

Answer Key to HW 5

1)

$$y_{\text{total}}[0] = y_{\text{zir}}[0] + y_{\text{zsr}}[0] = -13 + 1 = -12$$

$$y_{\text{total}}[1] = y_{\text{zir}}[1] + y_{\text{zsr}}[1] = 33 + 3 = 36$$

$$y_{\text{total}}[2] = y_{\text{zir}}[2] + y_{\text{zsr}}[2] = -73 + 10 = -63.$$

2)

$$y_{\text{zir}}[n] = c_1 \gamma^n = c_1 (\sqrt[12]{1.12})^n.$$

$$y[n] = y_{\text{zir}}[n] = 10094.89 (\sqrt[12]{1.12})^n = 10094.89 (1.12)^{n/12}.$$

3)

$$y[n] = 2(-1)^n - 4(-2)^n.$$

4)

$$y[n] = -(3 + 2n)(-1)^n.$$

5)

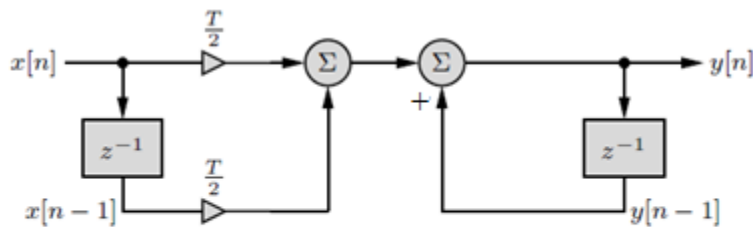
$$y[n] = 2(\sqrt{2})^n \cos(\pi n/4)$$

6)

a) $h[n] = (-2)^n u[n]$

b) $h[n] = 2.0616(5)^n \cos(0.9273n - 0.245) u[n]$

7) a)



$$h[n] = \frac{T}{2} \delta[n] + T u[n-1]$$

b)

$$h[n] = -\frac{T}{2} \delta[n] + T u[n].$$