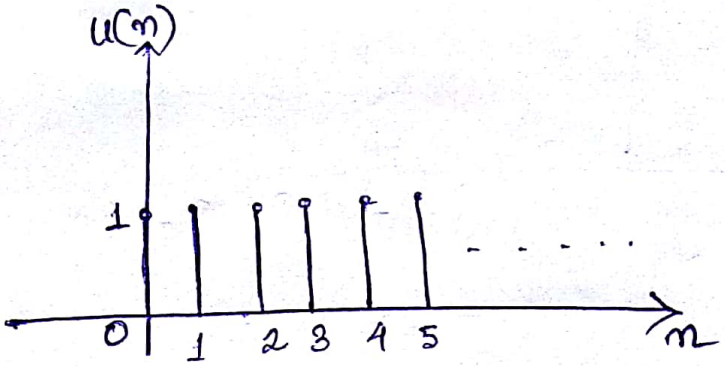
BSS
CLASS8

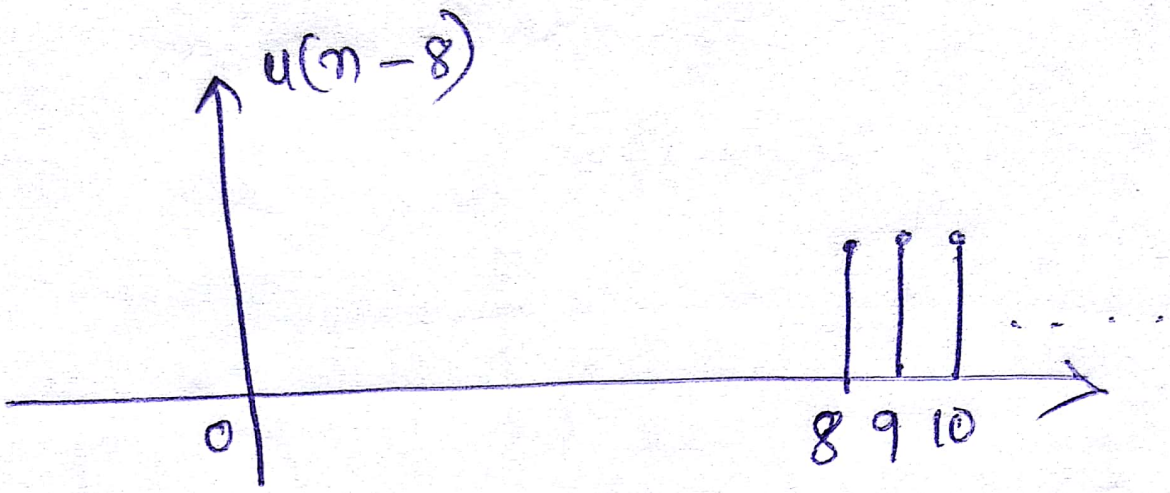
Q. $x(n) = (8-n)\{u(n) - u(n-8)\}$

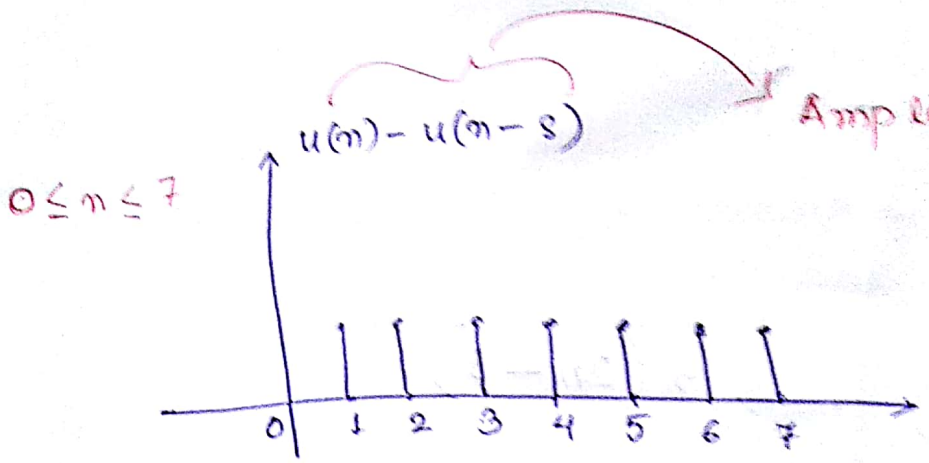
Find $y_1(n) = x(4-n)$

$y_2(n) = x(2n-3)$

Soln.





