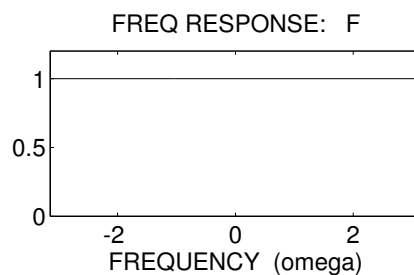
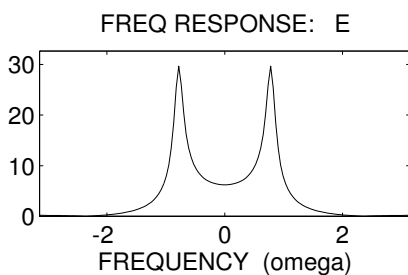
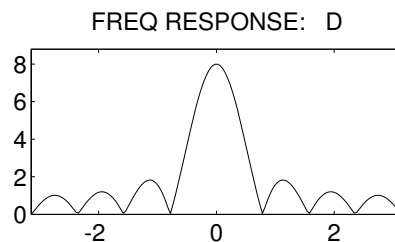
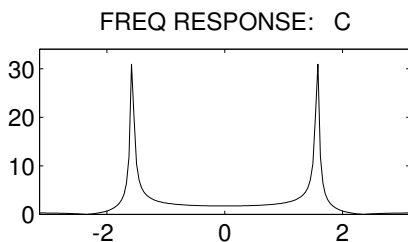
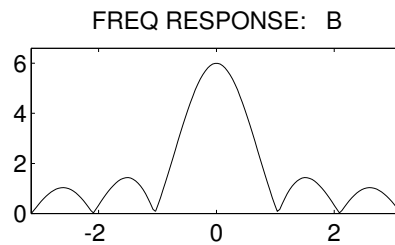
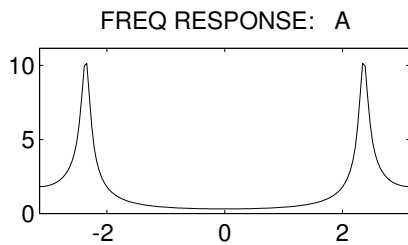


**PROBLEM:**

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  $\hat{\omega}/\pi$ .

$$\mathcal{S}_0 : y[n] = 0.90y[n-2] + 1.5x[n-2]$$

$$\mathcal{S}_1 : y[n] = -0.7y[n-1] + 5x[n-1]$$

$$\mathcal{S}_2 : y[n] = -0.7y[n-1] + 7x[n] + 10x[n-1]$$

$$\mathcal{S}_3 : H(z) = \frac{\frac{1}{2}(1 - z^{-1})}{1 + 0.94z^{-1}}$$

$$\mathcal{S}_4 : H(z) = 2(1 - z^{-1})^3$$

$$\mathcal{S}_5 : H(z) = 3(1 - z^{-1} + z^{-2} - z^{-3} + z^{-4})$$

$$\mathcal{S}_6 : y[n] = 8x[n] - 8x[n-1]$$

$$\mathcal{S}_7 : y[n] = 2 \sum_{k=0}^7 (-1)^k x[n-k]$$

$$\mathcal{S}_8 : y[n] = x[n] + 2x[n-1] + 3x[n-2] + 4x[n-3] + 3x[n-4] + 2x[n-5] + x[n-6]$$

$$\mathcal{S}_9 : H(z) = \frac{1 - z^{-1} + z^{-2}}{1 + 0.9z^{-1} + 0.81z^{-2}}$$