Matlab Warm-up exercises

1. Defining and manipulating vectors and matrices (linspace, zeros, diag, find, rand, randn.)

   Challenge: define a $4 \times 4$ matrix whose entries are random Gaussian numbers, and store the indices of the positive entries in a vector called idx.

2. Plotting (plot, title, xlabel, ylabel, hold on, clf, legend)

   Challenge: on the same figure, plot the graphs of $f(y) = \cos x$ and $y = \sin x$ on the interval $[1, 4]$. Give the picture the title “Trig Functions”, and label the x- and y- axes.

3. Writing scripts and functions.

   Challenge: write a simple function called “innerproduct” that takes two vectors of the same size as inputs and returns their inner product as output. Comment your function, and make sure it handles bad inputs intelligently.