



UNIVERSIDAD  
DE COLIMA

Carlos Emmanuel Anguiano Pedraza

Gilberto Alexander Zing Perez

5C

Análisis de señales

Erika Margarita Ramos Michel

I

$$1) x(n) = 0 \quad n \leq -2 \quad y \quad n > 4$$

$$x[n-4] \rightarrow n+4$$

$$n-4 \leq -2 \rightarrow n \leq -2+4 = 2$$

$$n-4 > 4 \rightarrow n > 4+4 = 8$$

$$R = n \leq 2 \quad y \quad n > 8$$

$$2) x(n) = 0 \quad n < -2 \quad y \quad n > 4$$

$$x[n+4] \rightarrow n+4$$

$$n+4 < -2 \rightarrow n < -2-4 = -6$$

$$n+4 > 4 \rightarrow n > 4-4 = 0$$

$$R = n < -6 \quad y \quad n > 0$$

$$3) x(n) = 0 \quad n < -2 \quad y \quad n > 4$$

$$x[-n] \rightarrow n+1 = -n$$

$$-n < -2 \rightarrow n < 2$$

$$\text{---} \rightarrow$$

$$-n > 4 \rightarrow -4$$

$$\text{---} \rightarrow$$

$$R = n < 2 \quad y \quad n > -4$$

$$4) x(n) = 0 \quad n < -2 \quad y \quad n > 4$$

$$x[-n+2] \rightarrow n+1 = -n-2$$

$$-n-2 < -2 = 2(-1) \rightarrow -2+2 = 0$$

$$-n-2 > 4 = -4+2 \rightarrow -2$$

$$R = n < 0 \quad y \quad n > -2$$

$$5) x(n) = 0 \quad n < -2 \quad y \quad n > 4$$

$$x[-n-2] \rightarrow n+1 = -n-2$$

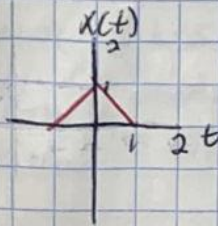
$$-n-2 < -2 = 2(-1) \rightarrow -2-2 = -4$$

$$-n-2 > 4 = 4(-1) \rightarrow -4-2 = -6$$

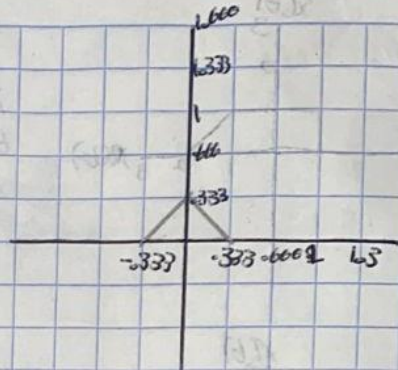
$$R = n < -4 \quad y \quad n > -6$$



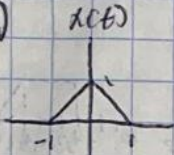
1)



$x(3t)$   
Se comprime  
3 veces en  
el tiempo

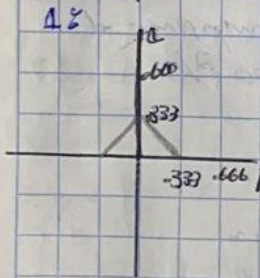


2)



$x(3t+2)$   
Se comprime  
3 veces en el  
tiempo

1°

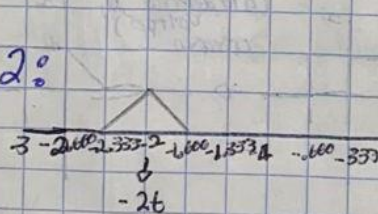


2° Desplazamiento

$$3t+2=0; t=-2/3=-0.66$$

Se adelanta 0.66 de t.