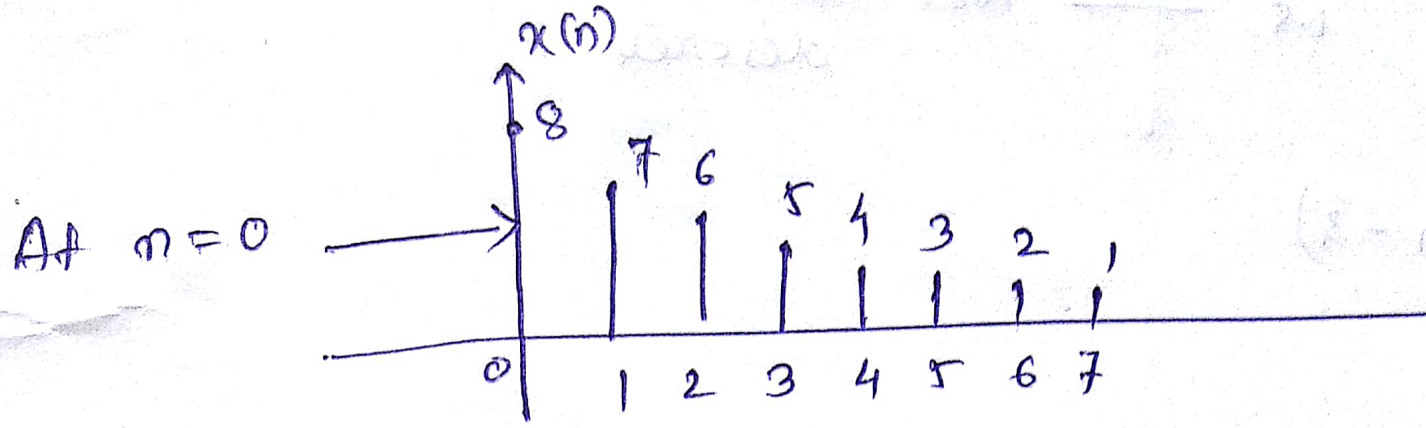


If we plot values for $0 \leq n \leq 7$

we will get $x(n)$.

when $n = 0$, Amplitude = 8

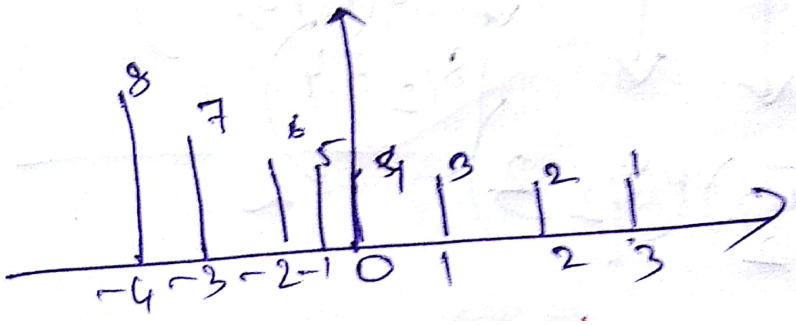
when $n = 1$, " = 7 .... so on



Now,

$y_1(n)$

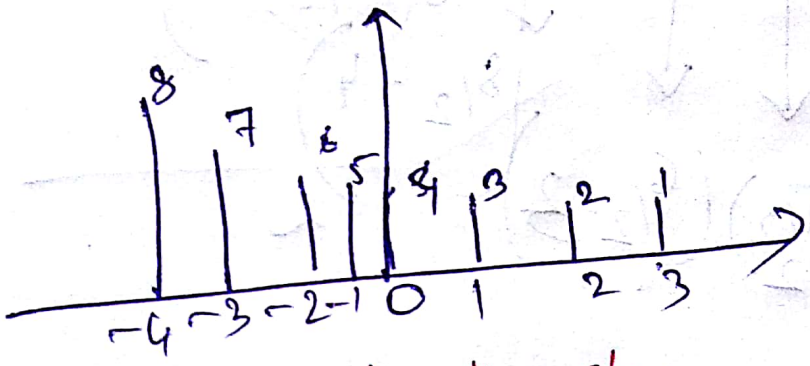
$x(n+4)$ ⟶ shifted left by (4)



