MA 302 – Spring 2019
Quiz 1 - Practice problems

Quiz 1 will be in class on Wednesday, 13 February. The quiz will cover material from weeks 1-3. I expect you to be able to write scripts that can perform the following tasks:

1. Use built-in functions discussed in class
2. Create vectors and matrices and manipulate their entries
3. Perform matrix and array operations
4. Plot functions in 2 and 3D. Parametric and polar curves.

Practice problems

1. Create a vector `v` of any length with the following elements
   (a) `2,4,6,8,...`
   (b) `0,1/2,2/3,3/4,4/5...`
2. Create 3 random column vectors of length 3 (`v1, v2, v3`) and combine them to form a square matrix B where each column of B comprised `v1, v2` and `v3`.
3. Use the MATLAB `diag` function to create a matrix `C` with diagonal entries `[-1, 1,3]`
   (a) Define `T = [ 3 4; 1 8; -4 3]` and `v = 1:5`, Use, `C`, `T`, and `v` to create the following matrix

```
M =
    -1     0     0     3     4
     0     1     0     1     8
     0     0     3    -4     3
     1     2     3     4     5
```

   (b) Switch the second and forth columns of `M`, call it `M1`
   (c) Compute the sum of the first and third columns
   (d) Convert `M` into a 2-by-10 matrix, call that matrix M2
   (e) Create create a 3 dimensional matrix `M3` such that `C3(:,:,1)= M` and `C3(:,:,2:3)` are random matrices with integer entries of your choice.
4. Convince yourself that you can use `plot`, `polarplot`, `plot3`, `meshgrid`, `surf`, `mesh`, `subplot`, `sphere`, `cylinder` using your functions of your choice.
5. Remember, all plots should have axis labels and a title.