

PROBLEM:

An FIR filter is described by the difference equation:

$$y[n] = 3x[n] + 2x[n - 3] - 3x[n - 5]$$

- (a) Find its impulse response $h[n]$ and plot versus n .
- (b) Let $x[n]$ be the complex exponential

$$x[n] = 3e^{j(0.4\pi n - \pi/2)} \quad \text{for all } n$$

Then it is possible to express the output $y[n]$ in the form

$$y[n] = Ae^{j(\omega_0 n + \phi)}$$

Determine the numerical values of A , ϕ and ω_0 .