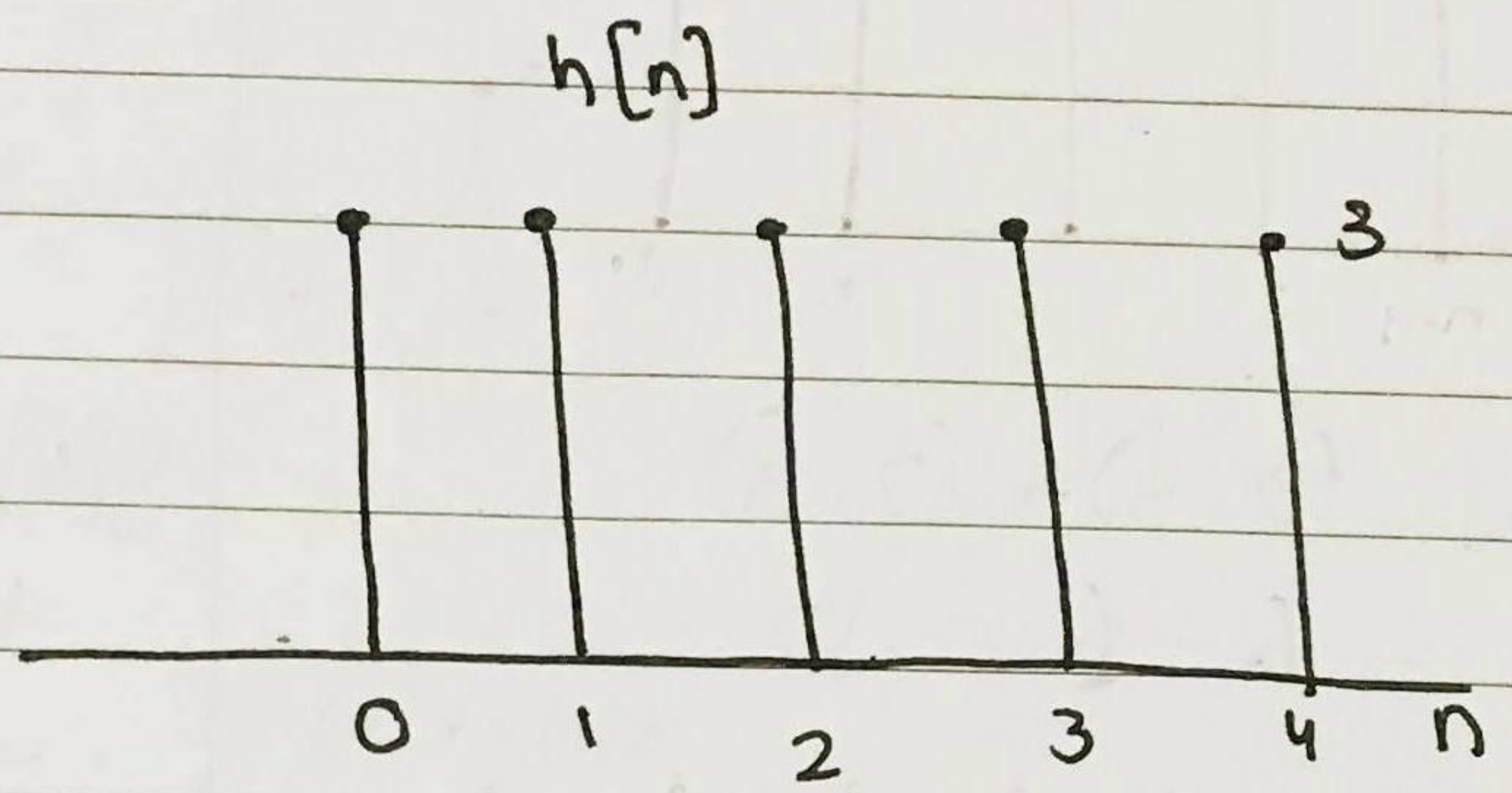
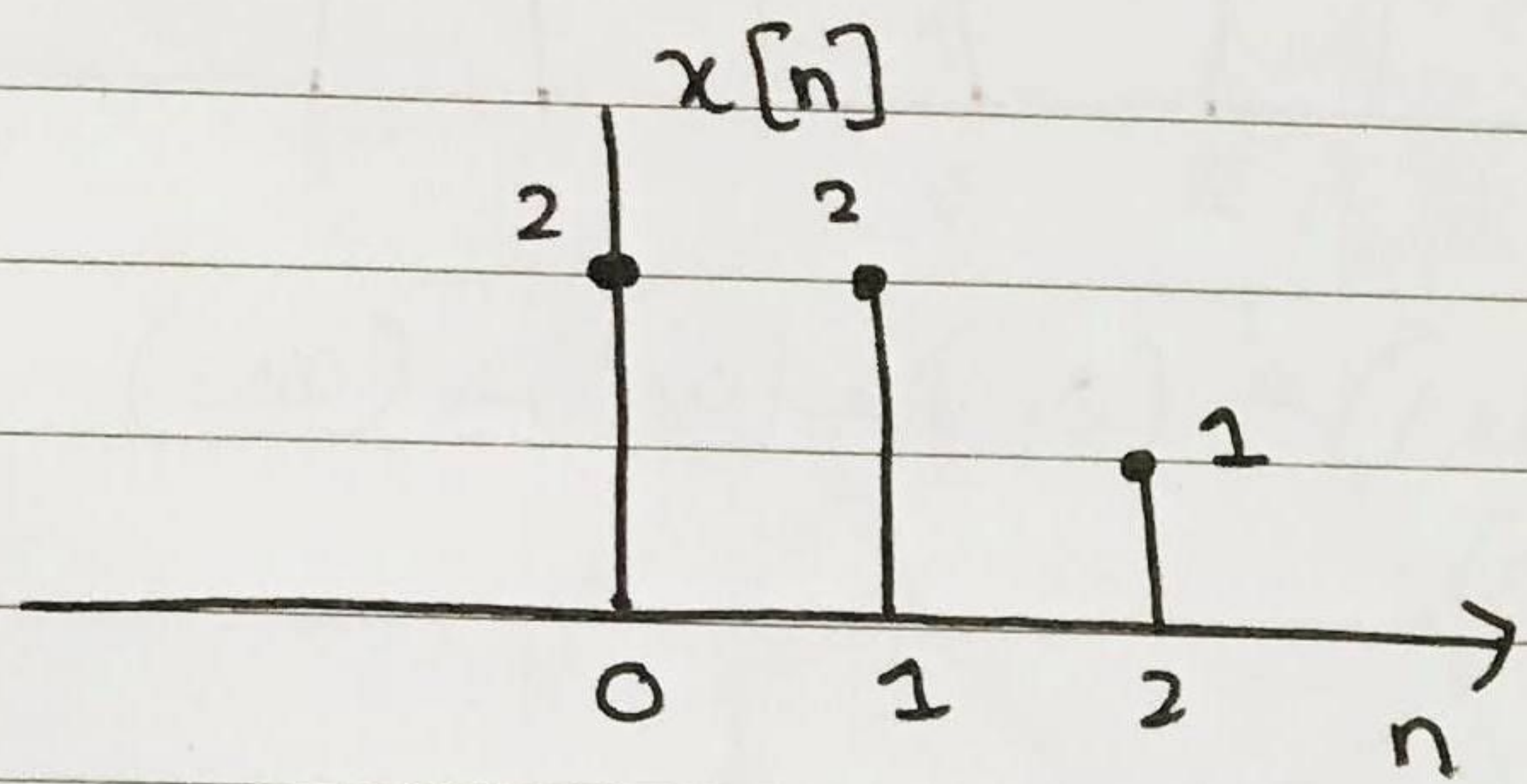


