EEE-321L.3

Assignment - 01

Note: All figures title must be your Name & ID. Example: Student_Name_ID:1234567890

1. Consider the following system of equations. Solve (x y z) using **inverse matrix**

   X=3
   Y=2
   Z=1

2. Take single array vector which length is 9, from user sing **dialogue input, A=[a11,a12,a13,a21,a22,a23,a31,a32,a33]**. And use **if-else, for, and/or while loop** which will transform this array into a 3x3 square matrix in such a way so that the array becomes the reverse diagonal of that matrix.

   $$\text{(Hint: output will be } \begin{matrix} a11 & a12 & a13 \\ a21 & a22 & a23 \\ a31 & a32 & a33 \end{matrix} \text{)}$$

3. Create circle graph which **radius is 2**. Give **legend, color = Blue, Linewidth=2, Label**

4. Find the **current I** and **voltage difference between b&a** of the following circuit.
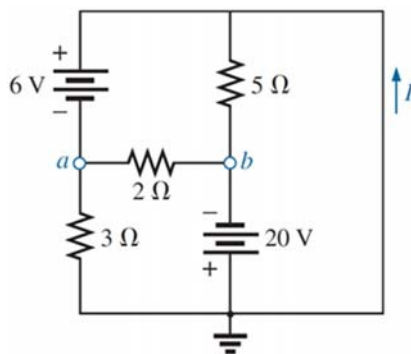
   I=9A and V$_{ba}$=-14.

5. Take a square signal and a sin signal has frequency 1. Do arithmetic operation(Addition, Subtraction). And show all the graphs in one figure. **[Axes: x=0,3 and y=-2,2], use Grid, Legend, Label, Color, Linewidth=2.**

6. Write MATLAB code for SSB modulation and demodulation. Here message signal is **x = sin(2*pi*10*t) + 2*cos(2*pi*20*t), sampling frequency, F$_s$ = 8000, carrier frequency F$_c$ = 300.**

7. Build the SIMULINK model of Amplitude modulation & Demodulation. For **Message Signal: amplitude = 1, frequency = 5. For Carrier Signal: amplitude = 2, frequency = 50.**

8. Write MATLAB code for Frequency Modulation & Demodulation. **Message signal x = sin(2*pi*Fm*t); Message frequency, Fm = 5; Carrier frequency, Fc = 50; sample frequency, Fs = 1000; Deviation=10.**