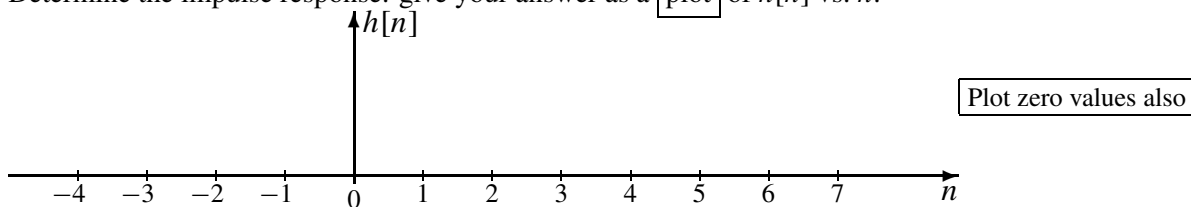


PROBLEM:

The following FIR filter is specified by the filter coefficients $\{b_k\} = \{0, 2, 3, 2\}$



- (a) Determine the impulse response: give your answer as a plot of $h[n]$ vs. n .



- (b) Determine the frequency response, $\mathcal{H}(\hat{\omega})$, and select one of the following as the correct answer:

(A) $2 \cos \hat{\omega} + 3e^{-j(2\hat{\omega}-\pi)}$ **(B)** $(4 \cos \hat{\omega} + 3)e^{-j\hat{\omega}}$ **(C)** $(3 + 4 \cos \hat{\omega})e^{-j2\hat{\omega}}$ **(D)** $2 \cos \hat{\omega} + 3$

- (c) Determine the magnitude of $\mathcal{H}(\hat{\omega})$ and present your answer as a plot of the magnitude vs. frequency. Label important features.

