HW 1

- Include labels and title for each plot.

Ex 1: A Triangular pulse $x(t)$

A triangular pulse $x(t)$ is defined by

$$x(t) = \begin{cases} 1 - \frac{1}{5}|t|, & |t| \leq 5 \\ 0, & \text{otherwise} \end{cases}.$$

Write a MATLAB program to generate $x(t)$ for $|t| < 10$ and plot it.

Ex 2: A raised cosine sequence

A raised cosine sequence is defined by

$$x(n) = \begin{cases} \cos(0.05\pi n) + 1, & -20 \le n \le 20 \\ 0, & \text{otherwise} \end{cases}.$$

Write a MATLAB program to generate $x[n]$ for $-30 \le n \le 30$, and plot it.

Ex 3: Discrete sequences

Plot the following sequences using MATLAB.

(a) $x[n] = 2\delta[n+3] - \delta[n] + 3\delta[n-3],\ -5 \le n \le 5$

(b) $x[n] = u[n+5] + u[n+3] - u[n-2] - u[n-4], -10 \le n \le 10$

(c) $x(t) = 10\sin(2000\pi t - \pi/3)\, e^{-500t}, -2 \le t \le 2$ [msec.].