

PROBLEM:

A linear time-invariant system has system function

$$H(z) = (1 + z^{-1})^2$$

The input to the system is

$$x[n] = 10 \cos \left(\frac{\pi}{2}n + \frac{\pi}{4} \right) + 5\delta[n - 4]$$

Determine the output, $y[n]$ for $-\infty < n < \infty$.