Yustinus Hendi. S. 240601241301114 IF 24/E

A. $\begin{pmatrix} 3 & 5 & -2 \\ 5 & 4 & 1 \\ -2 & 1 & 7 \end{pmatrix}$

$A_3|I_3$: $\left(\begin{array}{ccc|ccc} 3 & 5 & -2 & 1 & 0 & 0 \\ 5 & 4 & 1 & 0 & 1 & 0 \\ -2 & 1 & 7 & 0 & 0 & 1 \end{array}\right)$ $\frac{1}{3}B_1 \rightarrow$ $\left(\begin{array}{ccc|ccc} 1 & 5/3 & -2/3 & 1/3 & 0 & 0 \\ 5 & 4 & 1 & 0 & 1 & 0 \\ -2 & 1 & 7 & 0 & 0 & 1 \end{array}\right)$

$B_2 - 5B_1 \rightarrow$ $\left(\begin{array}{ccc|ccc} 1 & 5/3 & -2/3 & 1/3 & 0 & 0 \\ 0 & -13/3 & 13/3 & -5/3 & 1 & 0 \\ -2 & 1 & 7 & 0 & 0 & 1 \end{array}\right)$ $B_3 + 2B_1 \rightarrow$ $\left(\begin{array}{ccc|ccc} 1 & 5/3 & -2/3 & 1/3 & 0 & 0 \\ 0 & -13/3 & 13/3 & -5/3 & 1 & 0 \\ 0 & 13/3 & 17/3 & 2/3 & 0 & 1 \end{array}\right)$

$-\frac{13}{3}B_2 \rightarrow$ $\left(\begin{array}{ccc|ccc} 1 & 5/3 & -2/3 & 1/3 & 0 & 0 \\ 0 & 1 & -1 & 5/13 & -3/13 & 0 \\ 0 & 13/3 & 17/3 & 2/3 & 0 & 1 \end{array}\right)$ $B_3 \frac{13}{3}B_2 \rightarrow$ $\left(\begin{array}{ccc|ccc} 1 & 5/3 & -2/3 & 1/3 & 0 & 0 \\ 0 & 1 & -1 & 5/13 & -3/13 & 0 \\ 0 & 0 & 10 & -1 & 1 & 1 \end{array}\right)$

$B_1 - 5/3\,B_2$ $\left(\begin{array}{ccc|ccc} 1 & 0 & 1 & -4/13 & 5/13 & 0 \\ 0 & 1 & -1 & 5/13 & -3/13 & 0 \\ 0 & 0 & 10 & -1 & 1 & 1 \end{array}\right)$ $\frac{1}{10}B_3 \rightarrow$ $\left(\begin{array}{ccc|ccc} 1 & 0 & 1 & -4/13 & 5/13 & 0 \\ 0 & 1 & -1 & 5/13 & -3/13 & 0 \\ 0 & 0 & 1 & -1/10 & 1/10 & 1/10 \end{array}\right)$

$B_2 + B_3 \rightarrow$ $\left(\begin{array}{ccc|ccc} 1 & 0 & 1 & -4/13 & 5/13 & 0 \\ 0 & 1 & 0 & 37/130 & -17/130 & 1/16 \\ 0 & 0 & 1 & -1/10 & 1/10 & 1/10 \end{array}\right)$ $B_1 - B_3 \rightarrow$ $\left(\begin{array}{ccc|ccc} 1 & 0 & 0 & -27/130 & 37/130 & -1/10 \\ 0 & 1 & 0 & 37/130 & -17/130 & 1/10 \\ 0 & 0 & 1 & -1/10 & 1/10 & 1/10 \end{array}\right)$

$A^{-1} = \begin{pmatrix} -27/130 & 37/130 & -1/10 \\ 37/130 & -17/130 & 1/10 \\ -1/10 & 1/10 & 1/10 \end{pmatrix}$

B. $\begin{pmatrix} 2 & 4 & -3 \\ 1 & 1 & 2 \\ 3 & 6 & -5 \end{pmatrix}$

$B_3 \mid I_3 = \left(\begin{array}{ccc|ccc} 2 & 4 & -3 & 1 & 0 & 0 \\ 1 & 1 & 2 & 0 & 1 & 0 \\ 3 & 6 & -5 & 0 & 0 & 1 \end{array}\right)$ $B_1 B_2 \to \left(\begin{array}{ccc|ccc} 1 & 1 & 2 & 0 & 1 & 0 \\ 2 & 4 & -3 & 1 & 0 & 0 \\ 3 & 6 & -5 & 0 & 0 & 1 \end{array}\right)$

$B_2 - 2B_1 \to \left(\begin{array}{ccc|ccc} 1 & 1 & 2 & 0 & 1 & 0 \\ 0 & 2 & -7 & 1 & -2 & 0 \\ 3 & 6 & -5 & 0 & 0 & 1 \end{array}\right)$ $B_3 - 3B_1 \to \left(\begin{array}{ccc|ccc} 1 & 1 & 2 & 0 & 1 & 0 \\ 0 & 2 & -7 & 1 & -2 & 0 \\ 0 & 3 & -11 & 0 & -3 & 1 \end{array}\right)$

