

PROBLEM:

A linear time-invariant system is described by the FIR difference equation

$$y[n] = x[n] - 3x[n - 1] + 9x[n - 2] - 3x[n - 3] + x[n - 4]$$

- (a) Write a simple formula for the magnitude of the frequency response $|H(e^{j\hat{\omega}})|$. Express your answer in terms of real-valued functions only.
- (b) Derive a simple formula for the phase of the frequency response $\angle H(e^{j\hat{\omega}})$.