

PROBLEM:

A linear time-invariant system has impulse response

$$h[n] = (0.9)^n u[n]$$

- (a) What is the frequency response of the system?
- (b) The input to this system is

$$x[n] = 5 - 4\delta[n - 2] + 10 \cos(0.5\pi n + \pi/3)$$

Determine an equation for the output of the system $y[n]$ corresponding to the above input $x[n]$. Give an equation for $y[n]$ that is valid for all n . (*Hint: Use superposition to make this an easy problem.*)