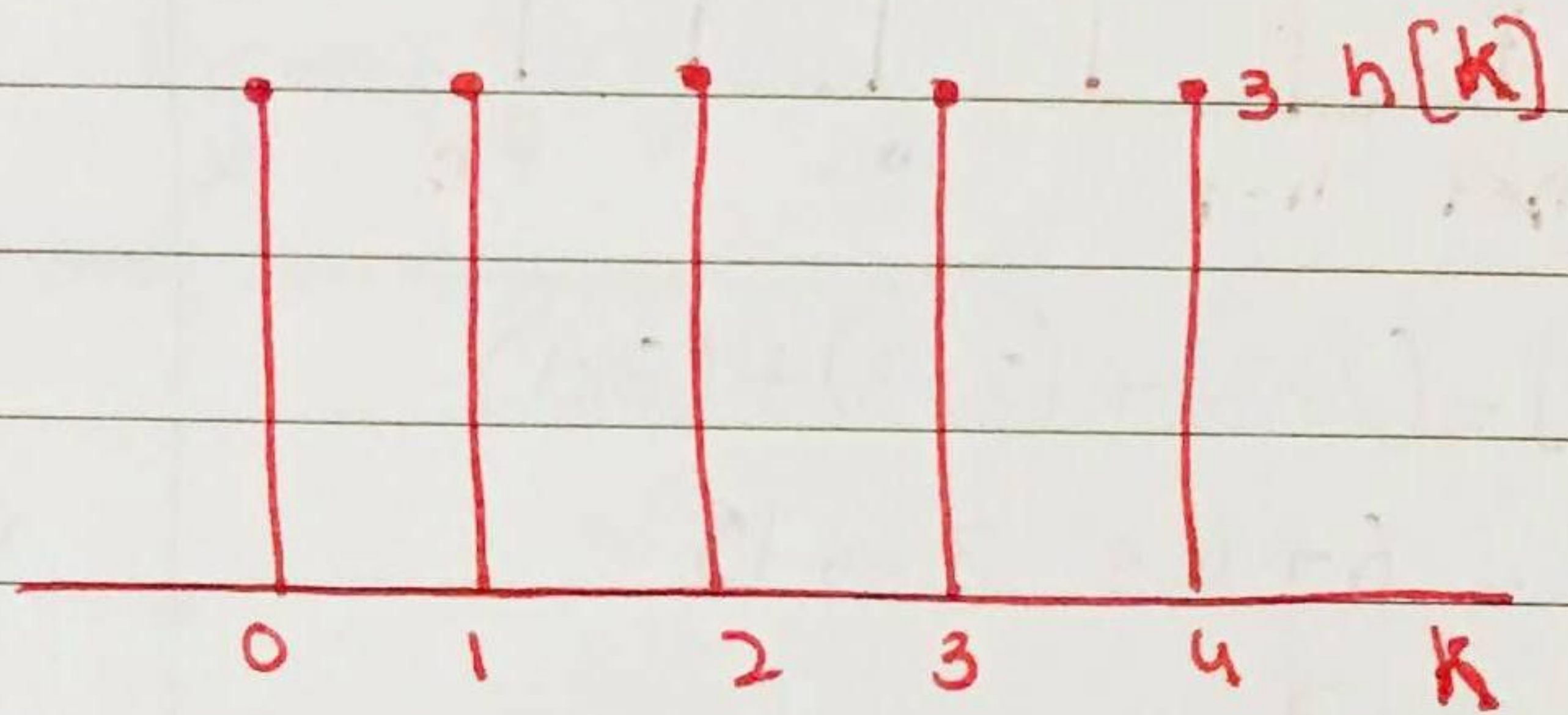
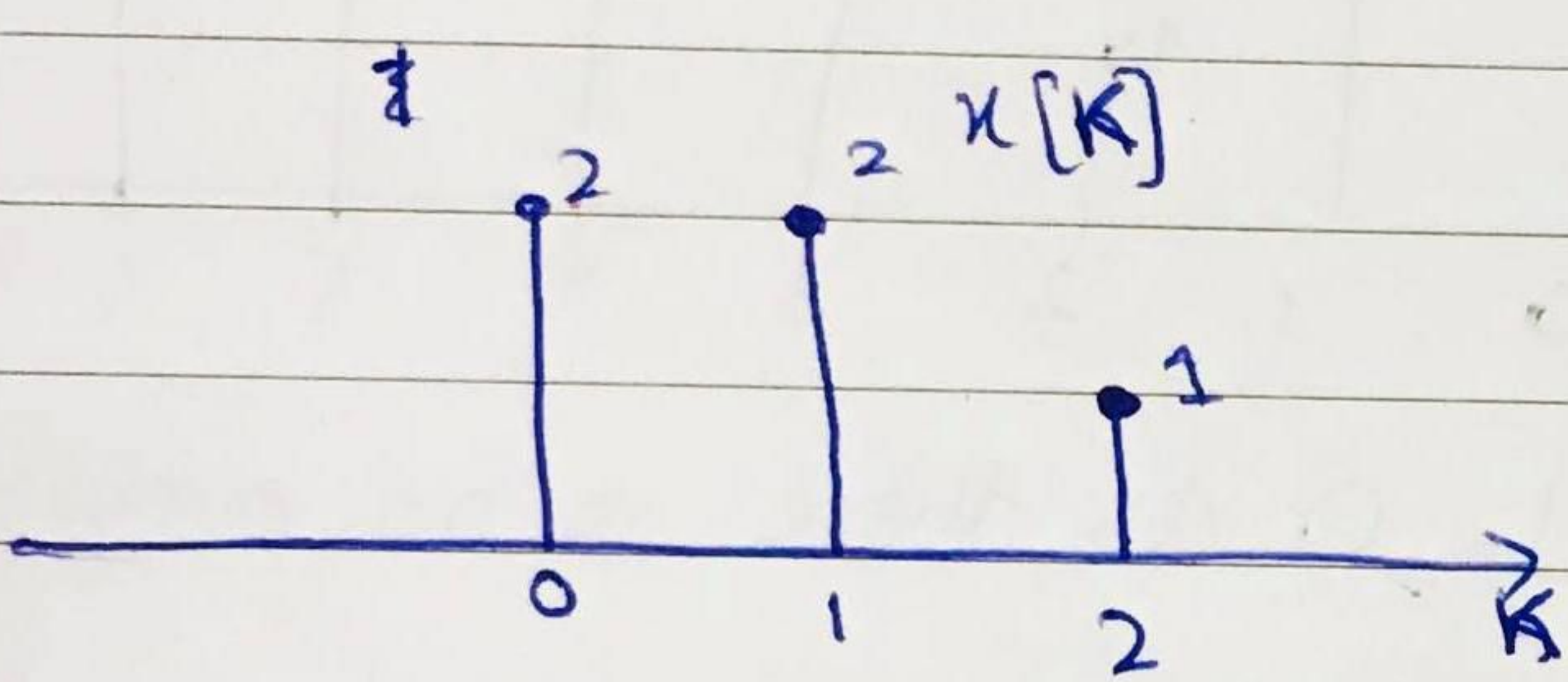
Quiz #2

