Math 355/655: Introduction to Numerical Methods
MATLAB Worksheet

1. Launch MATLAB on your ThinkPad (it's part of the standard load for ThinkPads).
   You need to be connected to Wake's network. If you are on another network,
   run vpn (Cisco) to connect to Wake.

   (a) At the command prompt, type the following and hit return: diary on

   (b) MATLAB can do basic arithmetic. At the command prompt, type the
       following and hit return: 2+3*4

   (c) It can store vectors. Type the following: v=[1;2;3;4]

   (d) Create a vector w by typing the following: w=[0;3;4;9]

   (e) Now add v and w by typing: v+w

   (f) Create a vector x that has only three components [2,3,4] and add it to v.
       What happens when you do this?

   (g) Try typing $x(1) + x(2) + x(3)$. What does MATLAB compute for you?

   (h) Try the following using a *for* loop:
       >> sumx = 0;
       >> for i=1:3, sumx= sumx+x(i); end;
       Now type "sumx" and see what value you get. (If you have never used a
       for loop before, Google it and see if you can understand what it does.)

   (i) At the command prompt, type: help sum (In general, you can get help by
       typing "help" and then the command you want to learn about). Use the
       "sum" command to compute what you did in part (g).

   (j) At the command prompt, type the following and hit return:

       $$A = [1 \ 2 \ 3; 4 \ 5 \ 6; 7 \ 8 \ 0].$$

       Then, type $b = [0; 1; 2]$ at the command prompt. To solve the linear system
       $Ax = b$, type the following at the command prompt: $x = A\backslash b$. Determine
       how good the solve is by typing: $b - A * x$.
       For more accuracy, type the following: format long
       Now type the following at the command prompt(it will reprint the last
       answer): ans
       Comment on the accuracy of the solve.

   (k) Type the following at the command prompt: diary off

2. MATLAB stored a file named "diary" on your computer. Find the file and print
   it out. Answer any questions that were asked above by writing the answers on
   the printout by the problem or output.