PROBLEM:

A linear time-invariant system has impulse response

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

(a) Determinine the difference equation that relates the output $y[n]$ to an input $x[n]$.

(b) Determine the system function $H(z)$ for the system.

(c) Determine the output $y[n]$ of the system when the input is

$$x[n] = \sum_{k=0}^{3} \delta[n-k].$$

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