

Лабораторная работа №6  
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Вариант 2

**Код:**

```
function skriptLab6
syms x1;
syms x2;

disp('getted function');
f = (x1^(0.3))*(x2^(0.7));

disp('task 1++++++++');

if(subs(f , {'x1'} , 0) ~= 0)
    disp('its not production');
    return;
end

if(subs(f , {'x2'} , 0) ~= 0)
    disp('its not production');
    return;
end

disp('task 1++++++++');
disp('task 2++++++++');

tx1 = 0.02:0.001:3;

izo1 = (2./(tx1.^0.3)).^(10/7);
izo2 = (3./(tx1.^0.3)).^(10/7);
izo3 = (5./(tx1.^0.3)).^(10/7);

subplot(1 ,2 ,1);
plot(tx1 , izo1 , tx1 , izo2 , tx1 , izo3);
axis square;
title('my isoquants');

subplot(1 ,2 ,2);
[X1 , X2] = meshgrid(0:0.1:10);
Z = subs(f , {x1 x2} , {X1 X2});

[C,H] = contour(X1 , X2 , Z , [2 3 5]);
axis square;
clabel(C,H);
title('isoquants by contour');

disp('task 2++++++++');

disp('taks 3++++++++');

izoclinal1 = ((1-(0.3))/0.3)*tx1;
izoclinal2 = 2.*izoclinal1;
izoclinal3 = 3.*izoclinal1;
```

```

hold on;
plot(tx1 , izoclinal1 , tx1 , izoclinal2 , tx1 , izoclinal3);

disp('taks 3++++++++');

disp('task6 ++++++');

% temp = sym('x1^');
% izofuns = [sym(' (3/(x1^0.3))^(10/7) - x2') , sym(' (5/(x1^0.3))^(10/7) - x2')];
%
% izoclinfuns = [sym('((1-(0.3))/0.3)*x1 - x2') , sym('2*((1-(0.3))/0.3)*x1 - x2') , sym('3*((1-(0.3))/0.3)*x1 - x2')];

x0 = [-5 -5];
[x , fval] = fsolve(@myfun,x0)
%plot(x(1) , fval(1) , 'r.' , 'MarkerSize' , 20)

disp('task6 ++++++');

disp('task 5+++++');
disp('calling a m-file generated for plot builded in task 4, whith some changes from me');
createfigure(tx1 , [izo1 ; izo2 ; izo3] , X1 , X2 , Z , [izoclinal1 ; izoclinal2 ; izoclinal3]);
disp('task 5+++++');

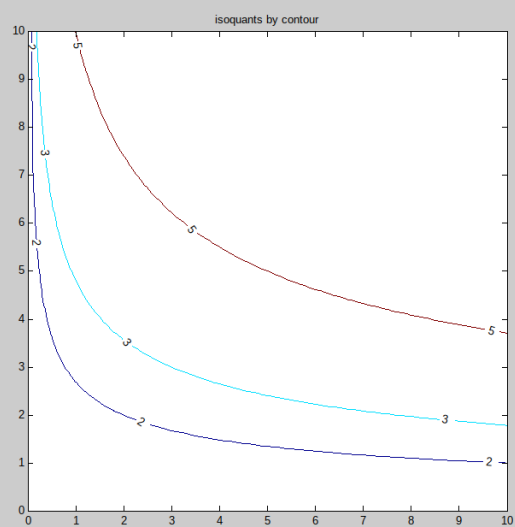
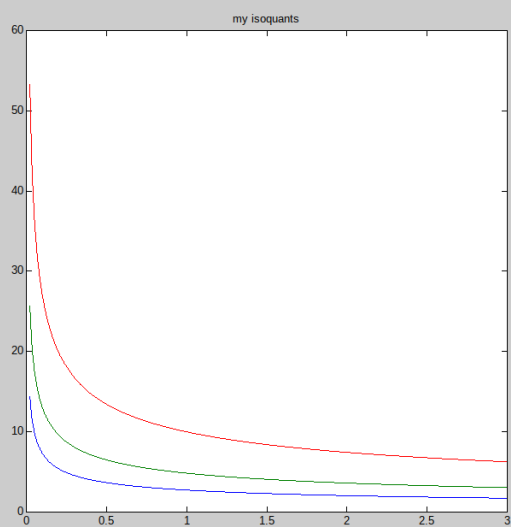
end

function F = myfun(x)
F = [(x(1)^0.3)*(x(2)^0.7)-2;
      ((1-(0.3))/0.3)*x(1) - x(2)];
end

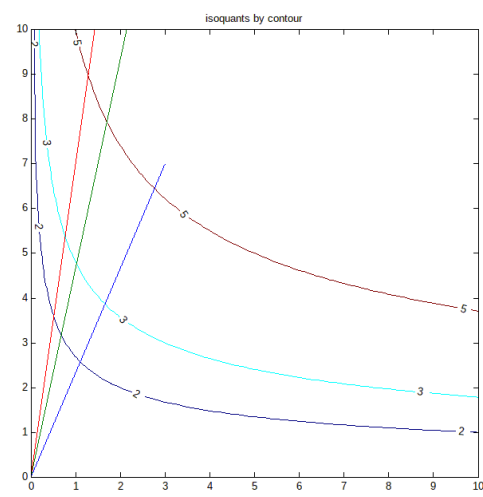
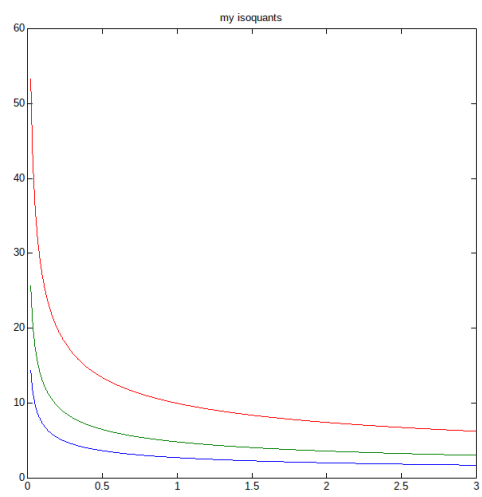
```

