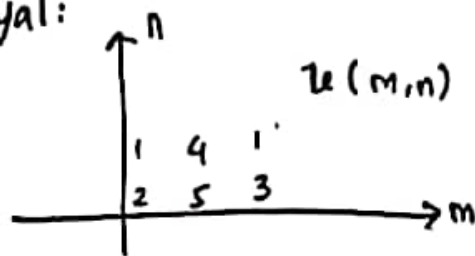


Nama : Dhea Tirta Ananta

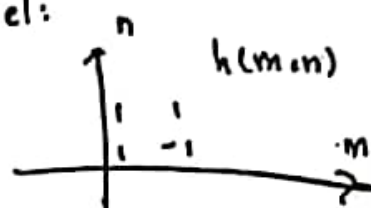
NRP : 5009201030

Kelas : PSO - D.

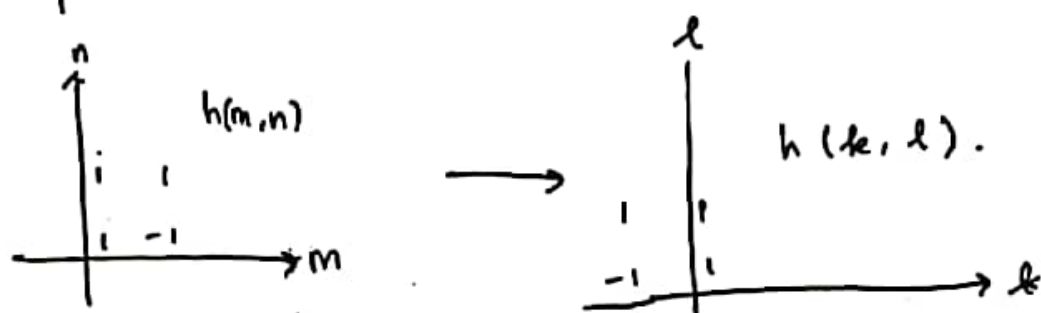
Konvolusi 2D: Sinyal:



Kernel:



Step 1: Time Reversal



Step 2: Time Shifting. (Pertalian Matrix).

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

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

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

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

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

$$\begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} 1 & 4 \\ 2 & 5 \end{bmatrix} = 1 + 4 - 2 + 5 = 8$$

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

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

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

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

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

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

Hasil Konvolusi :

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