HW 11

ENED 1090: MODELS I
Week 11 Homework

Submit Week 12 during Lab

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INSTRUCTIONS

Complete each question below by typing your answer or copying from the output in MATLAB or Excel.

This assignment is to be completed outside of class. You will submit a digital copy to your TA during the lab session next week.

!!! **To receive points for this assignment, add your name to the filename. For example, if my name is Lin Yali, I will change the filename to**

Wk11_ened1090_homework_LinYali.doc

OBJECTIVES

For this assignment, students will demonstrate

- Arrays (scalars, vectors, tensors)

PROBLEM 1 (SEE SLIDE 5)

What command should you add after **clear; clc;** at the beginning of your program.
What does it do?

close all.
Close all figure windows.

PROBLEM 2 (SEE SLIDE 7, 13, 17)

Beside the plot command, what 7 things should you add to the plot framework to make a meaningful plot?
What do each do?

1. Give a figure number. Differ from other figures.
2. Give a hold on command. To add something to the figure.
3. Give a Xlabel command. Add a name to X-axes label.
4. Give a Ylabel command. Add a name to Y-axes label.
5. Give a title command. Add a name for the figure.
6. Give a legend command. Add legends of different strings.
7. Give a grid on command. To finish the decoration.

What other things are necessary to make a meaningful three-dimensional graph?

Give a title command to the colorbar.
Give a colormap command. This choose a style of the color in this graph.
Give a box on command.

PROBLEM 3 (SEE SLIDE 8-9)

In MATLAB, I type the following commands

```
yOne = @(x) x^2-7*x-3;
yTwo = @(x) 3+7*x-x^2;

x = -10:2:20;
for i = 1:length(x)
```

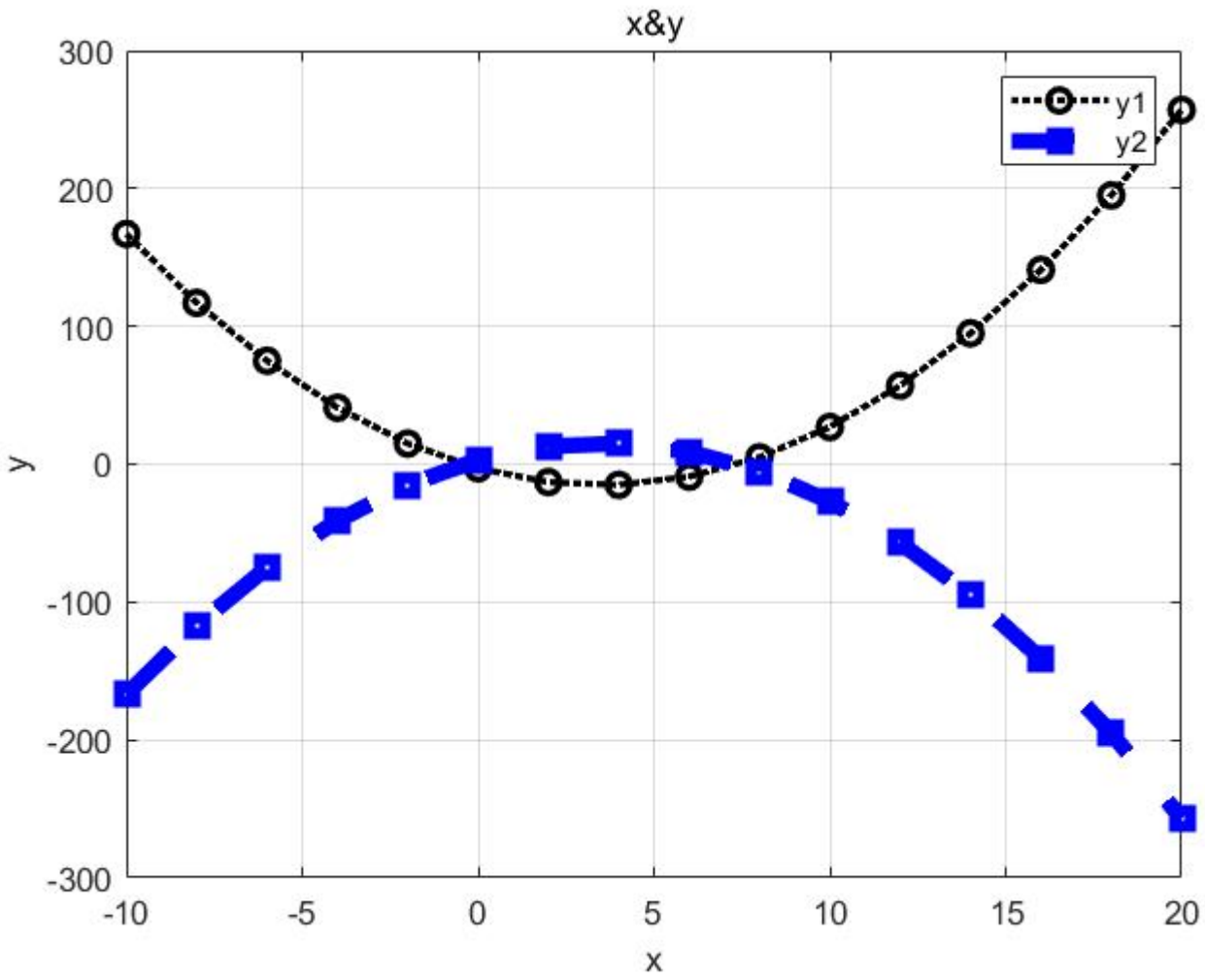
```
        y1(i) = yOne(x(i));
        y2(i) = yTwo(x(i));
    end

    figure(1)
    %%% ---- %%%
```

Complete the code to create a plot of the two lines

- y1 should be black, dot, circle, thin line
- y2 should be blue, dash, square, thick line
- use size-7 markers

Copy an **image** of the graph.



Copy the code *of just your plot commands*.

```
figure(1)
plot(x,y1,':ko','lineWidth',2,'markerSize',7)
hold on
plot(x,y2,'--bs','lineWidth',5,'markerSize',7)
xlabel('x')
ylabel('y')
title('x&y')
legend('y1','y2')
grid on
```

PROBLEM 4 (SEE SLIDE 13, 18-19)

From looking at the seven graphs and the attached command block, describe how to use the four commands

plot3	Firstly, give the command clear;clc;close all. Then give the plot3 command: e.g. plot3(x,y,z,'-ks','lineWidth',2,'markerSize',5).
surf	Firstly, give the command clear;clc;close all. Then give the surf command: e.g. surf(x,y,z,'-ks','lineWidth',2,'markerSize',5).
mesh	Firstly, give the command clear;clc;close all. Then give the mesh command: e.g. mesh (x,y,z,'-ks','lineWidth',2,'markerSize',5).
contour	Firstly, give the command clear;clc;close all. Then give the contour command: e.g.contour(time,time,c,11,':' ,'lineWidth',2,'ShowText', 'on')

PROBLEM 5 (SEE SLIDE 21-22)

Consider the **bar graph** and the **pie chart**. How are the command blocks for these different?

The bar command should include the names of the options, the array which present the number of the options, and the color of the graph.
The pie command should include the array which present the number of the options and the names of the options, but it doesn't need the color option.