Q #1

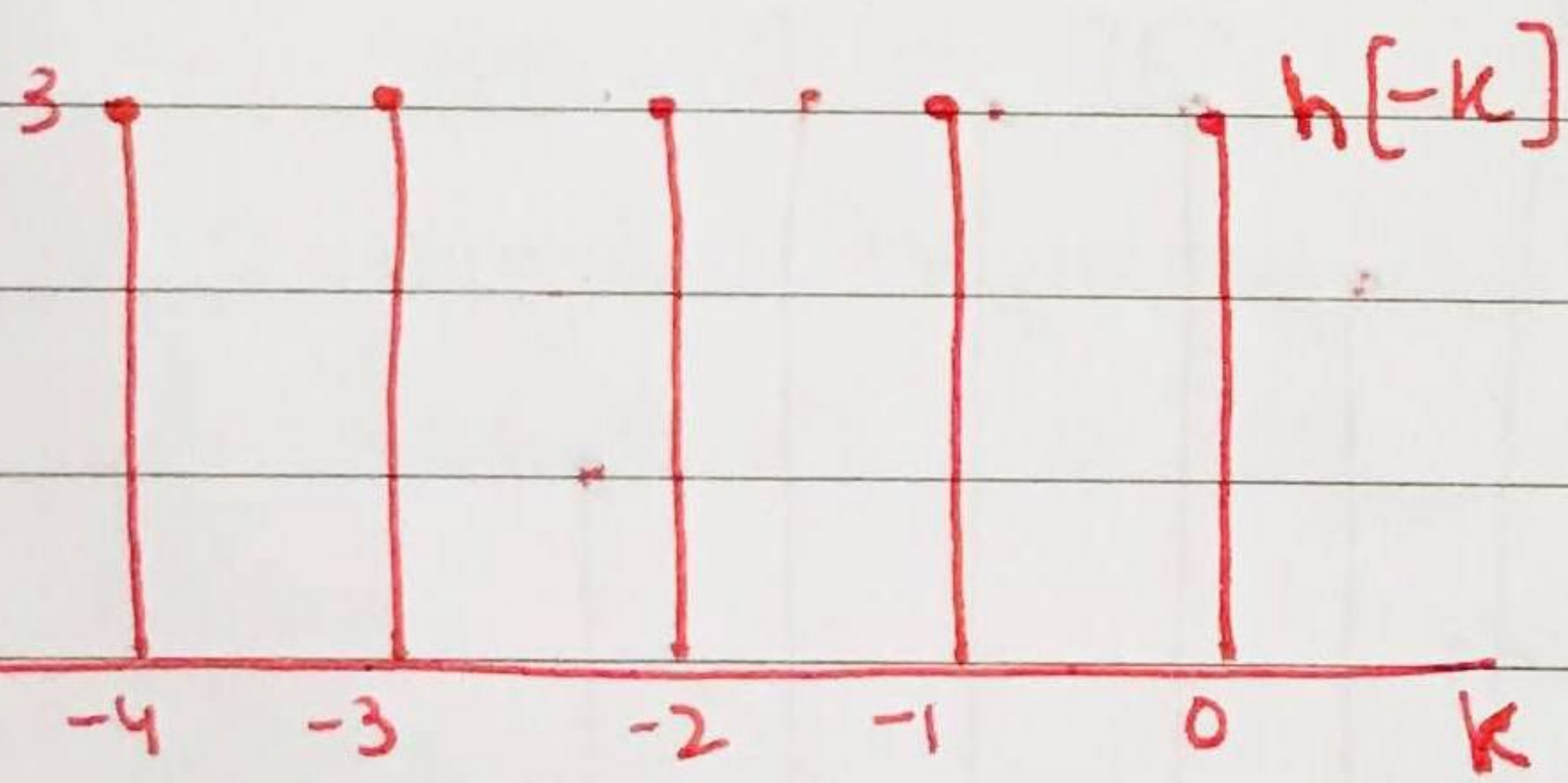


Solve

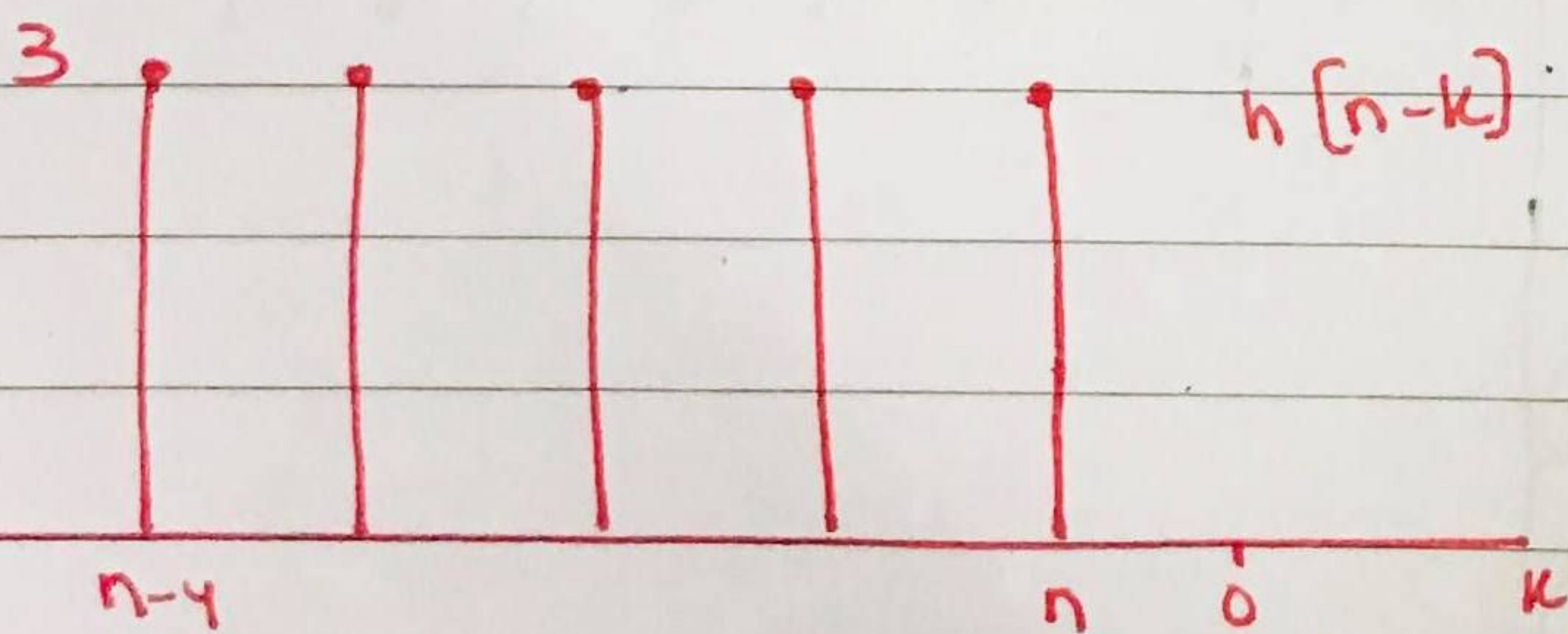
Step #1 :-  $n \rightarrow k$ , replace them