$\frac{1}{2} B_2 \to \left(\begin{array}{ccc|ccc} 1 & 1 & 2 & 0 & 1 & 0 \\ 0 & 1 & -\frac{7}{2} & \frac{1}{2} & -1 & 0 \\ 0 & 3 & -11 & 0 & -3 & 1 \end{array}\right)$ $B_1 - B_2 \to \left(\begin{array}{ccc|ccc} 1 & 0 & \frac{11}{2} & -\frac{1}{2} & 2 & 0 \\ 0 & 1 & -\frac{7}{2} & \frac{1}{2} & -1 & 0 \\ 0 & 3 & -11 & 0 & -3 & 1 \end{array}\right)$

$B_3 - 3B_2 \left(\begin{array}{ccc|ccc} 1 & 0 & \frac{11}{2} & -\frac{1}{2} & 2 & 0 \\ 0 & 1 & -\frac{7}{2} & \frac{1}{2} & -1 & 0 \\ 0 & 0 & -\frac{1}{2} & -\frac{3}{2} & 0 & 1 \end{array}\right)$ $-2B_3 \to \left(\begin{array}{ccc|ccc} 1 & 0 & \frac{11}{2} & -\frac{1}{2} & 2 & 0 \\ 0 & 1 & -\frac{7}{2} & \frac{1}{2} & -1 & 0 \\ 0 & 0 & 1 & 3 & 0 & -2 \end{array}\right)$

$B_2 + \frac{7}{2} B_3 \to \left(\begin{array}{ccc|ccc} 1 & 0 & \frac{11}{2} & -\frac{1}{2} & 2 & 0 \\ 0 & 1 & 0 & 11 & -1 & -7 \\ 0 & 0 & 1 & 3 & 0 & -2 \end{array}\right)$ $B_1 - \frac{11}{2} B_3 \to \left(\begin{array}{ccc|ccc} 1 & 0 & 0 & -17 & 2 & 11 \\ 0 & 1 & 0 & 11 & -1 & -7 \\ 0 & 0 & 1 & 3 & 0 & -2 \end{array}\right)$

$B^{-1} = \begin{pmatrix} -17 & 2 & 11 \\ 11 & -1 & -7 \\ 3 & 0 & -2 \end{pmatrix}$

C. $\begin{pmatrix} 2 & 3 & 1 \\ 1 & -1 & 2 \\ 2 & 3 & -1 \end{pmatrix}$

$C_3 | I_3 = \left(\begin{array}{ccc|ccc} 2 & 3 & 1 & 1 & 0 & 0 \\ 1 & -1 & 2 & 0 & 1 & 0 \\ 2 & 3 & -1 & 0 & 0 & 1 \end{array}\right)$ $B_1 B_2 \to \left(\begin{array}{ccc|ccc} 1 & -1 & 2 & 0 & 1 & 0 \\ 2 & 3 & 1 & 1 & 0 & 0 \\ 2 & 3 & -1 & 0 & 0 & 1 \end{array}\right)$

$B_2 - 2B_1 \to \left(\begin{array}{ccc|ccc} 1 & -1 & 2 & 0 & 1 & 0 \\ 0 & 5 & -3 & 1 & -2 & 0 \\ 2 & 3 & -1 & 0 & 0 & 1 \end{array}\right)$ $B_3 - 2B_1 \to \left(\begin{array}{ccc|ccc} 1 & -1 & 2 & 0 & 1 & 0 \\ 0 & 5 & -3 & 1 & -2 & 0 \\ 0 & 5 & -5 & 0 & -2 & 1 \end{array}\right)$

$1/5\, B_2 \to \left(\begin{array}{ccc|ccc} 1 & -1 & 2 & 0 & 1 & 0 \\ 0 & 1 & -3/5 & 1/5 & -2/5 & 0 \\ 0 & 5 & -5 & 0 & -2 & 0 \end{array}\right)$ $B_3 - 5B_2 \to \left(\begin{array}{ccc|ccc} 1 & -1 & 2 & 0 & 1 & 0 \\ 0 & 1 & -3/5 & 1/5 & -2/5 & 0 \\ 0 & 0 & -2 & -1 & 0 & 1 \end{array}\right)$

$B_1 + B_2 \to \left(\begin{array}{ccc|ccc} 1 & 0 & 7/5 & 1/5 & 3/5 & 0 \\ 0 & 1 & -3/5 & 1/5 & -2/5 & 0 \\ 0 & 0 & -2 & -1 & 0 & 1 \end{array}\right)$ $-1/2\, B_3 \to \left(\begin{array}{ccc|ccc} 1 & 0 & 7/5 & 1/5 & 3/5 & 0 \\ 0 & 1 & -3/5 & 1/5 & -2/5 & 0 \\ 0 & 0 & 1 & 1/2 & 0 & -1/2 \end{array}\right)$

$B_2 + 3/5\, B_3 \to \left(\begin{array}{ccc|ccc} 1 & 0 & 7/5 & 1/8 & 3/5 & 0 \\ 0 & 1 & 0 & 1/2 & -2/5 & -3/10 \\ 0 & 0 & 1 & 1/2 & 0 & -1/2 \end{array}\right)$ $B_1 - 7/5\, B_3 \to \left(\begin{array}{ccc|ccc} 1 & 0 & 0 & -1/2 & 3/5 & 7/10 \\ 0 & 1 & 0 & 1/2 & -2/5 & -3/10 \\ 0 & 0 & 1 & 1/2 & 0 & -1/2 \end{array}\right)$

$C^{-1} = \begin{pmatrix} -1/2 & 3/5 & 7/10 \\ 1/2 & -2/5 & -3/10 \\ 1/2 & 0 & -1/2 \end{pmatrix}$