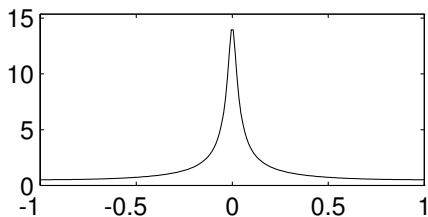
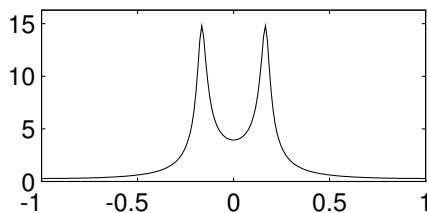


**PROBLEM:**

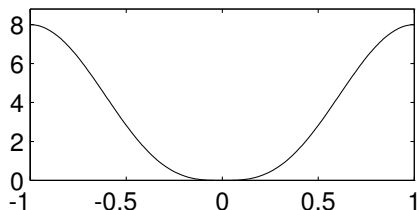
FREQ RESPONSE: A



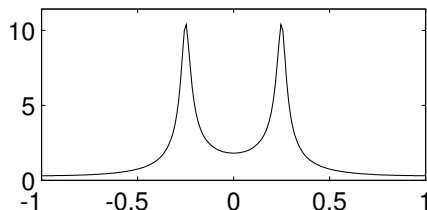
FREQ RESPONSE: B



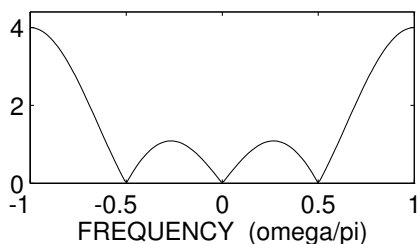
FREQ RESPONSE: C



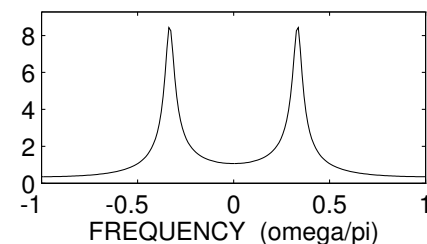
FREQ RESPONSE: D



FREQ RESPONSE: E



FREQ RESPONSE: F



For each of the frequency response plots (A, B, C, D, E, F), determine which one of the following systems (specified by either an  $H(z)$  or a difference equation) matches the frequency response. NOTE: frequency axis is normalized; it is  $\hat{\omega}/\pi$ .

$$\mathcal{S}_0 : y[n] = 0.93y[n-1] + x[n-1]$$

$$\mathcal{S}_1 : H(z) = \frac{z^{-1}}{1 - 1.315z^{-1} + 0.8649z^{-2}}$$

$$\mathcal{S}_2 : H(z) = \frac{z^{-1}}{1 - 1.61z^{-1} + 0.8649z^{-2}}$$

$$\mathcal{S}_3 : H(z) = \frac{z^{-1}}{1 - 0.93z^{-1} + 0.8649z^{-2}}$$

$$\mathcal{S}_4 : H(z) = (1 - z^{-1})^3$$

$$\mathcal{S}_5 : H(z) = 1 - z^{-1} + z^{-2} - z^{-3}$$

$$\mathcal{S}_6 : y[n] = x[n] - x[n-3]$$

$$\mathcal{S}_7 : y[n] = \sum_{k=0}^3 x[n-k]$$

$$\mathcal{S}_8 : y[n] = x[n] + 2x[n-1] + 3x[n-2] + 2x[n-3] + x[n-4]$$