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P.Studi : Ilmu Komputer

1.

$$\begin{array}{l} \textcircled{1.} \quad 3x + 5y - 2z = 5 \\ 10x - 3y - 2z = 11 \\ 4x + 2y + 3z = 19 \end{array}$$

Jawab :

Dengan Metode Eliminasi Gauss

- Rubah dalam bentuk matriks yang diperbesar

$$\left[ \begin{array}{ccc|c} 3 & 5 & -2 & 5 \\ 10 & -3 & -2 & 11 \\ 4 & 2 & 3 & 19 \end{array} \right]$$

$$\left[ \begin{array}{ccc|c} 3 & 5 & -2 & 5 \\ 0 & -59 & 14 & 17 \\ 4 & 2 & 3 & 19 \end{array} \right]$$

- Lakukan transformasi atau baris operasi elementer baris atau kolom dari matriks diperbesar sampai terbentuk matriks segitiga atas

$$1. 3R_2 - 10R_1$$

$$\left[ \begin{array}{ccc|c} 3 & 5 & -2 & 5 \\ 0 & -59 & 14 & 17 \\ 4 & 2 & 3 & 19 \end{array} \right]$$

$$2. 3R_3 - 4R_1$$

$$\left[ \begin{array}{ccc|c} 3 & 5 & -2 & 5 \\ 0 & -59 & 14 & 17 \\ 0 & -14 & 17 & 37 \end{array} \right]$$

$$3. 59R_3 - 14R_2$$

$$\left[ \begin{array}{ccc|c} 3 & 5 & -2 & 5 \\ 0 & -59 & 14 & 17 \\ 0 & 0 & 807 & 2921 \end{array} \right]$$

$$4. \frac{1}{3}R_1; -\frac{1}{59}R_2; \frac{1}{807}R_3$$

$$\left[ \begin{array}{ccc|c} 1 & \frac{5}{3} & -\frac{2}{3} & \frac{5}{3} \\ 0 & 1 & -\frac{14}{59} & \frac{17}{59} \\ 0 & 0 & 1 & \frac{2921}{807} \end{array} \right]$$

- Kembalikan dalam bentuk matriks

$$\begin{bmatrix} 1 & \frac{5}{3} & -\frac{2}{3} \\ 0 & 1 & -\frac{14}{59} \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} \frac{5}{3} \\ \frac{17}{59} \\ \frac{2421}{807} \end{bmatrix}$$

- Kembalikan dalam bentuk sistem persamaan linear

$$x + \frac{5}{3}y - \frac{2}{3}z = \frac{5}{3}$$

$$y - \frac{14}{59}z = \frac{17}{59}$$

$$z = \frac{2421}{807}$$

- Substitusikan nilai variabel

$$1) z = \frac{2421}{807} = 3$$

$$2) y - \frac{14}{59} \cdot 3 = \frac{17}{59}$$

$$y - \frac{14}{59} \cdot 3 = \frac{17}{59}$$

$$y - \frac{42}{59} = \frac{17}{59}$$

$$y = \frac{17}{59} + \frac{42}{59}$$

$$= \frac{59}{59}$$

$$= 1$$

$$3) x + \frac{5}{3}y - \frac{2}{3}z = \frac{5}{3}$$

$$x + \frac{5}{3} \cdot 1 - \frac{2}{3} \cdot 3 = \frac{5}{3}$$

$$x + \frac{5}{3} - \frac{6}{3} = \frac{5}{3}$$

$$x - \frac{1}{3} = \frac{5}{3}$$

$$x = \frac{5}{3} + \frac{1}{3}$$

$$x = \frac{6}{3}$$

$$x = 2$$

Jadi nilai  $x = 2$ ,  $y = 1$  dan  $z = 3$

2.

$$\begin{array}{l}
 \textcircled{2} \quad 5x_1 + 2x_2 - 3x_3 = 1 \\
 x_1 - x_2 + x_3 = 6 \\
 2x_1 + 2x_2 + 3x_3 - 3x_4 = -5 \\
 -3x_1 - x_2 + 4x_3 + x_4 = -1
 \end{array}$$

Jawab:

Dengan metode Cramer.

