PROBLEM:

Pick the correct frequency response and enter the number in the answer box:

Difference Equation or Impulse Response

(a) $y[n] = \frac{1}{2}y[n-1] + x[n]$

ANS =

(b) $h[n] = (-\frac{1}{2})^n u[n]$

ANS =

(c) $y[n] = x[n] + x[n-1] + x[n-2]$

ANS =

(d) $h[n] = \sum_{k=0}^{3} x[n-k]$

ANS =

Frequency Response

1. $H(e^{j\hat{\omega}}) = e^{-j\hat{\omega}}(1 + 2\cos(\hat{\omega}))$

2. $H(e^{j\hat{\omega}}) = \dfrac{\sin\hat{\omega}}{\sin(\frac{1}{2}\hat{\omega})}$

3. $H(e^{j\hat{\omega}}) = e^{-j1.5\hat{\omega}}\dfrac{\sin 2\hat{\omega}}{\sin(\frac{1}{2}\hat{\omega})}$

4. $H(e^{j\hat{\omega}}) = 1 + \frac{1}{2}e^{-j\hat{\omega}}$

5. $H(e^{j\hat{\omega}}) = \dfrac{1}{1 - \frac{1}{2}e^{-j\hat{\omega}}}$

6. $H(e^{j\hat{\omega}}) = \dfrac{1}{1 + \frac{1}{2}e^{-j\hat{\omega}}}$