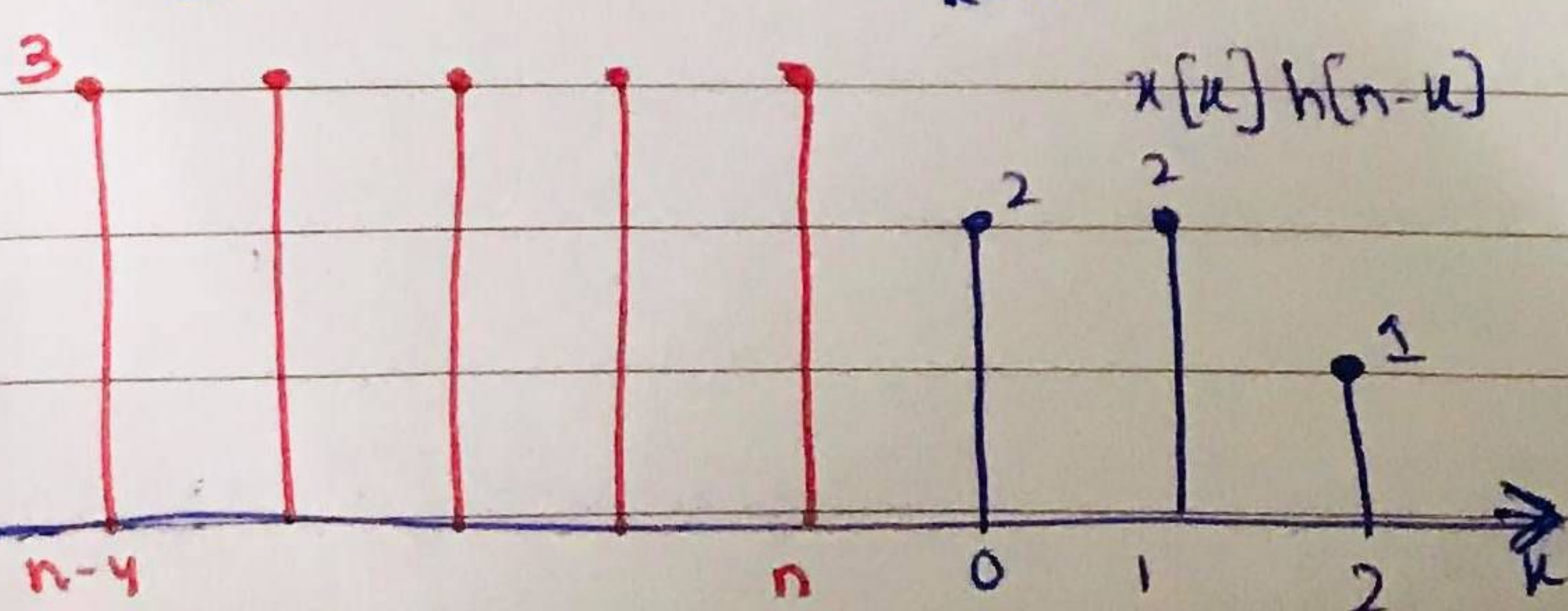
Step #2 :- Flip  $h[k]$



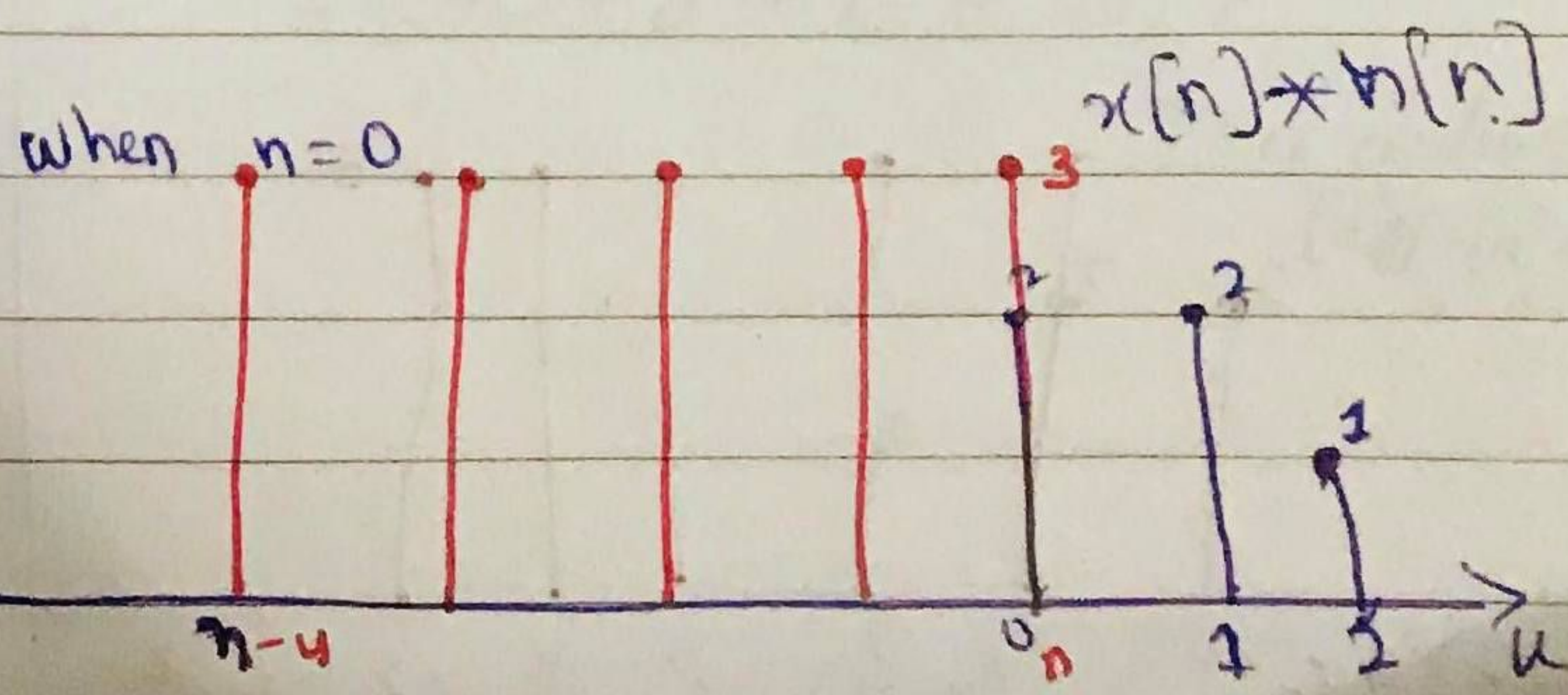
Step #3 :- Shift  $h[-k]$



Step #4 :- Evaluate  $\sum_{k=-\infty}^{\infty} x[k]h[n-k]$



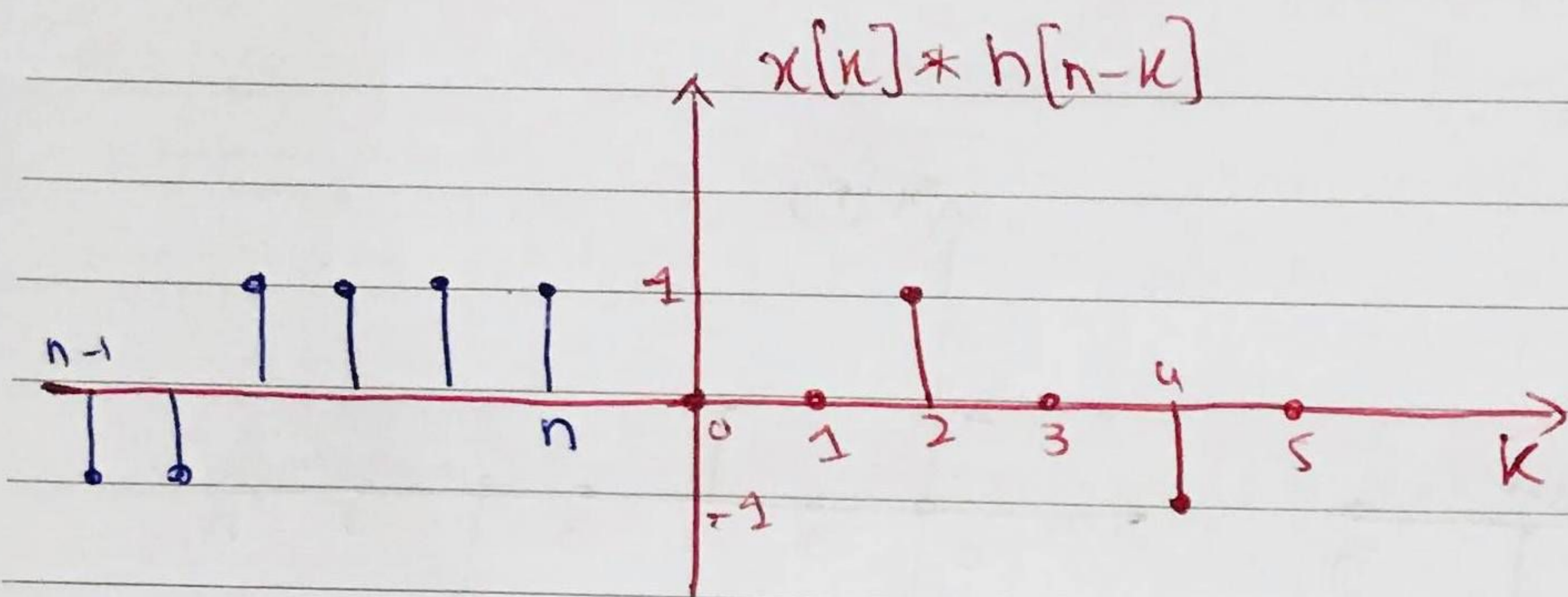
when  $n < 0$   $y[n] = 0$ , no overlapping