- Sempurnakan sistem persamaan linearinya

$$\begin{array}{l}
 5x_1 + 2x_2 + 0 - 3x_3 = 1 \\
 x_1 - x_2 + x_3 + 0 = 6 \\
 2x_1 + 2x_2 + 3x_3 - 3x_4 = -5 \\
 -3x_1 - x_2 + 4x_3 + x_4 = -1
 \end{array}$$

- Rubah sistem persamaan linear dalam bentuk matriks

$$\left[ \begin{array}{ccccc}
 5 & 2 & 0 & -3 & | \\
 1 & -1 & 1 & 0 & | \\
 2 & 2 & 3 & -3 & | \\
 -3 & -1 & 4 & *1 & |
 \end{array} \right] \left[ \begin{array}{c}
 x_1 \\
 x_2 \\
 x_3 \\
 x_4
 \end{array} \right] = \left[ \begin{array}{c}
 1 \\
 6 \\
 -5 \\
 -1
 \end{array} \right]$$

$$[A] = \left[ \begin{array}{cccc}
 5 & 2 & 0 & -3 \\
 1 & -1 & 1 & 0 \\
 2 & 2 & 3 & -3 \\
 -3 & -1 & 4 & 1
 \end{array} \right]$$

maka

$$|A| = \left| \begin{array}{cccc}
 5 & 2 & 0 & -3 \\
 1 & -1 & 1 & 0 \\
 2 & 2 & 3 & -3 \\
 -3 & -1 & 4 & 1
 \end{array} \right|$$

•  $A_{11}$

$$\left| \begin{array}{ccc|cc}
 -1 & 1 & 0 & -1 & 1 \\
 2 & 3 & -3 & 2 & 3 \\
 -1 & 4 & 1 & 1 & 4
 \end{array} \right| = -3 + 3 + 0 - 0 - 12 - 2 = -14$$

•  $a_{12}$

$$\left| \begin{array}{ccc|cc}
 1 & 1 & 0 & 1 & 1 \\
 2 & 3 & -3 & 2 & 3 \\
 -3 & 4 & 1 & -3 & 4
 \end{array} \right| = 3 + 9 + 0 + 0 + 12 - 2 = 22$$

$$\bullet a_{14} = \begin{vmatrix} 1 & -1 & 1 & | & 1 & -1 \\ 2 & 2 & 3 & | & 2 & 2 \\ -3 & -1 & 4 & | & -3 & -1 \end{vmatrix} = 8 + 9 - 2 + 6 + 3 + 8 = 32$$

$$\text{Jadi } |A| = 5(-14) - 2(22) + 0 + 3(32) \\ = -70 - 44 + 0 + 96 \\ = -18$$

$$2.) |A_1| = \begin{bmatrix} + & - & + & - \\ 1 & 2 & 0 & -3 \\ 6 & -1 & 1 & 0 \\ -5 & 2 & 3 & -3 \\ -1 & -1 & 4 & 1 \end{bmatrix}$$

$$\bullet a_{11} = \begin{vmatrix} -1 & 1 & 0 & | & -1 & 1 \\ 2 & 3 & -3 & | & 2 & 3 \\ -1 & 4 & 1 & | & -1 & 4 \end{vmatrix} = -3 + 3 + 0 + 0 - 12 - 2 = -14$$

$$\bullet a_{12} = \begin{vmatrix} 6 & 1 & 0 & | & 6 & 0 \\ -5 & 3 & -3 & | & -5 & -3 \\ -1 & 4 & 1 & | & -1 & 1 \end{vmatrix} = 18 + 3 - 0 + 0 + 72 + 5 = 98$$

$$\bullet a_{13} = \begin{vmatrix} 6 & -1 & 1 & | & 6 & -1 \\ -5 & 3 & -3 & | & -5 & 2 \\ -1 & -1 & 4 & | & -1 & -1 \end{vmatrix} = 98 + 3 + 5 + 2 + 18 - 20 = 56$$

