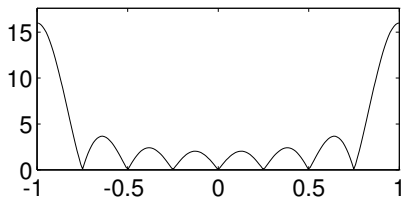
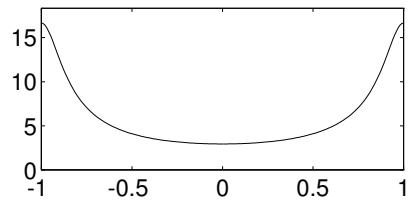


PROBLEM:

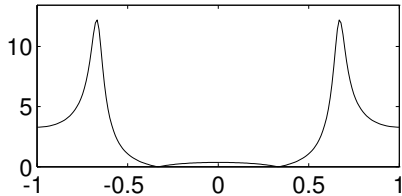
FREQ RESPONSE: A



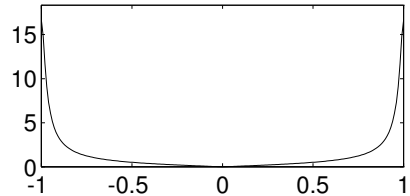
FREQ RESPONSE: B



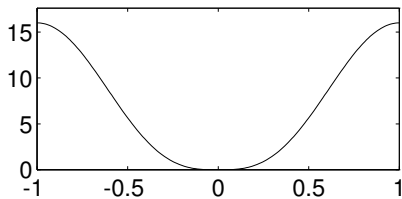
FREQ RESPONSE: C



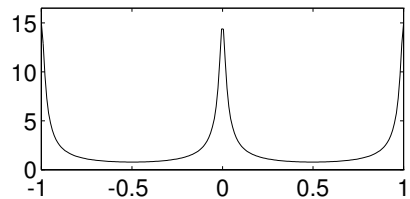
FREQ RESPONSE: D



FREQ RESPONSE: E



FREQ RESPONSE: F

FREQUENCY (ω/π)FREQUENCY (ω/π)

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

$$S_0: \quad y[n] = 0.90y[n-2] + 1.5x[n-2]$$

$$S_1: \quad y[n] = -0.7y[n-1] + 5x[n-1]$$

$$S_2: \quad y[n] = -0.7y[n-1] + 7x[n] + 10x[n-1]$$

$$S_3: \quad H(z) = \frac{\frac{1}{2}(1 - z^{-1})}{1 + 0.94z^{-1}}$$

$$S_4: \quad H(z) = 2(1 - z^{-1})^3$$

$$S_5: \quad H(z) = 3(1 - z^{-1} + z^{-2} - z^{-3} + z^{-4})$$

$$S_6: \quad y[n] = 8x[n] - 8x[n-1]$$

$$S_7: \quad y[n] = 2 \sum_{k=0}^7 (-1)^k x[n-k]$$

$$S_8: \quad y[n] = x[n] + 2x[n-1] + 3x[n-2] + 4x[n-3] + 3x[n-4] + 2x[n-5] + x[n-6]$$

$$S_9: \quad H(z) = \frac{1 - z^{-1} + z^{-2}}{1 + 0.9z^{-1} + 0.81z^{-2}}$$