

Homework 2

Create a single MATLAB script with each problem below as a separate section (hint: %%).

1. Create a new script
2. Create a comment section at the top with your name, date, HW#, class, etc.
3. The first script commands should erase all the workspace data, command window output, and close all figures.
4. Create separate sections (%%) for each problem

Problem 1:

Create another section to do the following. Add a comment at the end of each line detailing what each line does. Make sure command outputs are not suppressed so outputs are published in your final document (as well as to the command window).

- a. Create the matrix

$$A = \begin{bmatrix} 20 & 4 & 2 & 6 \\ 6 & 37 & 2 & 3 \\ 8 & 5 & 9 & 9 \end{bmatrix}$$

- b. assign the first row of A to a vector called x1
- c. assign the last 2 rows of A to an array called y
- d. assign the even-numbered columns of A to an array called B
- e. assign the transpose of A (i.e. turns it into a 4-by-3 array) to C
- f. compute the reciprocal of each element of A
- g. change the number in column 2, row 3 of A to 100.

Problem 2:

Consider the array A, Compute the array B by computing the square roots of all the elements of A whose value is no less than 0 and adding 50 to each element that is negative

$$A = \begin{bmatrix} 0 & -1 & 4 \\ 9 & -14 & 25 \\ -34 & 49 & 64 \end{bmatrix}$$

Problem 3.

Create two plots y_1 and y_2 in a single figure with the following expressions

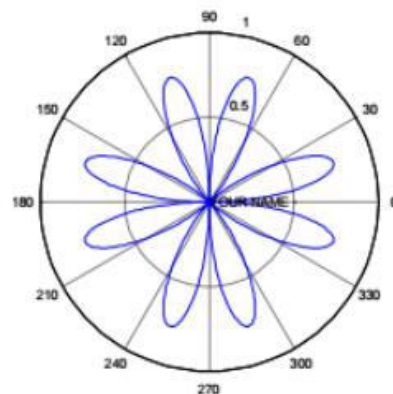
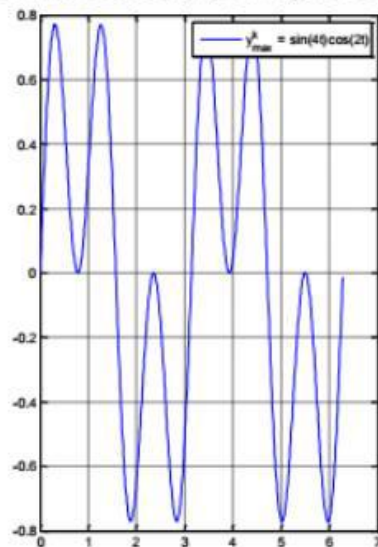
$$y_1 = 2x + 5$$

$$y_2 = x^2 - 3x$$

where $-3 \leq x \leq 3$. Please set the x axis limit to be within $[-3, 3]$ and y axis limit to be within $[-5, 20]$. Use legend to show each plot.

Problem 4.

- Create an empty figure
- Plot $y_{max}^k = \sin(4t)\cos(2t)$ for $0 \leq t \leq 2\pi$ using **subplots** to generate normal **and** polar plots. Make sure there is enough data points to make a smooth plot.
- Add a legend with the formula plotted with correctly formatted subscripts and superscripts if applicable to the xy plot.
- Turn on the grid lines for the xy plot
- Add your name to the polar plot at the origin (0,0) using the text function
- If done correctly your figure should look like this:



Turn in the following:

1. A Word (.doc, .docx) document created using the MATLAB publish feature to publish your script.
 2. Your .m script file(s) (these are separate files from the document above). Make sure you use plenty of comments. Before submitting, rename all *.m files to have a .txt extension. For example, rename MyHW6.m to MyHW6.txt before submitting.
- Submit all files electronically on Blackboard. See syllabus for late assignment policy.

Late submissions will receive a 10% deduction!

No submissions will be accepted after one day!