718 | tau=0.01408 | |J|=0.12713 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.0 | x1=0.72709 | tau=0.01412 | |J|=0.24418 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.1 | x1=0.71702 | tau=0.01419 | |J|=0.35028 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.2 | x1=0.70699 | tau=0.01427 | |J|=0.44659 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.3 | x1=0.69697 | tau=0.01438 | |J|=0.53407 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.4 | x1=0.68698 | tau=0.01451 | |J|=0.61357 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.5 | x1=0.67701 | tau=0.01466 | |J|=0.68582 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.6 | x1=0.66706 | tau=0.01484 | |J|=0.75145 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.7 | x1=0.65713 | tau=0.01503 | |J|=0.81103 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.8 | x1=0.64722 | tau=0.01524 | |J|=0.86502 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 12.9 | x1=0.63732 | tau=0.01547 | |J|=0.91387 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.0 | x1=0.62745 | tau=0.01572 | |J|=0.95794 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.1 | x1=0.61758 | tau=0.01599 | |J|=0.99759 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.2 | x1=0.60774 | tau=0.01627 | |J|=1.03310 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.3 | x1=0.59791 | tau=0.01658 | |J|=1.06475 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.4 | x1=0.58810 | tau=0.01691 | |J|=1.09276 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.5 | x1=0.57830 | tau=0.01726 | |J|=1.11737 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.6 | x1=0.56852 | tau=0.01763 | |J|=1.13876 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.7 | x1=0.55875 | tau=0.01803 | |J|=1.15711 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.8 | x1=0.54900 | tau=0.01844 | |J|=1.17258 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 13.9 | x1=0.53926 | tau=0.01888 | |J|=1.18530 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 14.0 | x1=0.52954 | tau=0.01934 | |J|=1.19541 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 14.1 | x1=0.51983 | tau=0.01983 | |J|=1.20302 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 14.2 | x1=0.51014 | tau=0.02034 | |J|=1.20824 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 14.3 | x1=0.50046 | tau=0.02088 | |J|=1.21118 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 14.4 | x1=0.49080 | tau=0.02144 | |J|=1.21191 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 14.5 | 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= 4.6 | x1=0.46190 | tau=0.02330 | |J|=1.20165 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 4.7 | x1=0.45230 | tau=0.02398 | |J|=1.19430 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 4.8 | x1=0.44272 | tau=0.02469 | |J|=1.18509 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 4.9 | x1=0.43315 | tau=0.02544 | |J|=1.17406 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.0 | x1=0.42359 | tau=0.02622 | |J|=1.16126 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.1 | x1=0.41406 | tau=0.02703 | |J|=1.14672 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.2 | x1=0.40453 | tau=0.02788 | |J|=1.13050 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.3 | x1=0.39503 | tau=0.02876 | |J|=1.11261 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.4 | x1=0.38553 | tau=0.02969 | |J|=1.09309 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.5 | x1=0.37605 | tau=0.03065 | |J|=1.07197 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.6 | x1=0.36659 | tau=0.03166 | |J|=1.04926 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.7 | x1=0.35714 | tau=0.03270 | |J|=1.02499 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.8 | x1=0.34770 | tau=0.03378 | |J|=0.99916 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 5.9 | x1=0.33828 | tau=0.03491 | |J|=0.97180 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.0 | x1=0.32886 | tau=0.03608 | |J|=0.94291 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.1 | x1=0.31946 | tau=0.03729 | |J|=0.91250 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.2 | x1=0.31006 | tau=0.03854 | |J|=0.88057 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.3 | x1=0.30068 | tau=0.03984 | |J|=0.84711 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.4 | x1=0.29129 | tau=0.04117 | |J|=0.81212 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.5 | x1=0.28191 | tau=0.04254 | |J|=0.77559 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.6 | x1=0.27252 | tau=0.04395 | |J|=0.73751 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.7 | x1=0.26313 | tau=0.04539 | |J|=0.69784 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.8 | x1=0.25373 | tau=0.04685 | |J|=0.65657 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 6.9 | x1=0.24432 | tau=0.04833 | |J|=0.61365 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.0 | x1=0.23488 | tau=0.04983 | |J|=0.56905 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.1 | x1=0.22542 | tau=0.05133 | |J|=0.52271 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.2 | x1=0.21591 | tau=0.05281 | |J|=0.47457 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.3 | x1=0.20636 | tau=0.05427 | |J|=0.42453 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.4 | x1=0.19674 | tau=0.05567 | |J|=0.37252 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.5 | x1=0.18705 | tau=0.05700 | |J|=0.31842 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.6 | x1=0.17727 | tau=0.05823 | |J|=0.26207 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.7 | x1=0.16736 | tau=0.05930 | |J|=0.20333 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.8 | x1=0.15731 | tau=0.06018 | |J|=0.14197 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 7.9 | x1=0.14708 | tau=0.06079 | |J|=0.07774 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.0 | x1=0.13664 | tau=0.06106 | |J|=0.01035 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.1 | x1=0.12592 | tau=0.06089 | |J|=0.05061 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.2 | x1=0.11488 | tau=0.06014 | |J|=0.13559 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.3 | x1=0.10344 | tau=0.05866 | |J|=0.21519 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.4 | x1=0.09150 | tau=0.05625 | |J|=0.30017 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.5 | x1=0.07894 | tau=0.05262 | |J|=0.39146 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.6 | x1=0.06562 | tau=0.04745 | |J|=0.49028 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.7 | x1=0.05135 | tau=0.04027 | |J|=0.59819 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.8 | x1=0.03587 | tau=0.03052 | |J|=0.71722 | dx1dt=0.00000 | dx2dt=0.00000  
a=1 x2= 8.9 | 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

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|=10.12010 | 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  
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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|=10.12010 | 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  
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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|=-0.66601 | 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=-0.02620 | 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|=12.64524 | 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.

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.

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