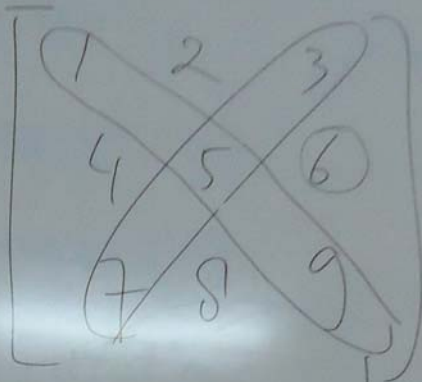


MATRIKS

$$A_{3 \times 3} =$$

ORDO



DIAGONAL
UTAMA

$$a_{ij}$$

$$a_{23} = 6$$

$$A_{2 \times 3} = \begin{matrix} a_{11} \\ \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} \end{matrix}, \quad B_{2 \times 3} = \begin{matrix} b_{11} \\ \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} \end{matrix}$$

$$\rightarrow \boxed{A = B}$$

PERKALIAN DUA MATRIKS

$$C(I, J) = C(I, J) + A(I, K) * B(K, J)$$

$$C_{2 \times 2} = A_{2 \times 3} * B_{3 \times 2}$$

$$A_{2 \times 3} = \begin{bmatrix} A(1,1) & A(1,2) & A(1,3) \\ A(2,1) & A(2,2) & A(2,3) \end{bmatrix}$$

$$B_{3 \times 2} = \begin{bmatrix} B(1,1) & B(1,2) \\ B(2,1) & B(2,2) \\ B(3,1) & B(3,2) \end{bmatrix}$$

$$C_{2 \times 2} = A_{2 \times 3} * B_{3 \times 2}$$

$$C_{\begin{pmatrix} 1,1 \\ 2,1 \end{pmatrix} \begin{pmatrix} 1,2 \\ 2,2 \end{pmatrix}} = \begin{bmatrix} A_{\begin{pmatrix} 1,1 \\ 2,1 \end{pmatrix}} A_{\begin{pmatrix} 1,2 \\ 2,2 \end{pmatrix}} A_{\begin{pmatrix} 1,3 \\ 2,3 \end{pmatrix}} \\ A_{\begin{pmatrix} 2,1 \end{pmatrix}} A_{\begin{pmatrix} 2,2 \end{pmatrix}} A_{\begin{pmatrix} 2,3 \end{pmatrix}} \end{bmatrix} * \begin{bmatrix} B_{\begin{pmatrix} 1,1 \\ 2,1 \\ 3,1 \end{pmatrix}} B_{\begin{pmatrix} 1,2 \\ 2,2 \\ 3,2 \end{pmatrix}} \end{bmatrix}$$

$$= \begin{bmatrix} A_{\begin{pmatrix} 1,1 \\ 2,1 \end{pmatrix}} * \sum_{k=1}^3 B_{\begin{pmatrix} 1,1 \\ 2,1 \end{pmatrix}} + A_{\begin{pmatrix} 1,2 \\ 2,2 \end{pmatrix}} * \sum_{k=2}^3 B_{\begin{pmatrix} 3,1 \\ 2,1 \end{pmatrix}} + A_{\begin{pmatrix} 1,3 \\ 2,3 \end{pmatrix}} * \sum_{k=3}^3 B_{\begin{pmatrix} 3,1 \\ 2,1 \end{pmatrix}} \\ A_{\begin{pmatrix} 2,1 \end{pmatrix}} * \sum_{k=1}^3 B_{\begin{pmatrix} 1,1 \\ 2,1 \end{pmatrix}} + A_{\begin{pmatrix} 2,2 \end{pmatrix}} * \sum_{k=2}^3 B_{\begin{pmatrix} 2,1 \\ 2,1 \end{pmatrix}} + A_{\begin{pmatrix} 2,3 \end{pmatrix}} * \sum_{k=3}^3 B_{\begin{pmatrix} 3,1 \\ 2,1 \end{pmatrix}} \end{bmatrix}$$

$$C_{\begin{pmatrix} 1,2 \\ 1,2 \end{pmatrix}} = A_{\begin{pmatrix} 1,1 \\ 1,1 \end{pmatrix}} * \sum_{k=1}^3 B_{\begin{pmatrix} 1,2 \\ 1,2 \end{pmatrix}} + A_{\begin{pmatrix} 1,2 \\ 1,2 \end{pmatrix}} * \sum_{k=2}^3 B_{\begin{pmatrix} 2,2 \\ 1,2 \end{pmatrix}} + A_{\begin{pmatrix} 1,3 \\ 1,3 \end{pmatrix}} * \sum_{k=3}^3 B_{\begin{pmatrix} 3,2 \\ 1,2 \end{pmatrix}}$$