**Результаты выполнения:**

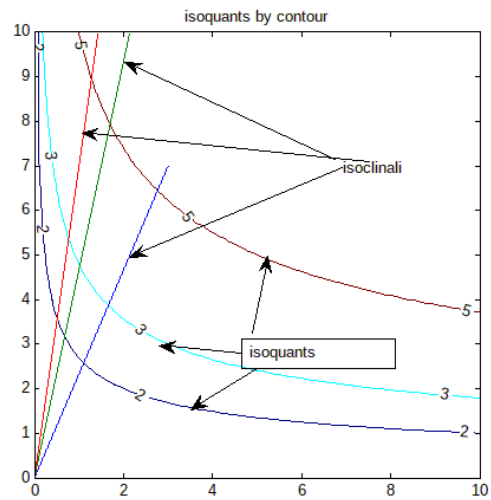
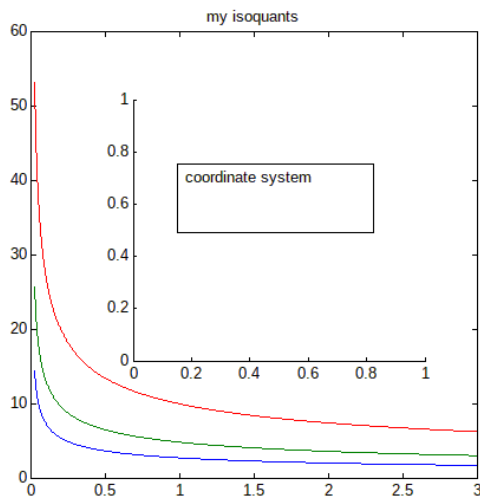
**Задание 2:**