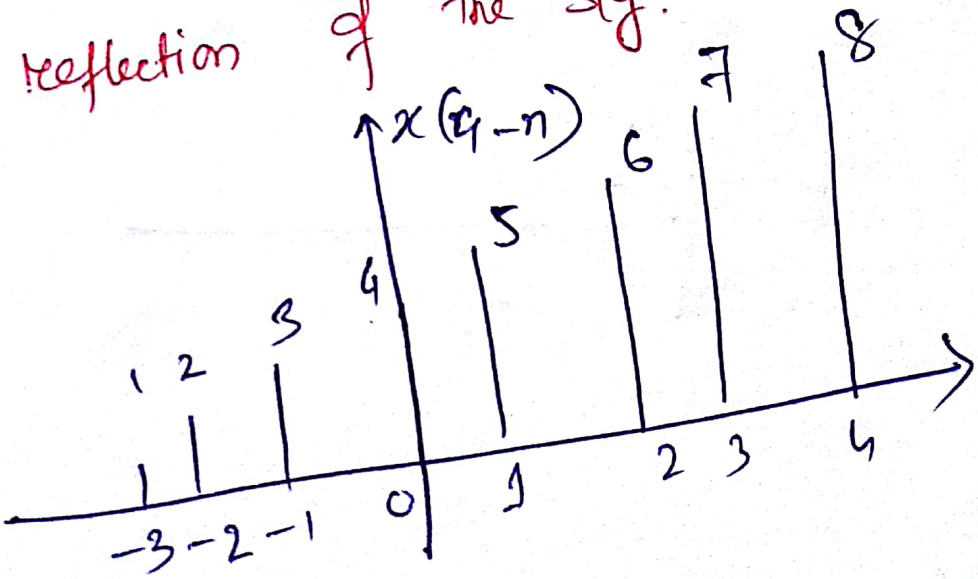
Nao,

$y_1(n)$

$x(n+4)$ → shifted left by (4)



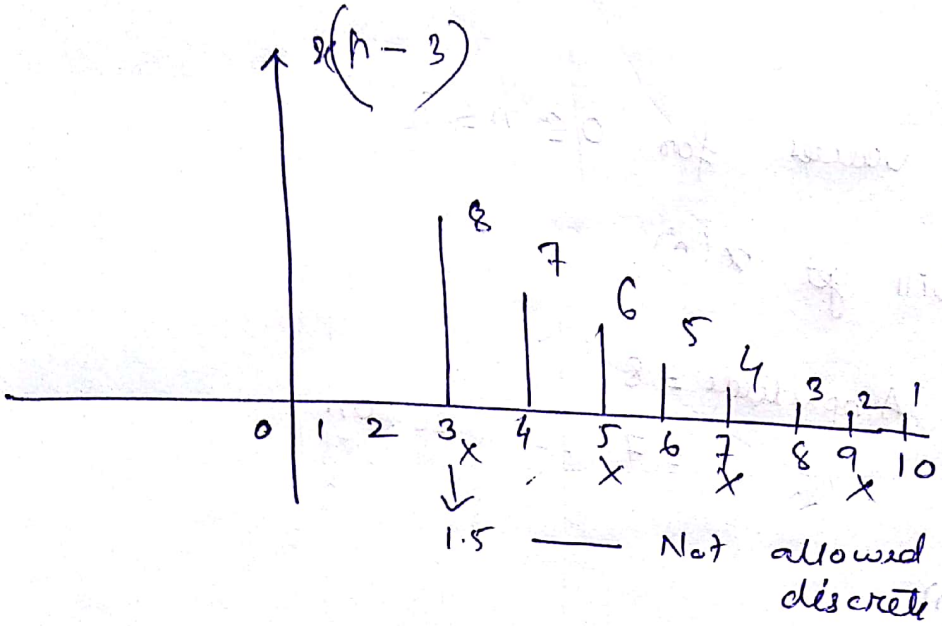
reflection of the sig.

