Plotting Signals:

1. Sketch the following signals:

a) \[ x(t) = \begin{cases} 
0 & \text{if } t < -4 \\
2 + 2t & \text{if } -4 \leq t < 3 \\
3 - 2t & \text{if } 3 \leq t 
\end{cases} \]

b) \[ y(t) = x(t-1) \text{ where } x(t) \text{ is defined in part a) } \]

c) \[ x[n] = \begin{cases} 
0 & \text{if } n < 2 \\
2n - 4 & \text{if } 2 \leq n < 4 \\
4 - n & \text{if } 4 \leq n 
\end{cases} \]

d) \[ y[n] = x[n+1] \text{ where } x[n] \text{ is defined in part c) } \]

2. Write MATLAB code to plot the signals in Problem 1. Scale your time axis so that a sufficient amount of the signal is being plotted. Use subplot to give 4 plots per page; label your plots with 'Time (sec)' on the x-axis for the continuous time signals and 'n' for discrete time signals. The y-axis should be labeled 'x(t)' or 'x[n]'; the title should be the problem number, for example 'a)'.

3. Use MATLAB to plot the following signals. Use the same instructions on plotting as given in Problem 2.

a) \[ x(t) = 4 \cos(5\pi t - \pi/4) \]

b) \[ x[n] = 4 \cos(\pi n) \text{ (Use the command stem to plot discrete-time signals.)} \]

c) \[ x[n] = 2sin(3n) \]

d) \[ x(t) = \cos(4t) + 2\sin(8t) \]

e) \[ x(t) = 3\cos(4t) + \sin(\pi t) \]