

**ENGINEERING H192
DAILY ASSIGNMENT B16**

MATLAB: Getting Started

The purpose of this assignment is to become familiar with some of MATLAB's features, including creating vectors, loops, plotting, and the **diary** command, among others.

Begin by setting MATLAB's current directory to the proper location, such as a directory in your network account (e.g., N:\name.#\some_directory) or possibly your USB drive. You will be working in MATLAB's command window and will want to record your work in a **diary** file. You can turn the **diary** off temporarily if there are things you do not wish to record before resuming again. Copy the file **b16.dat** from **R:\FEH\ENG_H192\Wi09\Daily Assignments\DA16B** into your current MATLAB working directory.

In the MATLAB command window, complete the following parts:

1. Calculate and display the square of all the even integers from two to twenty, inclusive.
2. Calculate and display, using increments of $\pi/10$, the cosines of all angles between $\pi/2$ and $3\pi/2$ radians, inclusive.
3. Create, but **do not display**, a vector named **x** that begins with 0 and increases to 20 in increments of 0.2 using the form **x = 0: ;**. Using the equation **y = 5x² - 3.5**, define, but **do not display**, a second vector **y**. (**Note:** you will need to use **.^** for exponentiation. Why?)

Plot **y** versus **x** (**y** on the vertical axis, **x** on the horizontal axis). Label the axes with their variable names (**x** and **y**) and title the plot "**Assignment B16 – Part 3, your name, seat no. xx**". Print the plot.

4. Display the first 11 elements of vector **x** from Part 3 using the form **x(1: ?)**. Now display just the 11th element of vector **x**. Now type **x(1,11)**. Why does **x(1,11)** produce the same value as **x(11)**? Write a **for** loop using the variable **i_counter** as a counter in which **i_counter** starts at **1** and increases to **101** in steps of **1**. Using this **for** loop, fill the vector **x2** with the same values as in the vector **x** using an equation of the form **x2 = x2 + ?**. Display the first 11 elements of **x2**. This exercise should clarify some of the inherent power of MATLAB.
5. Load the data file **b16.dat**, but **DO NOT** display it on the screen. Plot the first column versus the second column (second column on the vertical axis). Print the plot and include it with this sheet. Label the axes with suitable names (this is an expanded plot using $\pi/100$ over the range of 2π for Part 2) and title the plot "**Assignment B16 – Part 5, your name, seat no. xx**". Print the plot.

Once you have completed the five parts above, turn off your diary and edit the file using the MATLAB editor to remove mistakes or extraneous entries. Be sure to include your name, seat number, date, assignment number, and instructor initials in your diary file. (Enter "**help diary**" in the MATLAB command window for more details on how the **diary** command works.)

Print your edited diary and submit it along with the plots and this sheet.

Name _____ Instructor _____ Seat _____ Hour _____