

$$x_1(t) = -2r(t) + 4r(t-2) - 2r(t-4)$$

$$y(t) = -2 \left[t + \tau_c (e^{-t/\tau_c} - 1) \right] u(t) \\ + 4 \left[t-2 + \tau_c (e^{-(t-2)/\tau_c} - 1) \right] u(t-2) \\ - 2 \left[t-4 + \tau_c (e^{-(t-4)/\tau_c} - 1) \right] u(t-4) \text{ Volts}$$

b.) $x_2(t) = 2r(t) - 4r(t-2) + 2r(t-6)$

$$y(t) = 2 \left[t + \tau_c (e^{-t/\tau_c} - 1) \right] u(t) \\ - 4 \left[t-2 + \tau_c (e^{-(t-2)/\tau_c} - 1) \right] u(t-2) \\ + 2 \left[t-6 + \tau_c (e^{-(t-6)/\tau_c} - 1) \right] u(t-6)$$

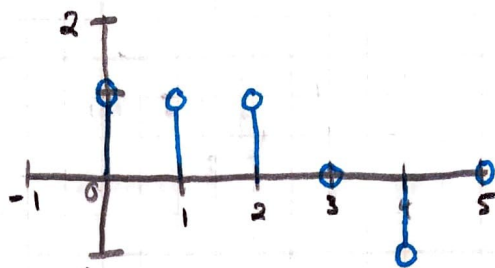
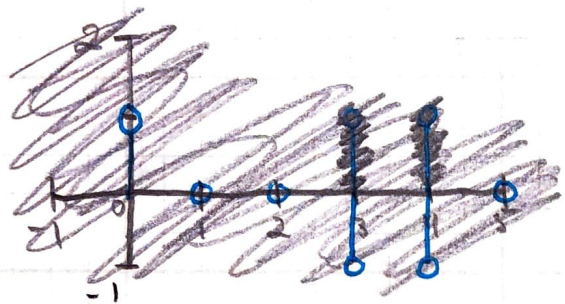
2.9) c.) $x_3(t) = 3u(t-2) - 6u(t-6) + 3u(t-10)$

$$y(t) = 3 \left[t-2 + \tau_c (e^{-(t-2)/\tau_c} - 1) \right] u(t-2) \\ - 6 \left[t-6 + \tau_c (e^{-(t-6)/\tau_c} - 1) \right] u(t-6) \\ + 3 \left[t-10 + \tau_c (e^{-(t-10)/\tau_c} - 1) \right] u(t-10)$$

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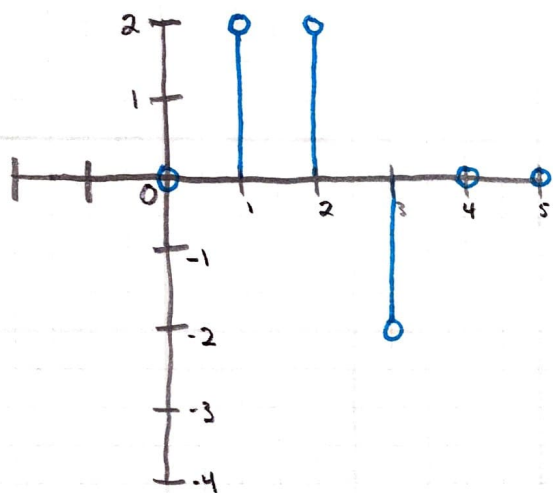
HW4

7.1) a.) $u[n] - \delta[n-3] - u[n-4]$



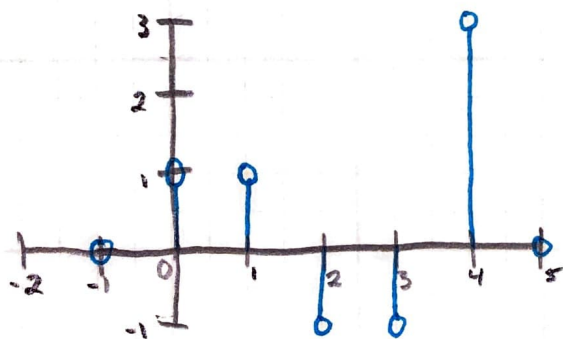
$y[n] = \{1, 1, 1, 0, -1\}$

d.) $2\delta[n-1] - 4\delta[n-3]$



$y[n] = \{0, 2, 2, -2, 0\}$

7.2) c.) $n u[n] - 2[n-2] u[n-2] + (n-4) u[n-4]$



$y[n] = \{1, 1, -1, -1, 3\}$