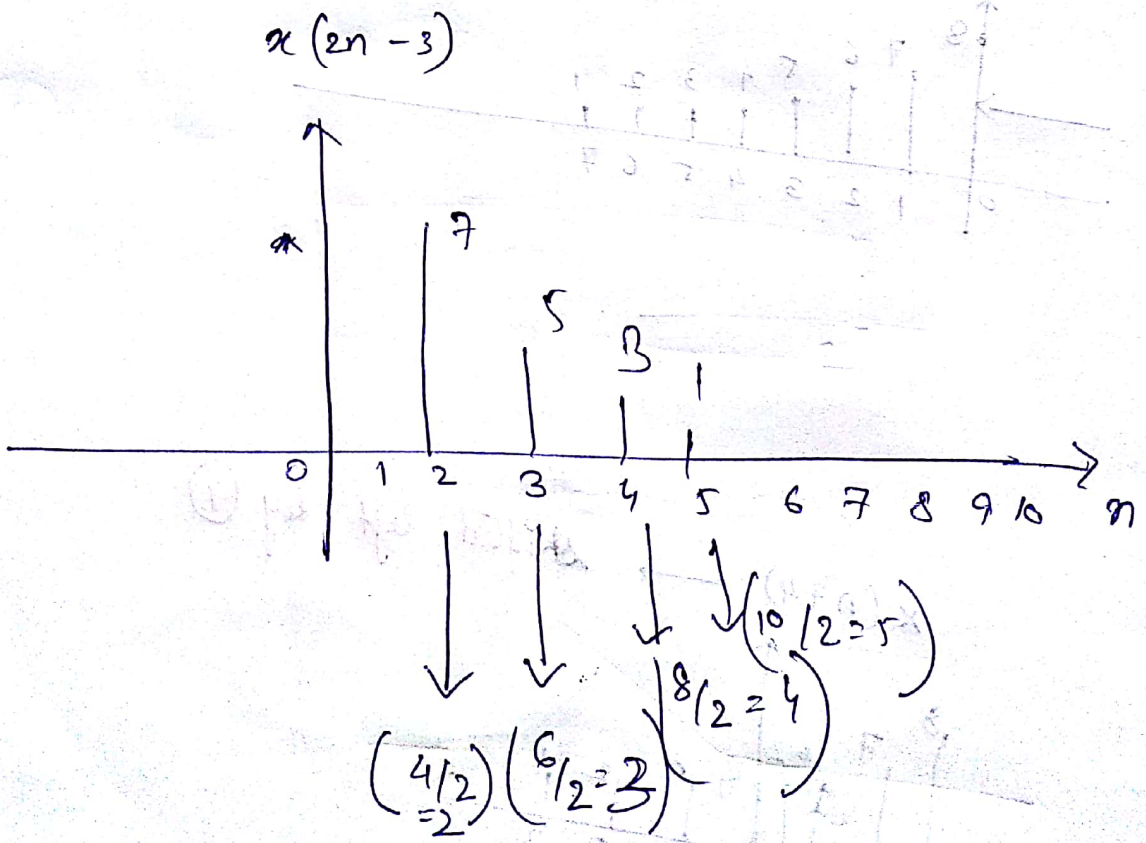


$$y_2(n) = x(2n-3)$$

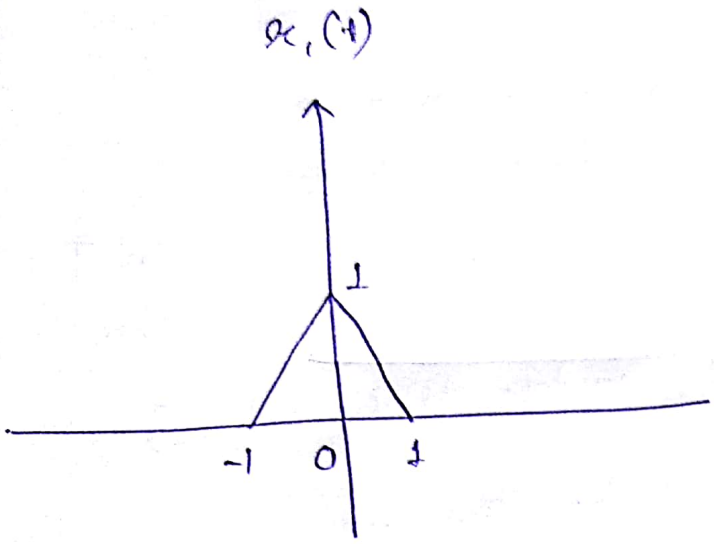
Precedence :—

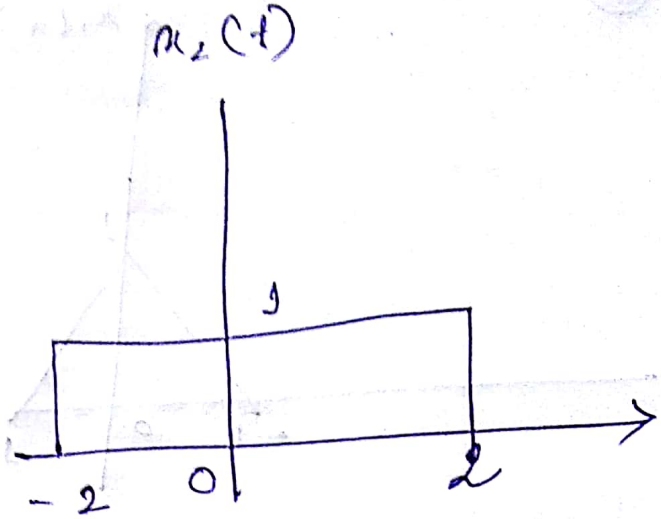
$$y_2(n) \longrightarrow x(n-3) \longrightarrow x(2n-3)$$





