

PROBLEM:

For the following systems, determine $H(e^{j\hat{\omega}})$ and make a sketch over the range $-\pi \leq \hat{\omega} \leq \pi$.

(a) For the following system

$$y[n] = -0.8y[n-1] + 2x[n-1]$$

derive a simple real-valued expression for $|H(e^{j\hat{\omega}})|^2$, and sketch a plot of $|H(e^{j\hat{\omega}})|$.

(b) For the following system derive a simple expression for $|H(e^{j\hat{\omega}})|$, and sketch a plot of $|H(e^{j\hat{\omega}})|$.

$$y[n] = 3x[n] - 6x[n-1] + 3x[n-2]$$