PERKALIAN DUA MATRIKS

$$C(I, J) = C(I, J) + A(I, K) * B(K, J)$$

$$C_{2 \times 2} = A_{2 \times 3} * B_{3 \times 2}$$

$$A_{2 \times 3} = \begin{bmatrix} A(1,1) & A(1,2) & A(1,3) \\ A(2,1) & A(2,2) & A(2,3) \end{bmatrix}$$

$$B_{3 \times 2} = \begin{bmatrix} B(1,1) & B(1,2) \\ B(2,1) & B(2,2) \\ B(3,1) & B(3,2) \end{bmatrix}$$

$$C_{2 \times 2} = A_{2 \times 3} * B_{3 \times 2}$$

$$\begin{bmatrix} C(1,1) & C(1,2) \\ C(2,1) & C(2,2) \end{bmatrix} = \begin{bmatrix} A(1,1) & A(1,2) & A(1,3) \\ A(2,1) & A(2,2) & A(2,3) \end{bmatrix} * \begin{bmatrix} B(1,1) & B(1,2) \\ B(2,1) & B(2,2) \\ B(3,1) & B(3,2) \end{bmatrix}$$

$$= \begin{bmatrix} A(1,1) * B(1,1) + A(1,2) * B(2,1) + A(1,3) * B(3,1) & A(1,1) * B(1,2) + A(1,2) * B(2,2) + A(1,3) * B(3,2) \\ A(2,1) * B(1,1) + A(2,2) * B(2,1) + A(2,3) * B(3,1) & A(2,1) * B(1,2) + A(2,2) * B(2,2) + A(2,3) * B(3,2) \end{bmatrix}$$

$$C(1,1) = A(1,1) * B(1,1) + A(1,2) * B(2,1) + A(1,3) * B(3,1)$$

$$C(1,2) = A(1,1) * B(1,2) + A(1,2) * B(2,2) + A(1,3) * B(3,2)$$

$$C(2,1) = A(2,1) * B(1,1) + A(2,2) * B(2,1) + A(2,3) * B(3,1)$$

$$C(2,2) = A(2,1) * B(1,2) + A(2,2) * B(2,2) + A(2,3) * B(3,2)$$

$$C(I, J) = \phi$$

$B(K, J)$

$$K=1 \rightarrow C(I, J) = \phi + A(I, 1) * B(1, J)$$

$$K=2 \rightarrow C(I, J) = A(I, 1) * B(1, J) + A(I, 2) * B(2, J)$$

$K=3$

$$\rightarrow C(I, J) = A(I, 1) * B(1, J) + A(I, 2) * B(2, J) + A(I, 3) * B(3, J)$$



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found called A is

$$A \cdot B = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} 0+0 & 1+1 \\ 0+0 & 0+0 \end{bmatrix} = \begin{bmatrix} 0 & 2 \\ 0 & 0 \end{bmatrix}$$

$$B \cdot A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} 0+0 & 0+0 \\ 0+0 & 0+0 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

$$A \cdot B \neq B \cdot A$$

$$A \cdot B = A \cdot C$$

$$B \neq C$$

$$A^t = A' \text{ MATRIKS SIMETRIS}$$

MATRIKS TRANSPOSE

$$A_{2 \times 3} = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

$$A^t_{3 \times 2} = \begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$$

$$x \cdot b = k \cdot c$$

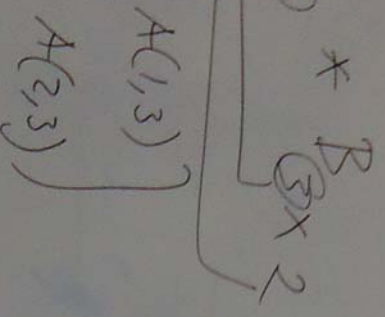
$$b = c$$

$A^2 = A \rightarrow$ MATRIKS IDEMPOTENT

$A^3 = 0 \rightarrow$ MATRIKS NIL POTENT

DUA MATRIKS

$$A(I, J) + A(I, K) * B(K, J)$$



$$C(I, J) = \phi$$

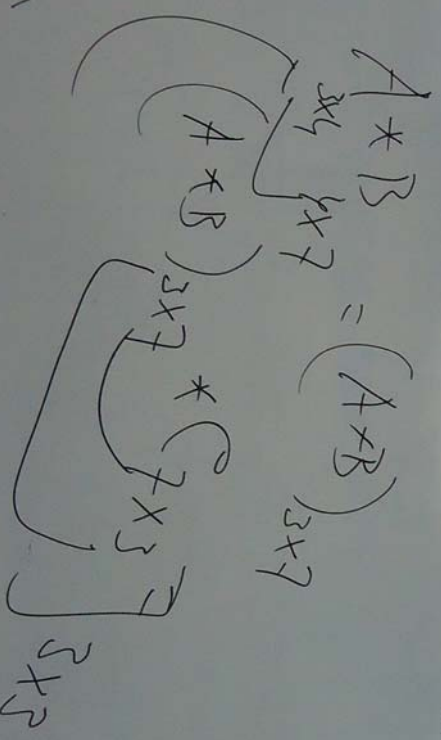
$K=1 \rightarrow C(I, J) = \phi + A(I, 1) * B(1, J)$

$K=2 \rightarrow C(I, J) = A(I, 1) * B(1, J) + A(I, 2) * B(2, J)$

$K=3$

$$\rightarrow C(I, J) = A(I, 1) * B(1, J) + A(I, 2) * B(2, J) + A(I, 3) * B(3, J)$$

$$+ A(I, 3) * B(3, J)$$



If A is a square such that AB is said to be an inverse of A. The matrix

since

and

MATRIKS INVERS

$$\textcircled{1} \quad A \cdot \textcircled{A^{-1}} = I$$

$$\textcircled{2} \quad (A | I) \xrightarrow{\text{OBE}} (I | A^{-1})$$

$$\textcircled{3} \quad A^{-1} = \frac{1}{|A|} \cdot \textcircled{\text{adj}(A)}$$

||
↑
t

$$A \cdot \underbrace{B}_{\parallel A^{-1}} = B \cdot \underbrace{A}_{\parallel B^{-1}} = I$$

$$A \cdot A^{-1} = I \quad , \quad B \cdot B^{-1} = I$$