Задание 3:



#### Задание 4 (оно я так понял не кодом делается):



#### Задание 5.

полученный m-file

```
function createfigure(X1, YMatrix1, xdata1, ydata1, zdata1, YMatrix2)
```

```
%CREATEFIGURE(X1,YMATRIX1,XDATA1,YDATA1,ZDATA1,YMATRIX2)
```

```
% X1: vector of x data
```

```
% YMATRIX1: matrix of y data
```

```
% XDATA1: contour x
```

```
% YDATA1: contour y
```

```
% ZDATA1: contour z
```

```
% YMATRIX2: matrix of y data
```

```
% Auto-generated by MATLAB on 14-Apr-2020 17:21:01
```

```
% Create figure
```

```
figure1 = figure;
```

```
% Create subplot
```

```
subplot1 = subplot(1,2,1,'Parent',figure1,'PlotBoxAspectRatio',[1 1 1]);
```

```
box(subplot1,'on');
```

```

hold(subplot1, 'all');

% Create multiple lines using matrix input to plot
% КТОЖ ЗНАЛ ЧТО В ПЛОТ ДАННЫЕ МОЖНО МАТРИЦАМИ ПИХАТЬ
plot(X1,YMatrix1, 'Parent', subplot1);

% Create title
title('my isoquants');

% Create subplot
subplot2 = subplot(1,2,2, 'Parent', figure1, 'PlotBoxAspectRatio', [1 1 1], ...
    'Layer', 'top');
% Uncomment the following line to preserve the X-limits of the axes
% xlim(subplot2, [0 10]);
% Uncomment the following line to preserve the Y-limits of the axes
% ylim(subplot2, [0 10]);
box(subplot2, 'on');
hold(subplot2, 'all');

% Create contour
contour(xdata1,ydata1,zdata1, 'ShowText', 'on', 'LevelList', [2 3 5], ...
    'Parent', subplot2);

% Create title
title('isoquants by contour');

% Create multiple lines using matrix input to plot
plot(X1,YMatrix2, 'Parent', subplot2);

% Create axes
axes('Parent', figure1, ...
    'Position', [0.206743566992014 0.420882669537137 0.219165927240461
0.23789020452099]);

% Create textarrow
annotation(figure1, 'textarrow', [0.802129547471162 0.642413487133984], ...
    [0.596416576964478 0.515608180839612], 'TextEdgeColor', 'none', ...
    'String', {'isoclinali'});

% Create arrow
annotation(figure1, 'arrow', [0.796805678793256 0.638864241348713], ...
    [0.603951560818084 0.693218514531755]);

% Create arrow
annotation(figure1, 'arrow', [0.822537710736469 0.60603371783496], ...
    [0.601798708288482 0.628632938643703]);

% Create textbox
annotation(figure1, 'textbox', ...
    [0.23968677905945 0.53821313240043 0.147181011535049 0.0624327233584501], ...
    'String', {'coordinate system'}, ...
    'FitBoxToText', 'off');

% Create textbox
annotation(figure1, 'textbox', ...
    [0.725933451641526 0.414424111948331 0.115237799467613 0.0269106566200216], ...
    'String', {'isoquants'}, ...
    'FitBoxToText', 'off');

```

```

% Create arrow
annotation.figure1, 'arrow', [0.733806566104703 0.74622892635315], ...
    [0.445716899892357 0.516684607104413]);

% Create arrow
annotation.figure1, 'arrow', [0.725820763087844 0.664596273291925], ...
    [0.427417653390743 0.434876210979548]);

% Create arrow
annotation.figure1, 'arrow', [0.738243123336291 0.687666370896185], ...
    [0.413424111948332 0.376749192680301]);

```

в конце я дописал свои изменения, нагенерировал 100 случайных стрелочек

```

for(i = 1:100)
    annotation.figure1, 'arrow', [rand() rand() ], ...
        [rand() rand()]);
end

```

При вызове получил результат