2°





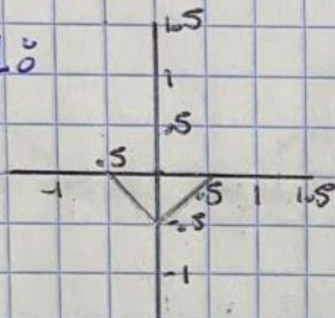
3)  $x(t)$



$$x(-2t-1)$$

1º Se refleja en el tiempo y se comprime

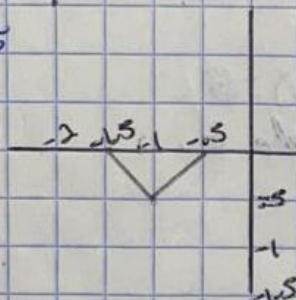
1º



2º Desfasamiento

$-2t-1=0 \Rightarrow t=-0.5$   
Se adelanta 2 u. de t.

2º



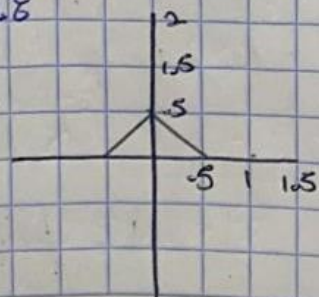
4)  $x(t)$



$$x(2(t+2)) \Rightarrow x(2t+4)$$

1º Se comprime 2 veces en el tiempo

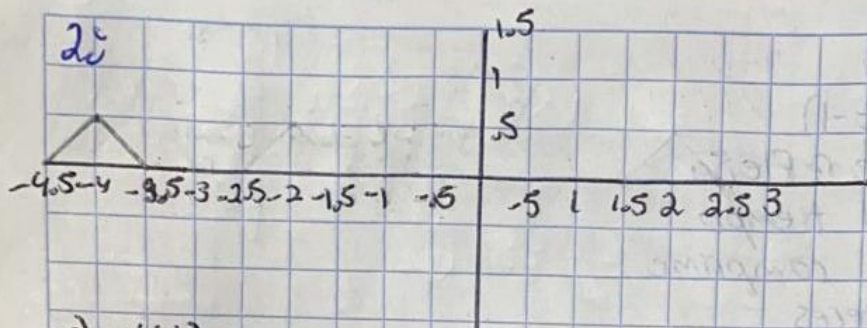
1º



2º Desfasamiento

$2t+4=0 \Rightarrow t=-2$   
Se ~~adelanta~~ 8 u. de t.  
adelanta



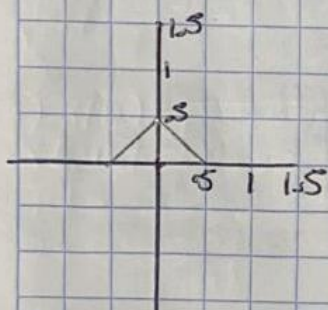


5)  $x(t)$



$$x(2(t-2)) = x(2t-4)$$

1.º Se comprime  
2 veces en el tiempo

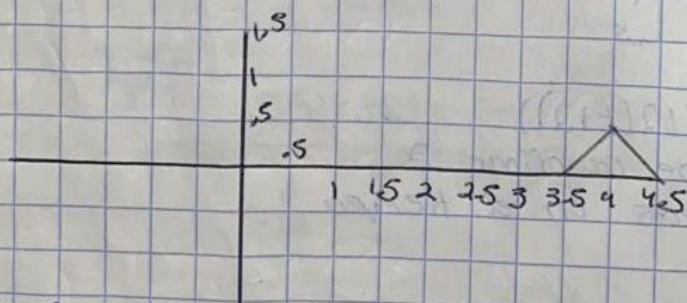


2.º Desfasamiento

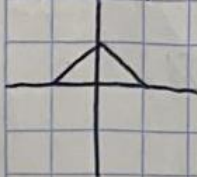
$$2t - 4 = 0 \Rightarrow t = 2(4) = 8$$

Se atrasa 8 u. de t.