when  $n = 0$

$$y[0] = \sum_{k=-\infty}^{\infty} x[k]h[n-k] = (2 \times 3) \Rightarrow 6$$





⇒ when  $n < 0$  there is no overlapping so ans to convolution is zero.

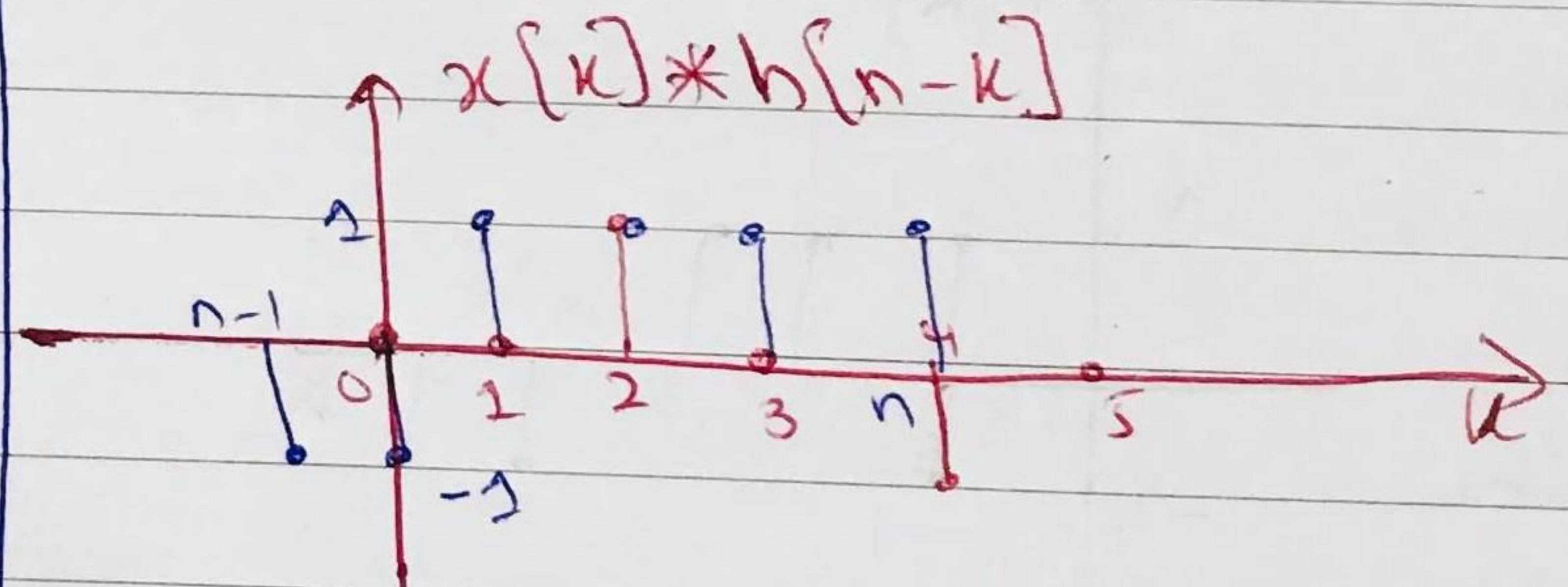
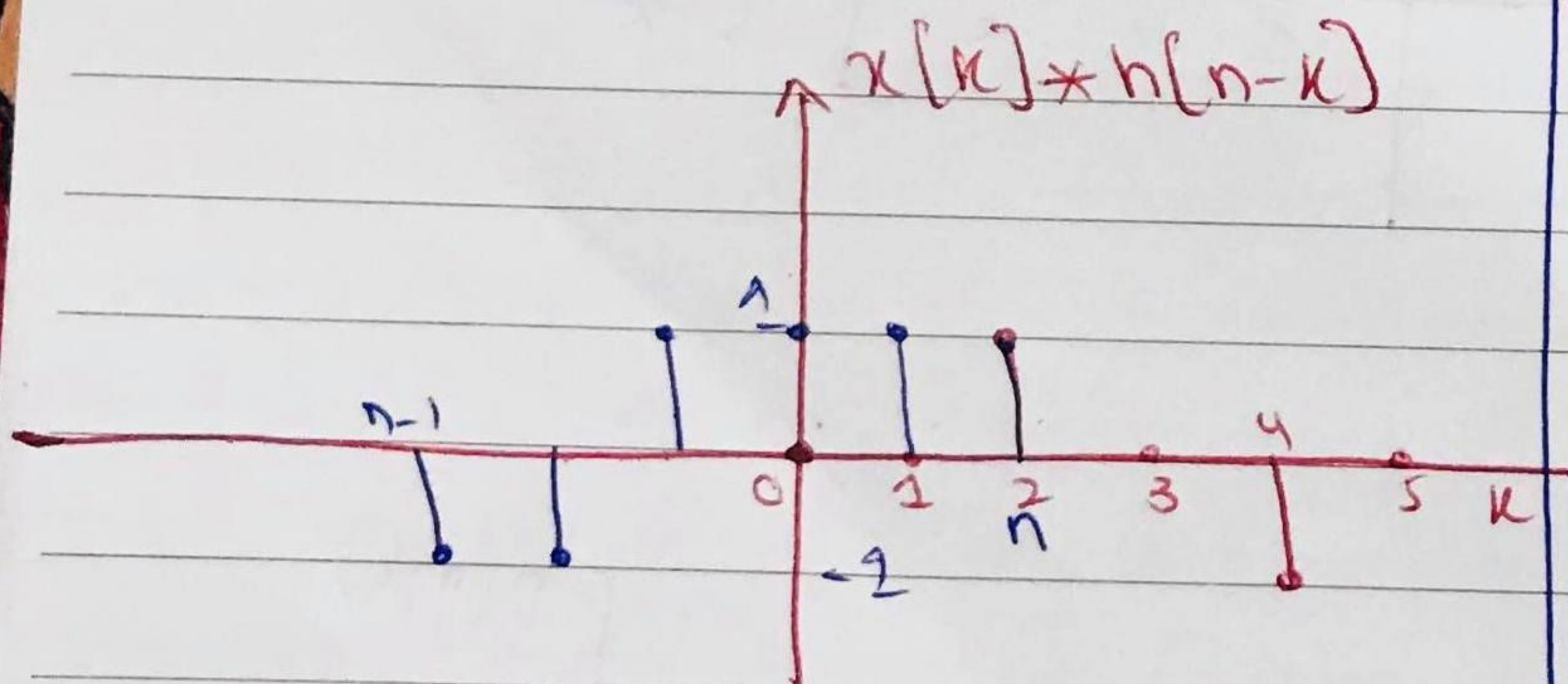
⇒ when  $n = 0$ , no overlapping hence  $y[n] = 0$

