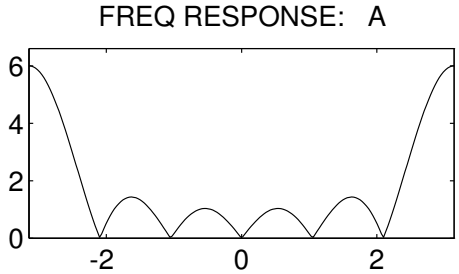
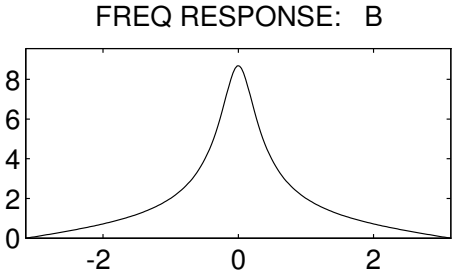
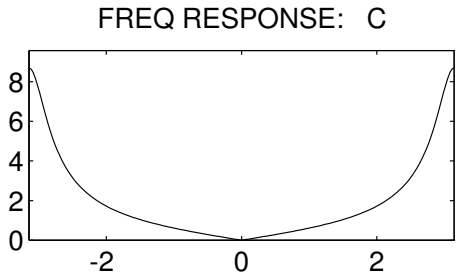
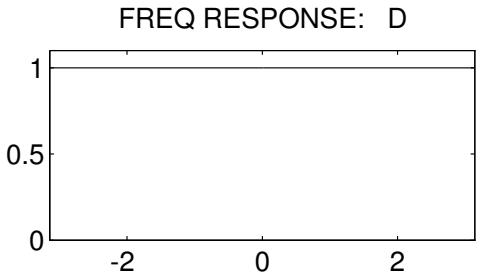
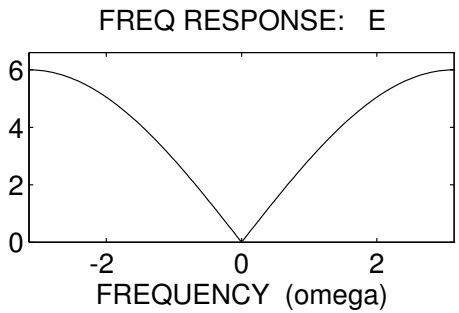
PROBLEM:

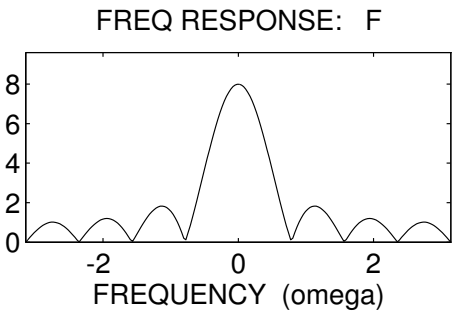












For each of the frequency response plots (A, B, C, D, E, F), determine which one of the following systems (specified by either an $H(z)$ or a difference equation) matches the frequency response.
NOTE: the frequency axis for each plot extends over the range $-\pi \leq \hat{\omega} \leq \pi$.

$\mathcal{S}_1$: $y[n] = 0.77y[n-1] + x[n] + x[n-1]$

$\mathcal{S}_2$: $y[n] = 0.77y[n-1] + 0.77x[n] - x[n-1]$

$\mathcal{S}_3$: $H(z) = \dfrac{1 - z^{-1}}{1 + 0.77z^{-1}}$

$\mathcal{S}_4$: $H(z) = 1 - z^{-1} + z^{-2} - z^{-3} + z^{-4} - z^{-5}$

$\mathcal{S}_5$: $y[n] = \sum_{k=0}^{7} x[n-k]$

$\mathcal{S}_6$: $H(z) = 3 - 3z^{-1}$

$\mathcal{S}_7$: $y[n] = x[n] + x[n-1] + x[n-2] + x[n-3] + x[n-4] + x[n-5]$