2. Given $x_1(t)$ & $x_2(t)$.





Find ① $x_1(t) + x_2(t)$

② $x_2(t/2)$

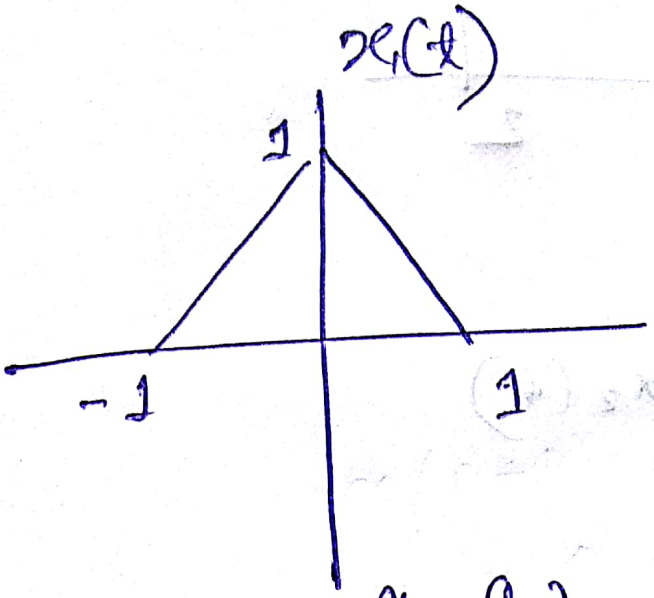
③ $x_1(t) \cdot x_2(t)$