$$y[3] = (0 \times -1) + (0 \times -1) + (0 \times 1) + (0 \times 1) + (1 \times 1) + (0 \times 1) \Rightarrow 1$$

⇒ when  $n = 1$ , no overlapping hence  $y[n] = 0$ .

⇒ when  $n = 4$ .

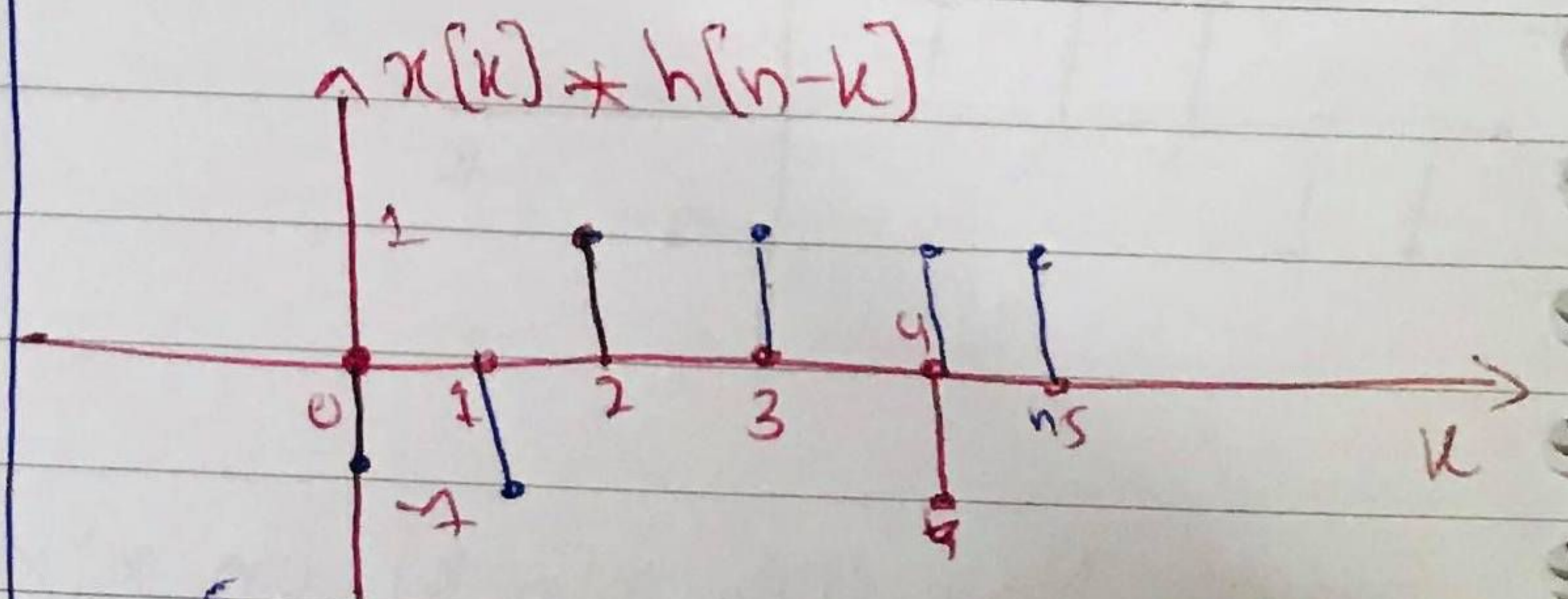
⇒ when  $n = 2$ .



$$y[4] = (0 \times -1) + (0 \times -1) + (0 \times 1) + (1 \times 1) + (0 \times 1) + (1 \times -1) = 0 + 0 + 0 + 1 + 0 - 1 \Rightarrow 0$$

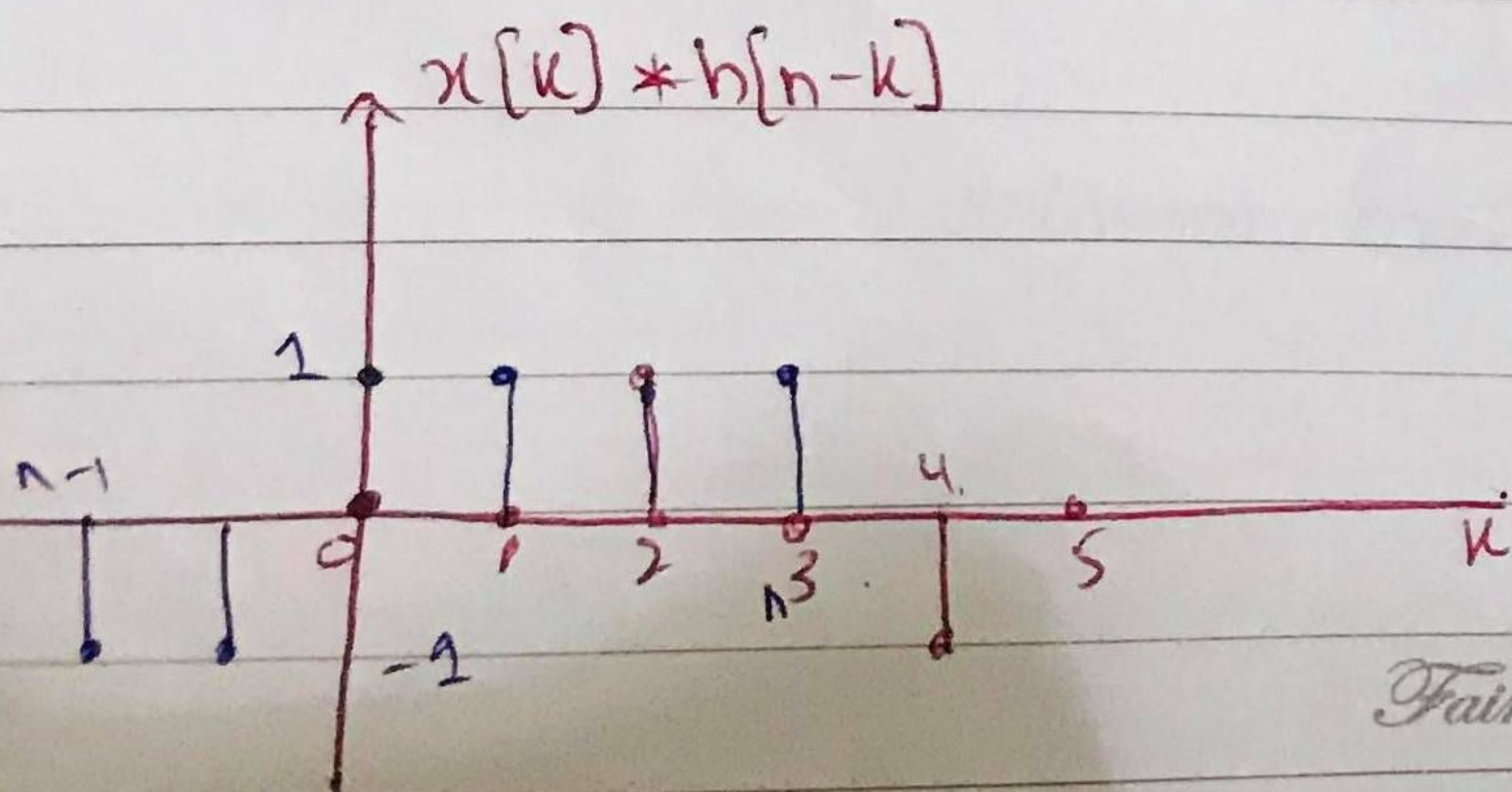
$$y[2] = (0 \times -1) + (0 \times -1) + (0 \times 1) + (0 \times 1) + (0 \times 1) + (1 \times 1) \Rightarrow 1$$

