

PROBLEM:

A linear time-invariant system has impulse response

$$h[n] = 3\delta[n] + 2\delta[n - 1] - \delta[n - 4].$$

- Determine the difference equation that relates the output $y[n]$ to an input $x[n]$.
- Determine the system function $H(z)$ for the system.
- Determine the output $y[n]$ of the system when the input is

$$x[n] = \sum_{k=0}^2 \delta[n - k].$$

Plot the values of $y[n]$ for $-2 \leq n \leq 9$ on the axis below. *Be sure to label your plot carefully.*