$$\text{Jadi } |A_1| = 1(-14) - 2(98) + 0 + 3(56) \\ = -14 - 196 + 0 + 168 \\ = -42$$

$$3.) |A_2| = \begin{bmatrix} + & - & + & - \\ 5 & 1 & 0 & -3 \\ 1 & 6 & 1 & 0 \\ 2 & -5 & 3 & -3 \\ -3 & -1 & 4 & 1 \end{bmatrix}$$

$$\bullet a_{11} = \begin{vmatrix} 6 & 1 & 0 & | & 6 & 1 \\ -5 & 3 & -3 & | & -5 & 3 \\ -1 & 4 & 1 & | & -1 & 4 \end{vmatrix} = 18 + 3 - 0 + 0 + 72 + 5 = 98$$

$$\bullet a_{12} = \begin{vmatrix} 1 & 1 & 0 & | & 1 & 1 \\ 2 & 3 & -3 & | & 2 & 3 \\ -3 & 1 & 1 & | & -3 & 4 \end{vmatrix} = 3 + 9 + 0 + 0 + 12 - 2 = 22$$

$$\bullet a_{14} = \begin{vmatrix} 1 & 6 & 1 & | & 1 & 6 \\ 2 & -5 & 3 & | & 2 & -5 \\ -3 & -1 & 4 & | & -3 & -1 \end{vmatrix} = -20 - 54 - 2 - 15 + 3 - 48 = -136$$

$$\text{Jadi } |A_2| = 5(98) - 1(22) + 0 + 3(-136) \\ = 490 - 22 + 0 - 408 \\ = 60$$

4)  $|A_3| = \begin{bmatrix} + & - & + & - \\ 5 & 2 & 1 & -3 \\ 1 & -1 & 6 & 0 \\ 2 & 2 & -5 & -3 \\ -3 & -1 & -1 & 1 \end{bmatrix} *$

$$\bullet a_{11} = \begin{vmatrix} -1 & 6 & 0 & | & -1 & 6 \\ 2 & -5 & -3 & | & 2 & -5 \\ -1 & -1 & 1 & | & -1 & -1 \end{vmatrix} = 5 + 18 + 0 - 0 + 3 - 12 = 14$$

$$\bullet a_{12} = \begin{vmatrix} 1 & 6 & 0 & | & 1 & 6 \\ 2 & -5 & -3 & | & 2 & -5 \\ -3 & -1 & 1 & | & -3 & -1 \end{vmatrix} = -5 + 54 - 0 - 0 - 3 - 12 = 34$$

$$\bullet a_{13} = \begin{vmatrix} 1 & -1 & 0 & | & 1 & -1 \\ 2 & 2 & -3 & | & 2 & 2 \\ -3 & -1 & 1 & | & -3 & -1 \end{vmatrix} = 2 - 9 - 0 + 0 - 3 + 2 = -8$$

$$\bullet a_{14} = \begin{vmatrix} 1 & -1 & 6 & | & 1 & -1 \\ 2 & 2 & -5 & | & 2 & 2 \\ -3 & -1 & -1 & | & -3 & -1 \end{vmatrix} = -2 - 15 - 12 + 36 - 5 - 2 = 0$$

$$\text{Jadi } |A_3| = 5(14) - 2(34) + 1(-8) + 3(0) \\ = 70 - 68 - 8 + 0 \\ = -6.$$

5)  $|A_4| = \begin{bmatrix} + & - & + & - \\ 5 & 2 & 0 & 1 \\ 1 & -1 & 1 & 6 \\ 2 & 2 & 3 & -5 \\ -3 & -1 & 4 & -1 \end{bmatrix}$

$$\bullet a_{11} = \begin{vmatrix} -1 & 1 & 6 & | & -1 & 1 \\ 2 & 3 & -5 & | & 2 & 3 \\ -1 & 4 & -1 & | & -1 & 4 \end{vmatrix} = 3 + 5 + 48 + 18 - 20 + 2 = 56$$

$$\bullet a_{12} = \begin{vmatrix} 1 & 1 & 6 \\ 2 & 3 & -5 \\ -3 & 4 & -1 \end{vmatrix} \begin{vmatrix} 1 & 1 \\ 2 & 3 \\ -3 & 4 \end{vmatrix} = -3 + 15 + 18 + 51 + 20 + 2 = 136$$