⇒ when  $n = 5$



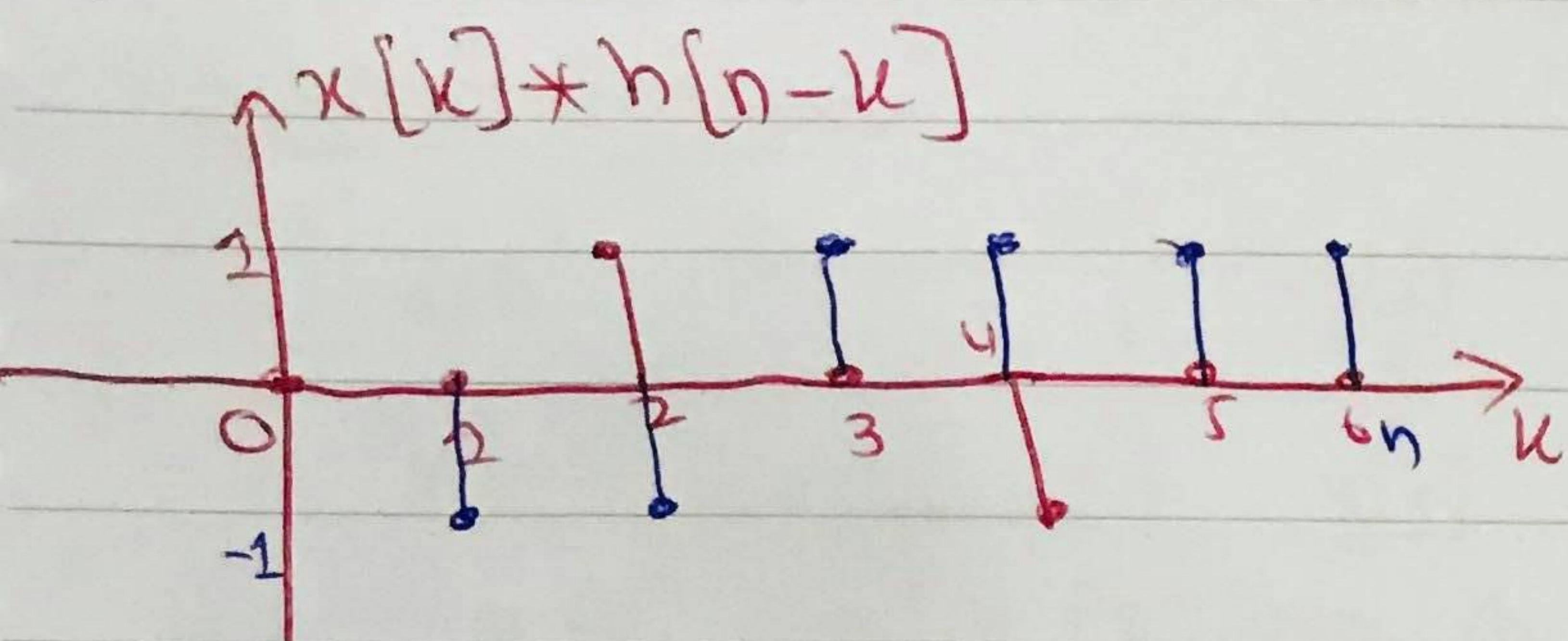
$$y[5] = (0 \times -1) + (0 \times -1) + (1 \times 1) + (1 \times 0) + (-1 \times 1) + (0 \times 1) \Rightarrow 0$$

