

Oppenheim Assignment 2

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2.20 a

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

$$Y(z) + \frac{1}{a}z^{-1}Y(z) = z^{-1}X(z) \quad (2)$$

$$H(z) = \frac{Y(z)}{X(z)} = \frac{z^{-1}}{1 + \frac{1}{a}z^{-1}} \quad (3)$$

$$h(n) = \left(\frac{-1}{a}\right)^{n-1}u(n-1) \quad (4)$$

$$h(n) = (-1)^{n-1}\left(\frac{1}{a}\right)^{n-1}u(n-1) \quad (5)$$