

Homework 3

Math 472, Spring 2011

(Assigned on Thursday, 1/27/11, Due on Friday, 1/28/11)

1. (Exercise 2, p. 11 of Matlab handout) Write a Matlab script file to plot three functions on one graph. Plot $y = \sin(x)$ in red, $y = \sin(2x)$ in black, and $y = \sin(3x)$ in green, with x ranging from -4 to 8 .

What should you turn in? Write your answer as a short script file. In the editor, under **File**, you will find the option to publish your script file. Select that option, then print the result and turn it in.

2. What does the following Matlab code do?

```
x=[1,-1,2,-2,3,-3,4,-4]; %Could be a randomly chosen vector
n=length(x);
m=randperm(n);
x=x(m);
```

What should you turn in? You may pencil in the answers above.

3. Write a Matlab function that will take in two matrices, A, B and will output a matrix of the same size where

$$C(i, j) = \max\{A(i, j), B(i, j)\}$$

Use the built-in `max` function- See Matlab's help file by typing (in the command window) `doc max`

Note: Don't use a loop- Your answer should be a one-line function

What should you turn in? First, write your function and save it as `mymax1.m`. Next, write a short script file that creates two matrices that are 4×10 , and whose entries are (uniformly) random numbers between 1 and 6. Call your function and have the result printed to the screen. You can then publish the script file, print it and turn it in.

4. Modify `banditScript.m` to run three times, where $E=0.0$, $E=0.01$, $E=0.1$ and, where you save R_{avg} as y_1 , then y_2 , then y_3 . Plot the result to see if you get Figure 1, p. 7.

What should you turn in? After writing your script (you may call it `banditScript2.m`, publish it, print the output and attach.

5. Example we'll do together: Write a Matlab function that implements the mystery function on p. 12 of the Matlab handout. Write a script file that creates a matrix of random numbers, then calls the mystery function and prints out the result. Publish the script file (don't need to print it).