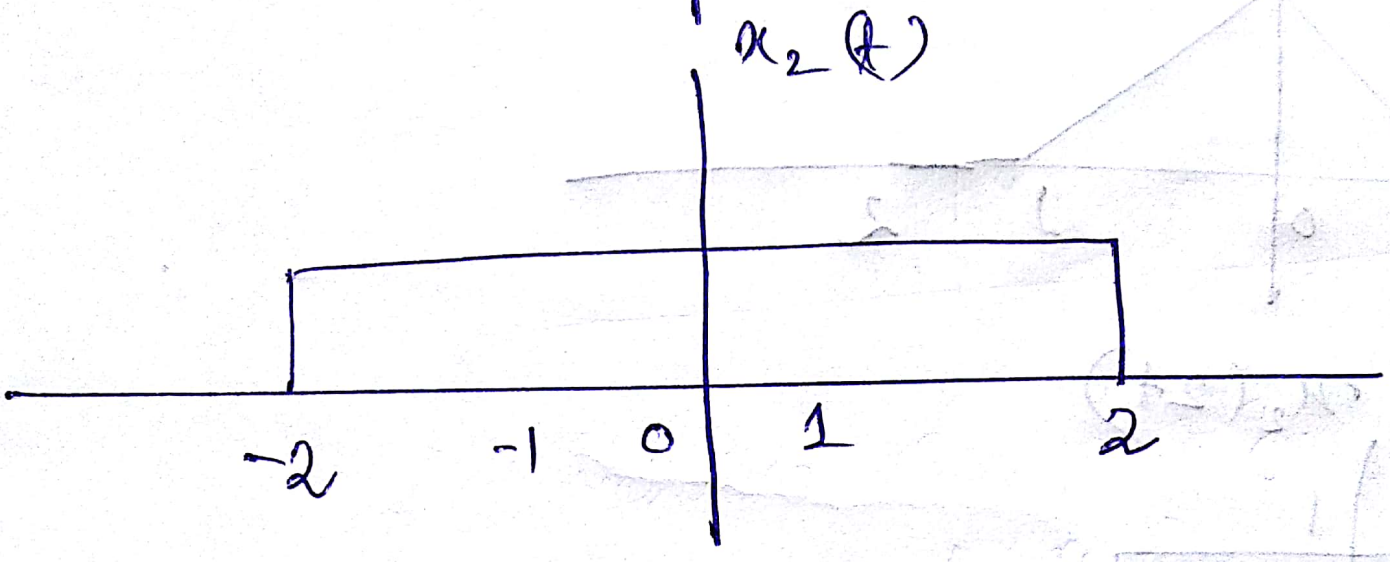
④ $x_2(2t)$

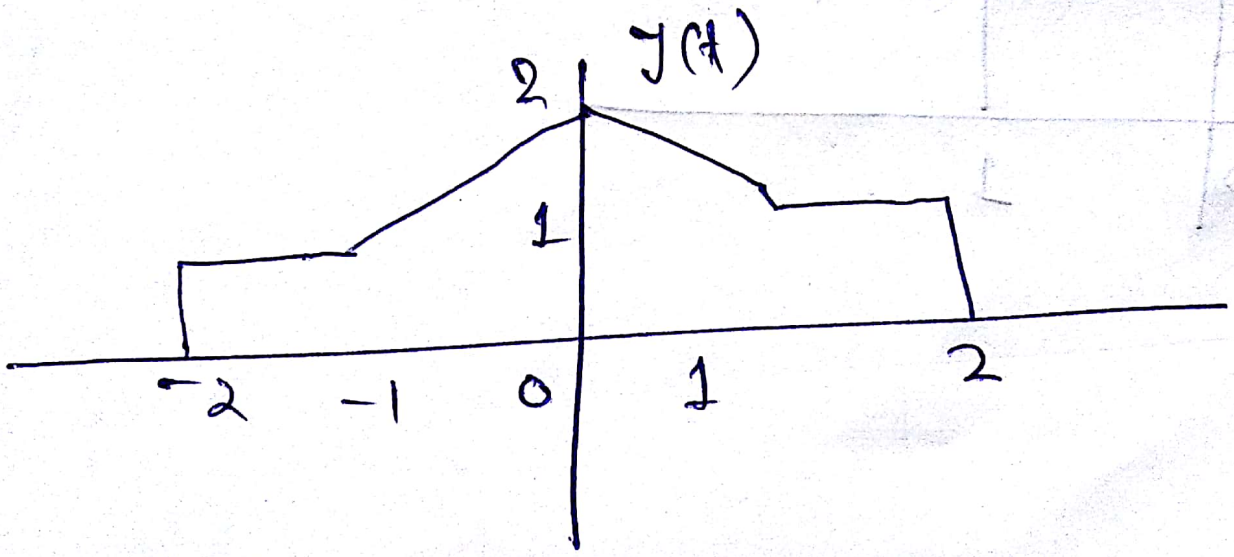
⑤ $x_2(t) - x_1(t)$.

Sol^{n} :-

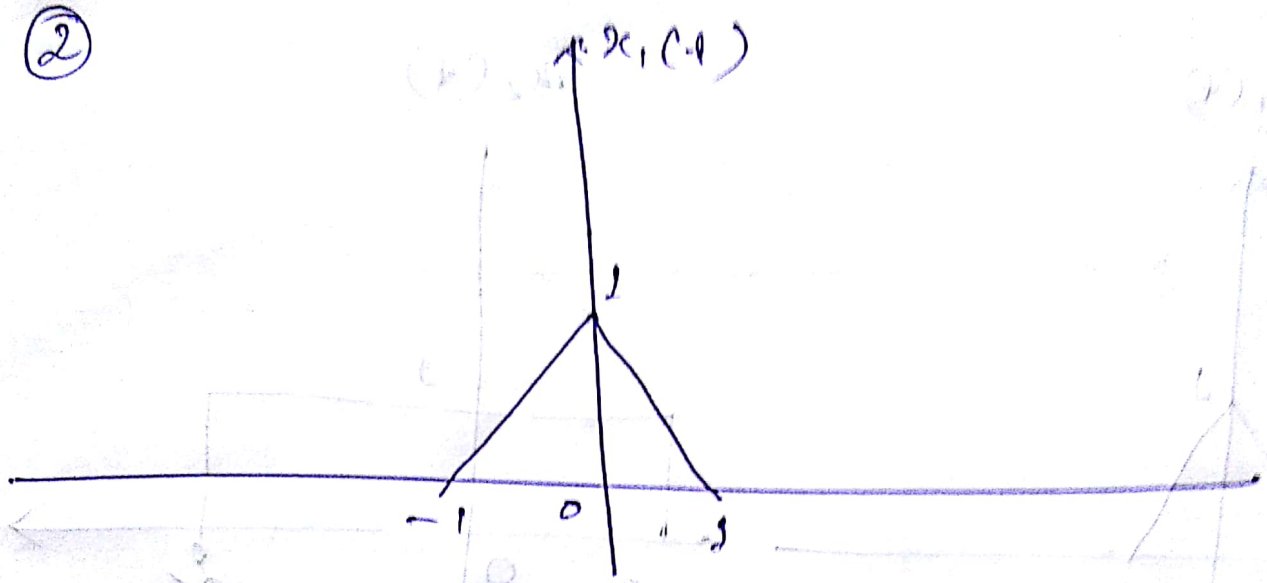
(1)

