

* OBE

$$A = \begin{bmatrix} 3 & 0 & 0 \\ 1 & 2 & 0 \\ 0 & 4 & 5 \end{bmatrix}$$

$$|A| = \begin{vmatrix} 3 & 0 & 0 \\ 1 & 2 & 0 \\ 0 & 4 & 5 \end{vmatrix}$$

$$-b_1 + b_3$$

$$|A| = \begin{vmatrix} 1 & 4 & 5 \\ 0 & -2 & -5 \\ 0 & 0 & 15 \end{vmatrix}$$

$$|A| = \begin{vmatrix} 4 & 4 & 5 \\ 1 & 2 & 0 \\ 3 & 0 & 0 \end{vmatrix} \quad b_1 \leftrightarrow b_3$$

$$= \begin{vmatrix} 1 & 4 & 5 \\ 1 & 2 & 0 \\ 3 & 0 & 0 \end{vmatrix}$$

$$-b_1 \leftrightarrow b_3$$

$$= -1 \cdot -30 = 30$$

$$= \begin{vmatrix} 1 & 4 & 5 \\ 1 & 2 & 0 \\ 0 & -12 & 15 \end{vmatrix}$$

$$-3b_1 + b_3$$

$$= \begin{vmatrix} 1 & 4 & 5 \\ 0 & -2 & -5 \\ 0 & -12 & 15 \end{vmatrix}$$

$$-b_1 + b_2$$

$$= \begin{vmatrix} 1 & 4 & 5 \\ 0 & -2 & -5 \\ 0 & 0 & 15 \end{vmatrix}$$

$$-b_1 + b_3$$

$$b) B = \begin{bmatrix} 0 & 0 & 5 & 0 \\ 2 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 7 & 0 & 0 \end{bmatrix} \quad \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \\ a_{41} & a_{42} & a_{43} & a_{44} \end{bmatrix}$$

* konsep permutasi

ada 24 hasil kuli elementer

$$\text{Det}(B_{4 \times 4}) = a_{11}a_{22}a_{33}a_{44} - a_{11}a_{24}a_{33}a_{42} + a_{12}a_{23}a_{34}a_{41} - a_{12}a_{21}a_{34}a_{43} + a_{13}a_{24}a_{31}a_{42} - a_{13}a_{22}a_{31}a_{44} + a_{14}a_{23}a_{32}a_{41} - a_{14}a_{22}a_{34}a_{43}$$

$$\text{Det}(B_{4 \times 4}) = a_{11}a_{22}a_{33}a_{44} - a_{11}a_{22}a_{34}a_{43} + a_{11}a_{23}a_{32}a_{44} + a_{11}a_{23}a_{34}a_{42} + a_{11}a_{24}a_{32}a_{43} - a_{11}a_{24}a_{33}a_{42} + a_{12}a_{21}a_{33}a_{44} + a_{12}a_{21}a_{34}a_{43} + a_{12}a_{23}a_{31}a_{44} - a_{12}a_{23}a_{34}a_{41} - a_{12}a_{24}a_{31}a_{43} + a_{12}a_{24}a_{33}a_{41} + a_{13}a_{21}a_{32}a_{44} - a_{13}a_{21}a_{34}a_{42} - a_{13}a_{22}a_{31}a_{44} + a_{13}a_{22}a_{34}a_{41} + a_{13}a_{24}a_{31}a_{42} - a_{13}a_{24}a_{32}a_{41} - a_{14}a_{21}a_{32}a_{43} + a_{14}a_{21}a_{33}a_{42} + a_{14}a_{22}a_{31}a_{43} - a_{14}a_{22}a_{33}a_{41} - a_{14}a_{23}a_{31}a_{42} + a_{14}a_{23}a_{32}a_{41}$$

$$= (0 \cdot 0 \cdot 0 \cdot 0) - (0 \cdot 0 \cdot 1 \cdot 0) - (0 \cdot 0 \cdot 0 \cdot 0) + (0 \cdot 0 \cdot 1 \cdot 0) + (0 \cdot 0 \cdot 0 \cdot 0) - (0 \cdot 0 \cdot 0 \cdot 0) - (0 \cdot 2 \cdot 0 \cdot 0) + (0 \cdot 2 \cdot 1 \cdot 0) + (0 \cdot 0 \cdot 0 \cdot 0) - (0 \cdot 0 \cdot 1 \cdot 0) - (0 \cdot 0 \cdot 0 \cdot 0) + (0 \cdot 0 \cdot 0 \cdot 0) + (5 \cdot 2 \cdot 0 \cdot 0) - (5 \cdot 2 \cdot 1 \cdot 7) - (5 \cdot 0 \cdot 0 \cdot 0) + (5 \cdot 0 \cdot 1 \cdot 0) + (5 \cdot 0 \cdot 0 \cdot 7) - (5 \cdot 0 \cdot 0 \cdot 0) - (0 \cdot 2 \cdot 0 \cdot 0) + (0 \cdot 2 \cdot 0 \cdot 7) + (0 \cdot 0 \cdot 0 \cdot 0) - (0 \cdot 0 \cdot 0 \cdot 0) - (0 \cdot 0 \cdot 0 \cdot 7) + (0 \cdot 0 \cdot 0 \cdot 0)$$

$$= -70$$