Kelompok 6

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Metode Cramer

Soal : $2x_1 + 3x_2 - x_3 = 6$

$3x_1 - 2x_2 + x_3 = 2$

$2x_1 + 4x_2 - x_3 = 9$

Jawaban :
$$\begin{bmatrix} 2 & 3 & -1 \\ 3 & -2 & 1 \\ 2 & 4 & -1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 6 \\ 2 \\ 9 \end{bmatrix}$$

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

$\det [A] = 2.(-2).(-1) + 3.1.2 + (-1).3.4 - (-1).(-2).2 - 2.1.4 - 3.3.(-1)$

$= -5$

* mencari nilai $\det [A^1]$, $\det [A^2]$, $\det [A^3]$

• $\det [A^1] = \begin{bmatrix} 2 & 3 & -1 \\ 3 & -2 & 1 \\ 2 & 4 & -1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 6 \\ 2 \\ 9 \end{bmatrix}$ ⟶ $\begin{vmatrix} 6 & 3 & -1 \\ 2 & -2 & 1 \\ 9 & 4 & -1 \end{vmatrix} = -5$

• $\det [A^2] = \begin{vmatrix} 2 & 6 & -1 \\ 3 & 2 & 1 \\ 2 & 9 & -1 \end{vmatrix} = -15$

• $\det [A^3] = \begin{vmatrix} 2 & 3 & 6 \\ 3 & -2 & 2 \\ 2 & 4 & 9 \end{vmatrix} = -25$

* mencari nilai x_1, x_2, x_3

$x_1 = \dfrac{\det [A^1]}{\det [A]} = \dfrac{-5}{-5} = 1$

$x_2 = \dfrac{\det [A^2]}{\det [A]} = \dfrac{-15}{-5} = 3$

$x_3 = \dfrac{\det [A^3]}{\det [A]} = \dfrac{-25}{-5} = 5$