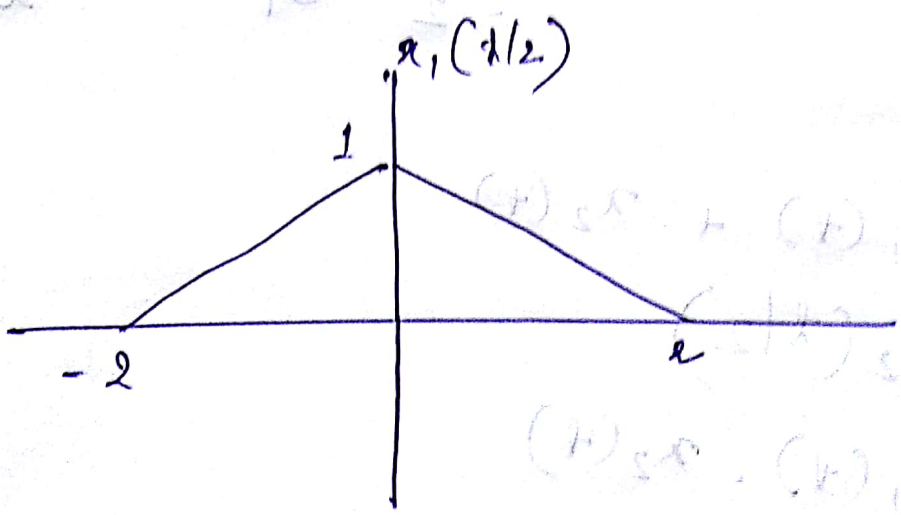




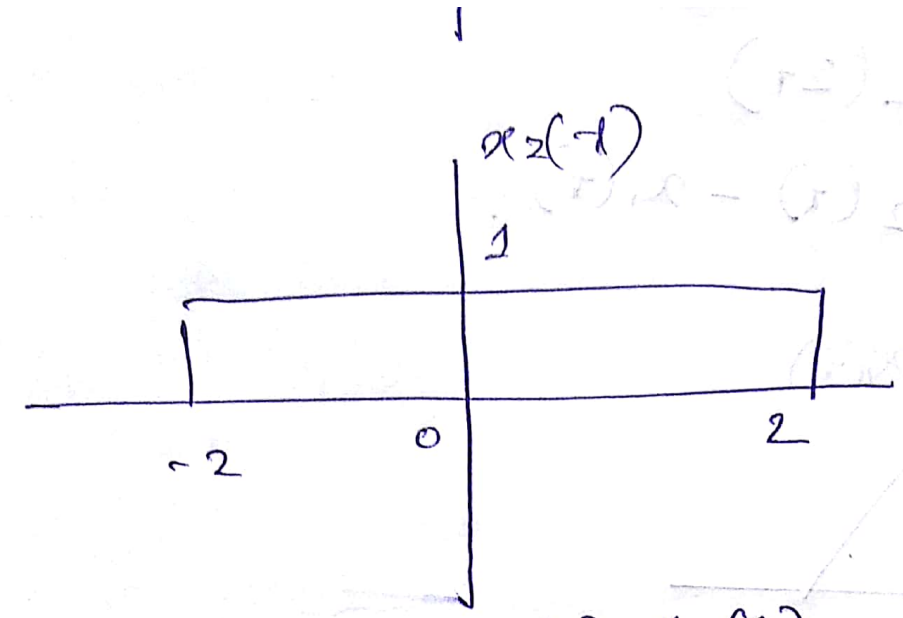


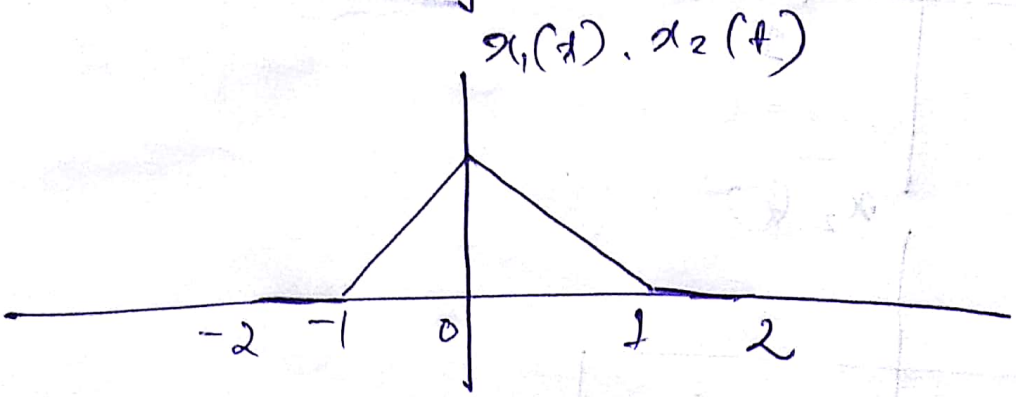
(2)



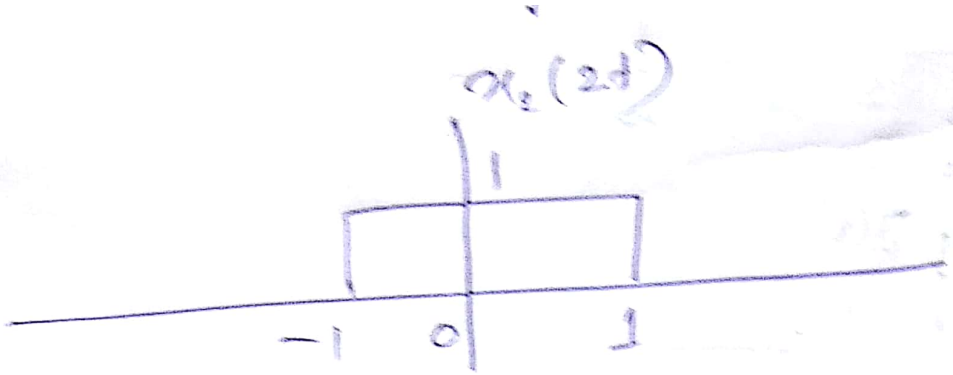


(3)

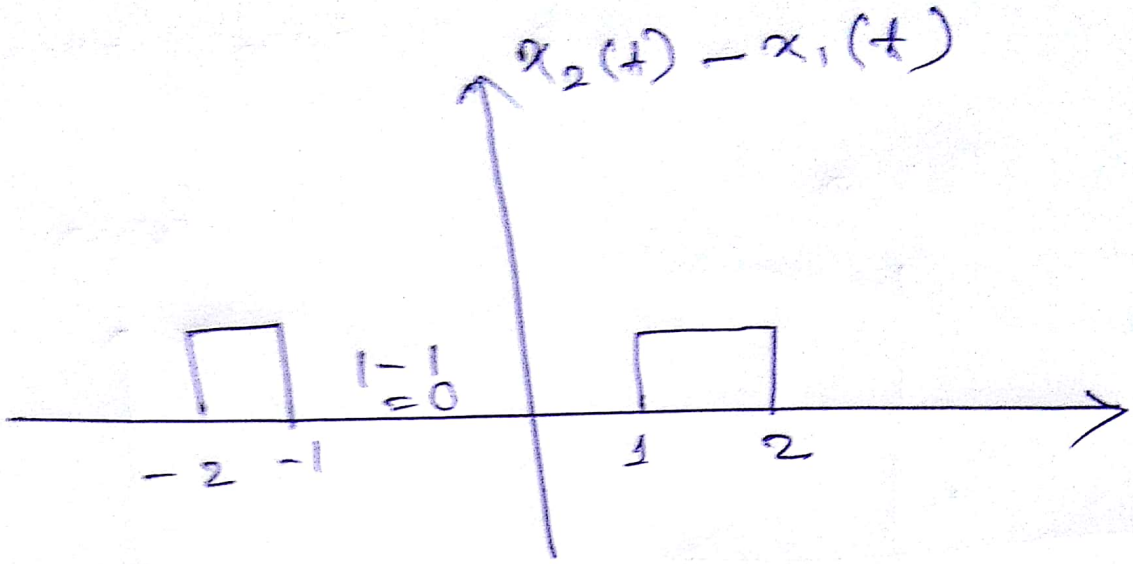




(a)



(5)



Q. Given $x(n) = \begin{cases} -(n+8), & -8 < n < -3 \\ 6, & \text{for } n = -3 \\ -6, & -3 < n < 0 \\ n, & -1 < n < 7 \\ 0, & \text{otherwise.} \end{cases}$

Plot $y(n) = 3.x\left(n/2 + 1\right)$