

Ayo Belajar DETERMINAN MATRIKS

Jawablah pertanyaan berikut dengan benar!

namun sebelumnya perlu kalian ingat kembali, cara mencari Determinan Matriks Ordo 2

$$\det(A) = |A| = \begin{vmatrix} a & b \\ c & d \end{vmatrix} = a.d - b.c$$

dan cara mencari Determinan Matriks Ordo Tiga

$$|A| = \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = \begin{vmatrix} a & b \\ d & e \\ g & h \end{vmatrix} - \begin{vmatrix} b & c \\ e & f \\ h & i \end{vmatrix} + \begin{vmatrix} c & f \\ f & d \\ i & g \end{vmatrix}$$

1. Tentukan determinan dari matriks B berikut.

$$B = \begin{bmatrix} 2 & -4 \\ 7 & b \end{bmatrix}$$

Jawab:

$$|B| = \begin{vmatrix} 2 & -4 \\ 7 & b \end{vmatrix} = (\dots \times \dots) - (\dots \times \dots) = \dots - \dots = \dots$$

2. Tentukan determinan dari matriks L dan K berikut.

$$L = \begin{bmatrix} -1 & 3 & 2 \\ 2 & 0 & -3 \\ 5 & -1 & 4 \end{bmatrix} \quad K = \begin{bmatrix} 0 & -2 & 6 \\ 4 & 1 & 3 \\ 6 & -1 & 2 \end{bmatrix}$$

Jawab:

$$\begin{aligned} |L| &= \begin{vmatrix} -1 & 3 & 2 \\ 2 & 0 & -3 \\ 5 & -1 & 4 \end{vmatrix} = \begin{vmatrix} -1 & 3 \\ 2 & 0 \\ 5 & -1 \end{vmatrix} - \begin{vmatrix} 3 & 2 \\ 0 & -3 \\ -1 & 4 \end{vmatrix} + \begin{vmatrix} -1 & 3 \\ 2 & 0 \\ 5 & -1 \end{vmatrix} \\ &= (\dots \times \dots \times \dots + \dots \times \dots \times \dots + \dots \times \dots \times \dots) - \\ &(\dots \times \dots \times \dots + \dots \times \dots \times \dots + \dots \times \dots \times \dots) \end{aligned}$$

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Lanjutan ...

$$=(\dots + \dots + \dots) - (\dots + \dots + \dots)$$

$$=(\dots) - (\dots) = \dots$$

$$|K| = \begin{vmatrix} 0 & -2 & b \\ 4 & 1 & 3 \\ b & -1 & 2 \end{vmatrix} \begin{vmatrix} 0 & -2 \\ 4 & 1 \\ b & -1 \end{vmatrix}$$

$$=(\dots \times \dots \times \dots + \dots \times \dots \times \dots + \dots \times \dots \times \dots) -$$

$$(\dots \times \dots \times \dots + \dots \times \dots \times \dots + \dots \times \dots \times \dots)$$

$$=(\dots + \dots + \dots) - (\dots + \dots + \dots)$$

$$=(\dots) - (\dots) = \dots$$

3. Tentukan Transpos matriks G dan A berikut.

$$G = \begin{bmatrix} 9 & 2 & 1 \\ -5 & 0 & -4 \\ 8 & 2 & b \end{bmatrix} \quad A = \begin{bmatrix} 12 & 7 & 3 \\ -9 & 1 & -6 \\ 3 & -3 & 5 \end{bmatrix}$$

Jawab:

$$G^T = \begin{bmatrix} \dots & \dots & \dots \\ \dots & \dots & \dots \\ \dots & \dots & \dots \end{bmatrix} \quad A^T = \begin{bmatrix} \dots & \dots & \dots \\ \dots & \dots & \dots \\ \dots & \dots & \dots \end{bmatrix}$$