1 Grafica -> Senales Basicas

$x_1 = u(t+2) - u(t+1)$

$1 = -2 \leq x_1 \leq -1$

$0 = \notin \{-2 \leq x_1 \leq -1\}$

$x_2 = 2[u(t-1) - u(t-2)] - [u(t-2) - u(t-3)]$

$2 = 1 \leq x_2 \leq 2$

$-1 = 2 \leq x_2 \leq 3$

$0 = \notin \{1 \leq x_2 \leq 2\}$ y $\{2 \leq x_2 \leq 3\}$

$2(t) = [u(t+2) - u(t+1)] + [2(u(t-1) - u(t-2)) - (u(t-2) - u(t-3))]$

2) Ecuacion $w(t) = 2(t)^* r(2(t+K) - 6)$

$K = 2(9+7)$ $a = 8$

$w(t) = 2(t)^* r(2(t+18) - 6)$

$2(t)^* r(2t + 30)$

$z(t)$ = señal 1

Para $-2 \leq t \leq -1$, $z(t) = x_1(t) + 0 = 1$

Para $1 \leq t \leq 2$, $z(t) = 0 + x_2(t) = 2$

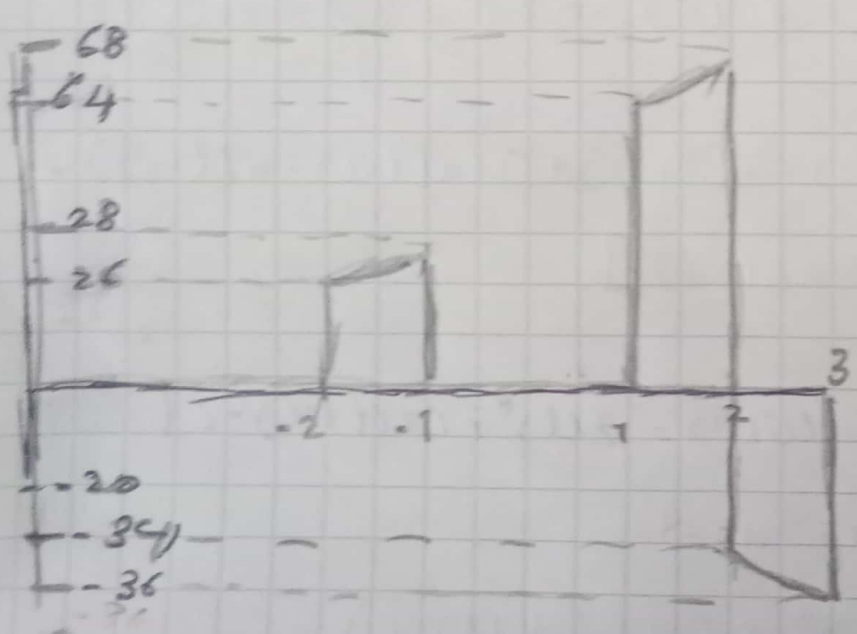
Para $2 \leq t \leq 3$, $z(t) = 0 + x_2(t) = -1$

Para el resto 0

Caso 1: $2t + 30 =$

Caso 2: $2t + 60$

Caso 3: $-2t - 30$



Punto 3:

Primero la señal

$K = 18$

$$x = 2 \cdot \cos(8\pi t + \pi/4) + 18 \cdot \sin(4\pi t) + 5$$

-> Transformada de $\sin(4\pi t)$

$$\sin(2\pi f t) = \frac{1}{2j}\left[e^{j2\pi f t} - e^{-j2\pi f t}\right]$$

$f = 2\,Hz$ ó $T = 0.5\,s$

$$\mathcal{F}\{\sin(4\pi t)\} = \frac{1}{2j}\delta(f-2) - \frac{1}{2j}\delta(f+2)$$

Como $K = 18$

$$\mathcal{F}\{18\sin(4\pi t)\} = 9j\,\delta(f-2) - 9j\,\delta(f+2)$$

Para Coseno $(8\pi t + \pi/4)$

$$\cos(2\pi f t + \theta) = \frac{1}{2}\left[e^{j(2\pi f t + \theta)} + e^{-j(2\pi f t + \theta)^*}\right]$$

$$\mathcal{F}\{\cos(8\pi t + \pi/4)\} = \frac{1}{2}e^{j\pi/4}\delta(f-4) + \frac{1}{2}e^{-j\pi/4}\delta(f+4)$$

La de una constante

$$F\{s\} = s\delta(f)$$

$$X(s) = s\delta(s) + 2e^{j\pi/4}\delta(s-4) + 2e^{-j\pi/4}\delta(s+4)$$

$$+ 9j\delta(s-2) - 9j\delta(s+2)$$