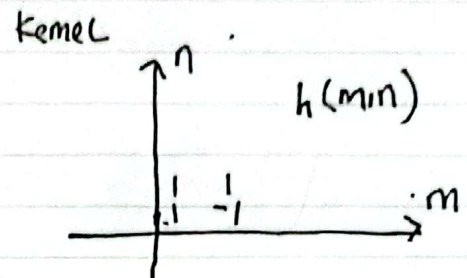
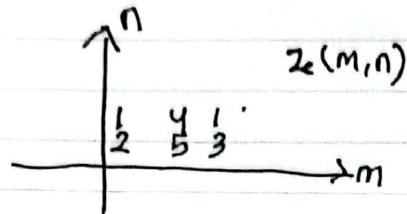
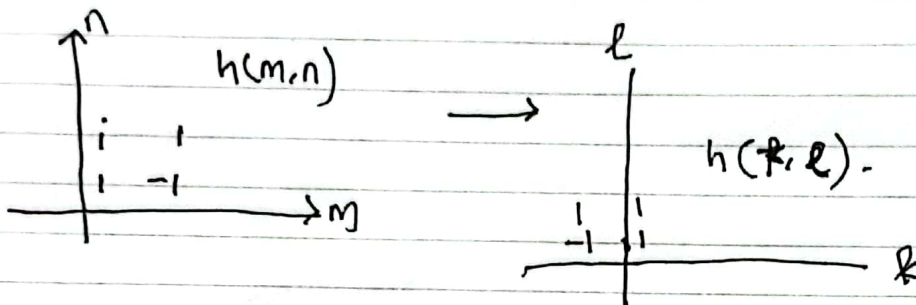


Nama : Ahnaf Farel Muzakky  
 NRP : 5009201003  
 KELAS : PSO-D.

Konvolusi 2D : Sinyal:



▷ Step 1 : Time Reversal



▷ Step 2 : Time Shifting. (perkalian Matrix).

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix} = (1 \times 0) + (1 \times 0) + (-1 \times 0) + (1 \times 1) = 1$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 0 & 0 \\ 1 & 4 \end{bmatrix} = -1 + 4 = 3$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 0 & 0 \\ 4 & 1 \end{bmatrix} = -4 + 1 = -3$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 0 & 0 \\ 1 & 0 \end{bmatrix} = -1$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 0 & 1 \\ 0 & 2 \end{bmatrix} = 1 + 2 = 3$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 1 & 4 \\ 2 & 5 \end{bmatrix} = 1 + 4 = 5$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 4 & 1 \\ 5 & 3 \end{bmatrix} = 4 + 1 - 5 + 3 = 3$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ 3 & 0 \end{bmatrix} = 1 - 3 = -2$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 0 & 2 \\ 0 & 0 \end{bmatrix} = 2$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 2 & 5 \\ 0 & 0 \end{bmatrix} = 2 + 5 = 7$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 5 & 3 \\ 0 & 0 \end{bmatrix} = 5 + 3 = 8$$

$$\triangleright \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 3 & 0 \\ 0 & 0 \end{bmatrix} = 3$$

Hasil konvolusi :

$$\begin{bmatrix} 1 & 3 & -3 & -1 \\ 3 & 8 & 3 & -2 \\ 2 & 7 & 8 & 3 \end{bmatrix}$$