Fall 2012 MATLAB Assignment 1

Work the following problems (NOTE: these are RELATED TO the corresponding page and problem number from Gilat. Do NOT work the actual problems from the Lab Manual, or you will receive NO CREDIT!)

1. **g028x06**: Define the variables a and b as $a = -18.2$ and $b = 6.42$, then evaluate the following:

   (a) $1.5a - \dfrac{ab + b^2}{a} + 16a$

   (b) $\ln\left[\left(\dfrac{a}{b} - 1.5a\right)(b - a)\right] + \dfrac{2.5ab + b^2 + a}{-0.5ab - b^2 - a}$

2. **g030x19**: The distance d from a point (x_0, y_0) to a line $Ax + By + C = 0$ is given by $d = \dfrac{|Ax_0 + By_0 + C|}{\sqrt{A^2 + B^2}}$. Determine the distance from the point $(3, -4)$ to the line $2x - 7y - 10 = 0$. First define the variables A, B, C, x_0, and y_0, then calculate d.

3. **g056x09**: Create the matrix below by using colon notation and/or the **linspace** command to create each row:

$$B = \begin{bmatrix} 0 & 4 & 8 & 12 & 16 & 20 & 24 & 28 \\ 69 & 68 & 67 & 66 & 65 & 64 & 63 & 62 \\ 1.4 & 1.1 & 0.8 & 0.5 & 0.2 & -0.1 & -0.4 & -0.7 \end{bmatrix}$$

4. **g060x32**: Create the following matrix A: $A = \begin{bmatrix} 0.1 & 0.2 & 0.3 & 0.4 & 0.5 & 0.6 & 0.7 \\ 14 & 12 & 10 & 8 & 6 & 4 & 2 \\ 1 & 1 & 1 & 1 & 0 & 0 & 0 \\ 3 & 6 & 9 & 12 & 15 & 18 & 21 \end{bmatrix}$. Use the matrix A to:

   (a) Create a 3×4 matrix B from the 1st, 2nd, and 3rd rows and the 1st through 4th columns of A.

   (b) Create a 2×7 matrix C from the 2nd and 3rd rows and all the columns of A.