2.º



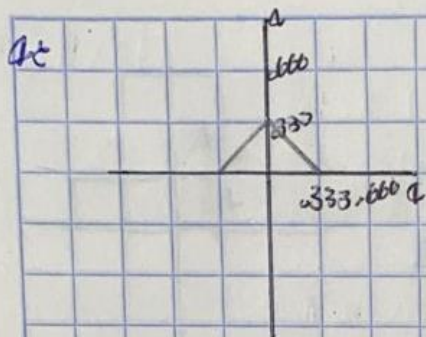
6)  $x(t)$



$$x(3t) + x(3t+2)$$

1.º Se comprime  
3 veces en el tiempo

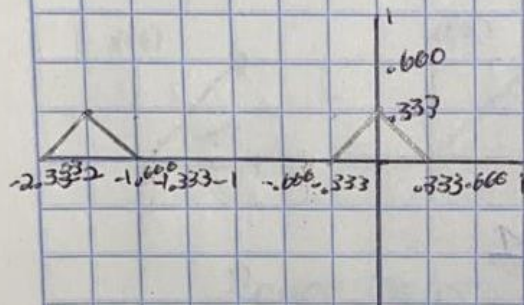




2º Desfasamento

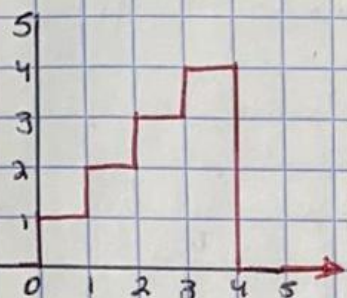
$$3t_0 + 2 = 0; t_0 = -2/3$$

se ~~avanzar~~ adelanta 6 u. de t.

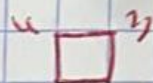




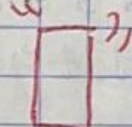
IV  $x_1(t)$



1º Se comprime 2 veces  
 $x(t) = g(t) + g(2t)$



2º Se atrasa 1 unidad de tiempo  
 y se amplifica 2 veces  
 $x(t) = g(t) + g(2t) + 2g(t-1)$



3º Se atrasa 2 unidades de tiempo y se  
 amplifica 5/2 veces

$$x(t) = g(t) + g(2t) + 2g(t-1) + \frac{5}{2}g(t-2)$$



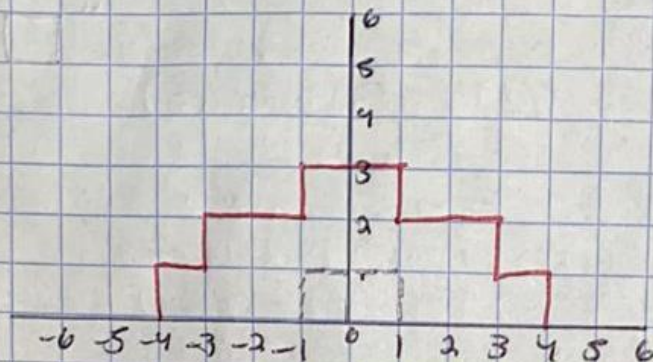
4º Se atrasa 3 unidades de tiempo y se amplifica 3 veces  
 $x(t) = g(t) + g(2t) + 2g(t-1) + \frac{5}{2}g(t-2) + 3g(t-3)$

$$R = x(t) = g(t) + g(2t) + 2g(t-1) + \frac{5}{2}g(t-2) + 3g(t-3)$$

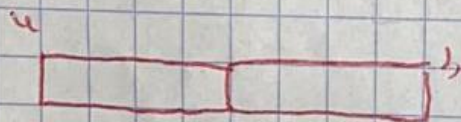
$$R = g(t) + g(2t) + 2g(t-1) + \frac{5}{2}g(t-2) + 3g(t-3)$$



$x_2(t)$

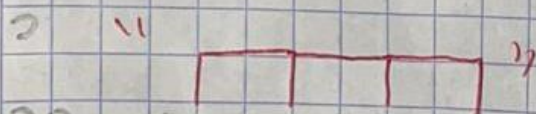


1:  $x(t) = g(t) + g(2t+4) + g(2t-4)$



2: Desplazamiento vertical y Horizontal

$x(t) = g(t) + g(2t+4) + g(2t-4) + g(t)+1 + g(t-2) + g(t+2)$



3: Desplazamiento vertical

$x(t) = g(t) + g(2t+4) + g(2t-4) + g(t)+1 + g(t-2) + g(t+2) + g(t)+2$

R:  $x(t) = g(t) + g(2t+4) + g(2t-4) + g(t)+1 + g(t-2)+1 + g(t+2)+1 + g(t)+2$