⇒ when  $n = 3$



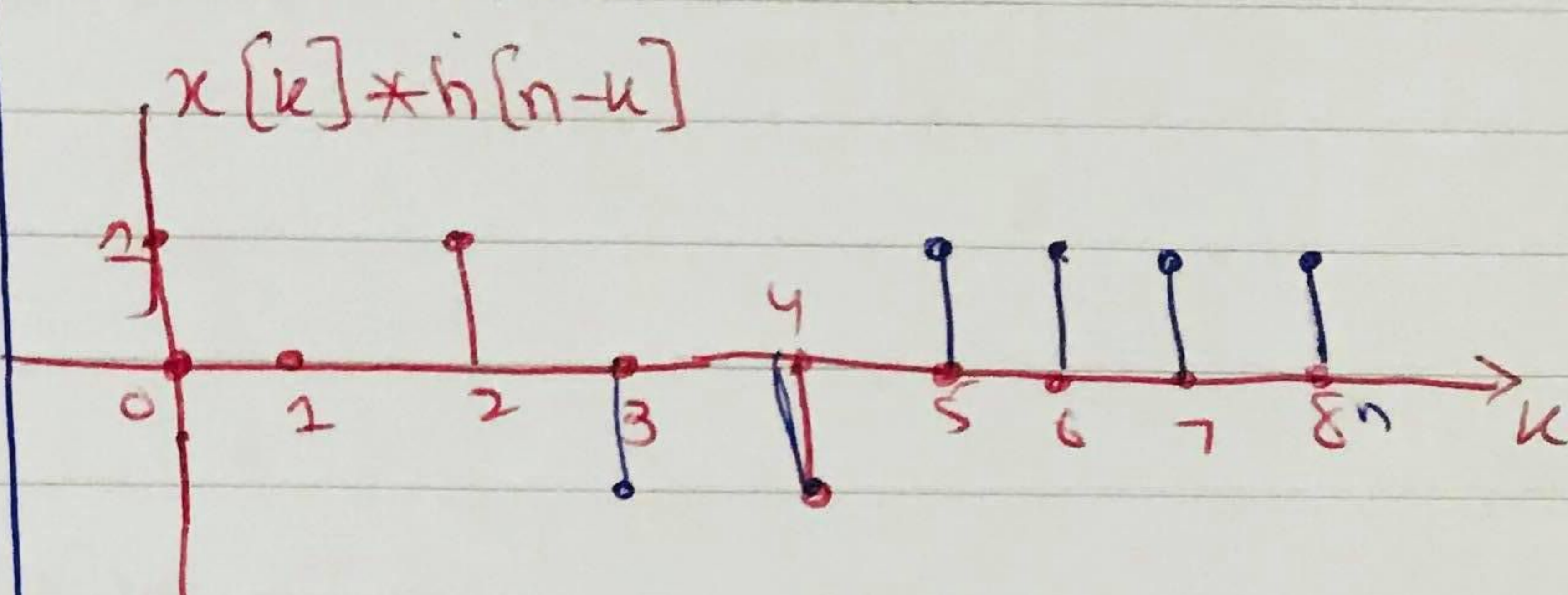


⇒ when  $n=6$



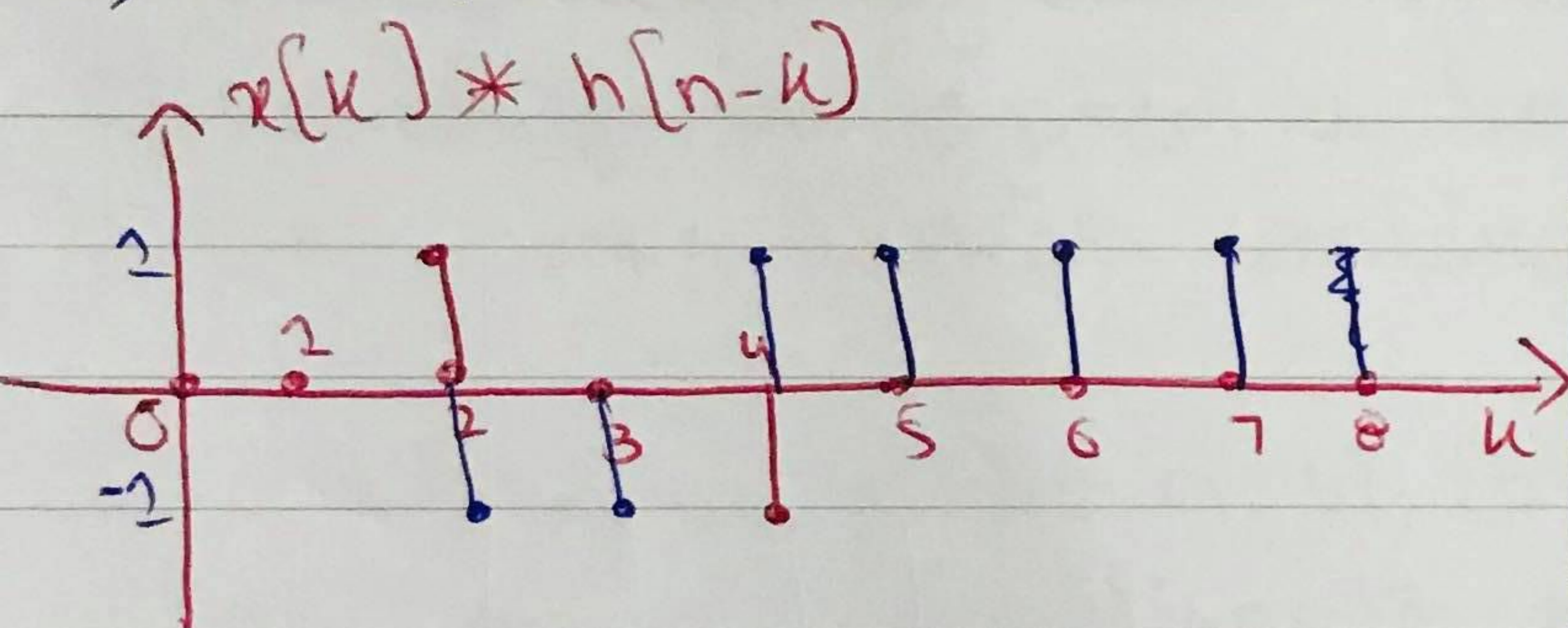
$$y[6] = (0 \times -1) + (1 \times -1) + (0 \times 1) + (1 \times -1) + (0 \times 1) + (0 \times 1) = -1 - 1 \Rightarrow -2$$

⇒ when  $n=8$



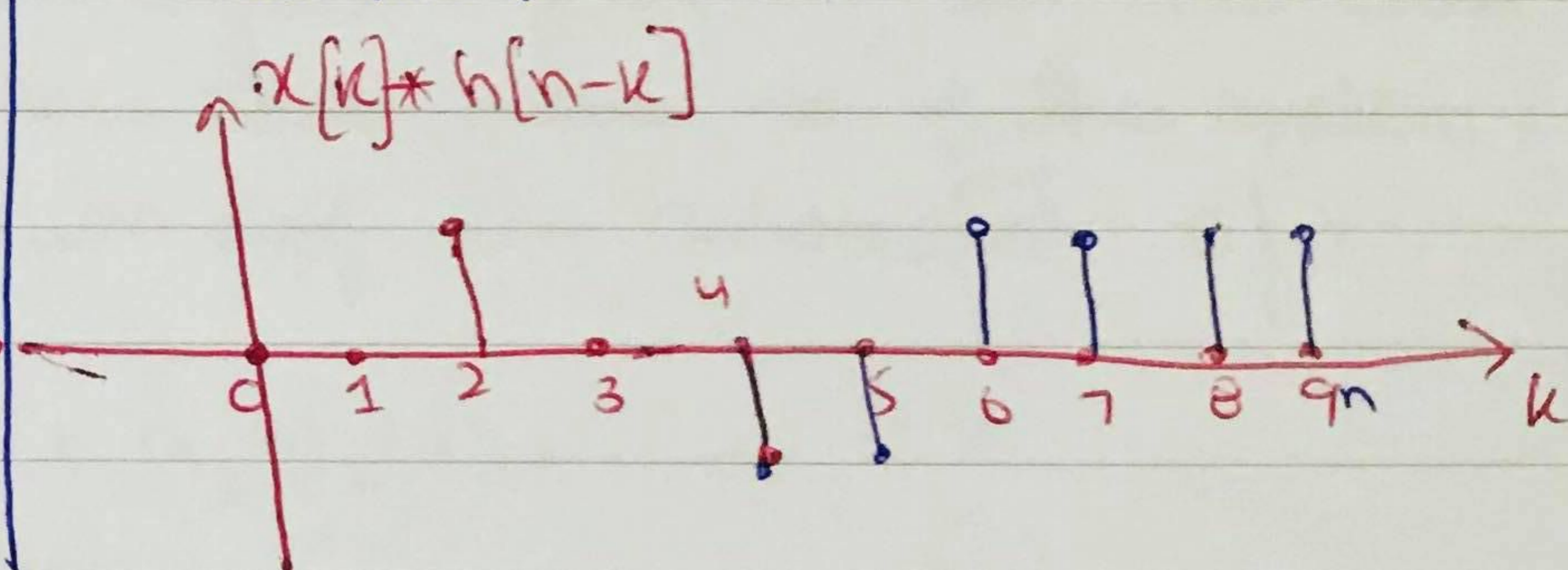
$$y[8] = (0 \times -1) + (-1 \times -1) + (0 \times 1) + (0 \times 1) + (0 \times 1) + (0 \times 1) \Rightarrow +1$$

⇒ when  $n=7$



$$y[7] = (1 \times -1) + (0 \times -1) + (1 \times -1) + (0 \times 1) + (0 \times 1) + (0 \times 1) = -1 - 1 \Rightarrow -2$$

⇒ when  $n=9$



$$y[9] = (0 \times -1) + (0 \times -1) + (0 \times 1) + (0 \times 1) + (0 \times 1) + (0 \times 1) \Rightarrow +1$$

⇒ when  $n=10$ , no overlapping  
 $y[10]=0$

$$y[n] = \{0, 0, 1, 1, 0, 0, -2, -2, -1, -1\}$$

