

* ekspansi kofaktor

$$B = \begin{bmatrix} 0 & 0 & 5 & 0 \\ 2 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 7 & 0 & 0 \end{bmatrix} \quad m_{11} = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 1 \\ 7 & 0 & 0 \end{bmatrix} \quad m_{12} = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix} \quad m_{13} = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 7 & 0 \end{bmatrix} \quad m_{14} = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 7 & 0 \end{bmatrix}$$

fungsi baris 1

$$C_1 = (-1)^2 |m_{11}|$$

$$= 1 \cdot 0 = 0$$

$$C_2 = (-1)^3 |m_{12}|$$

$$= -1 \cdot 0 = 0$$

$$C_3 = (-1)^4 |m_{13}|$$

$$= 1 \cdot -14 = -14$$

$$C_4 = (-1)^5 |m_{14}|$$

$$= -1 \cdot 0 = 0$$

$$|B| = a_{11}C_1 + a_{12}C_2 + a_{13}C_3 + a_{14}C_4$$

$$= 0 \cdot 0 + 0 \cdot 0 + 5 \cdot -14 + 0 \cdot 0 = -70$$

$$= -70$$

$$|m_{13}| = \begin{vmatrix} 2 & 0 & 0 & 2 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 7 & 0 & 0 & 7 \end{vmatrix}$$

$$= 0 + 0 + 0 - (14 + 0 + 0)$$

$$= -14$$

* OBE

$$B = \begin{bmatrix} 0 & 0 & 5 & 0 \\ 2 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 7 & 0 & 0 \end{bmatrix}$$

$$|B| = \begin{vmatrix} 2 & 0 & 0 & 0 \\ 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 7 & 0 & 0 \end{vmatrix}$$

$$b_1 \leftrightarrow b_2$$

$$= \begin{vmatrix} 2 & 0 & 0 & 0 \\ 0 & 7 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 5 & 0 \end{vmatrix}$$

$$b_2 \leftrightarrow b_4$$

$$= - \begin{vmatrix} 2 & 0 & 0 & 0 \\ 0 & 7 & 0 & 0 \\ 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix}$$

$$b_3 \leftrightarrow b_4$$

$$|B| = -1 \cdot 70$$

$$= -70$$

$$\begin{vmatrix} 2 & 0 & 0 & 0 \\ 0 & 7 & 0 & 0 \\ 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = 2 \cdot 5 \cdot 7 \cdot 1 = 70$$