$$\bullet a_{14} = \begin{vmatrix} 1 & -1 & 1 \\ 2 & 2 & 3 \\ -3 & -1 & 4 \end{vmatrix} \begin{vmatrix} 1 & -1 \\ 2 & 2 \\ -3 & -1 \end{vmatrix} = 8 + 9 - 2 + 6 + 3 + 8 = 32$$

$$\begin{aligned} \text{Jadi } |A_4| &= 5(56) - 2(136) + 0 - 1(32) \\ &= 280 - 272 + 0 - 32 \\ &= -24 \end{aligned}$$

Sehingga

$$x_1 = \frac{|A_1|}{|A|} = \frac{-42}{-18} = \frac{7}{3} \text{ atau } 2,33333\dots$$

$$x_2 = \frac{|A_2|}{|A|} = \frac{60}{-18} = -\frac{10}{3} \text{ atau } -3,33333\dots$$

$$x_3 = \frac{|A_3|}{|A|} = \frac{-6}{-18} = \frac{1}{3} \text{ atau } 0,3333\dots$$

$$x_4 = \frac{|A_4|}{|A|} = \frac{-24}{-18} = \frac{4}{3} \text{ atau } 1,33333\dots$$

$$\text{Jadi } x_1 = \frac{7}{3} \text{ atau } 2,33333\dots$$

$$x_2 = -\frac{10}{3} \text{ atau } -3,33333\dots$$

$$x_3 = \frac{1}{3} \text{ atau } 0,33333\dots$$

$$x_4 = \frac{4}{3} \text{ atau } 1,33333\dots$$

3.

$$\textcircled{3} \quad \begin{aligned} 3y + gx &= -12 \\ x + y &= -8 \end{aligned}$$

Jawab :

Dengan metode Invers Matriks

- Sempurnakan susunan sistem persamaan linear

$$gx + 3y = -12$$

$$x + y = -8$$

- Rubah sistem persamaan linear dalam bentuk matriks

$$\begin{bmatrix} g & 3 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -12 \\ -8 \end{bmatrix}$$

$$[A] \quad [x] = [k]$$

- Dengan metode invers matriks dapat dituliskan

$$[x] = [A^{-1}] [k]$$

Dimana

$$[x] = [y]$$

$$[A] = \begin{bmatrix} g & 3 \\ 1 & 1 \end{bmatrix}$$

$$[A^{-1}] = \frac{\text{Adj}(A)}{|A|} = \frac{\begin{bmatrix} 1 & -3 \\ -1 & g \end{bmatrix}}{6} = \begin{bmatrix} \frac{1}{6} & -\frac{1}{2} \\ -\frac{1}{6} & \frac{3}{2} \end{bmatrix}$$

$$[k] = \begin{bmatrix} -12 \\ -8 \end{bmatrix}$$

Sehingga

$$[x] = [A^{-1}] [k]$$

$$[y] = \begin{bmatrix} \frac{1}{6} & -\frac{1}{2} \\ -\frac{1}{6} & \frac{3}{2} \end{bmatrix} \begin{bmatrix} -12 \\ -8 \end{bmatrix}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -2 + 4 \\ 2 - 12 \end{bmatrix}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2 \\ -10 \end{bmatrix}$$

Jadi  $x = 2$  dan  $y = -10$

4.

$$\textcircled{A} \quad \begin{aligned} x + y + z &= 0 \\ x + 3z + y &= 2 \\ 2x - 3y - 5z &= 8 \end{aligned}$$

Jawab :

Dengan Metode Invers Matriks

- Sempurnakan susunan sistem pers. linear

$$\begin{aligned} x + y + z &= 0 \\ x + y + 3z &= 2 \\ 2x - 3y - 5z &= 8 \end{aligned}$$

- Rubah sistem pers. linear dalam bentuk matriks.

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 3 \\ 2 & -3 & -5 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 0 \\ 2 \\ 8 \end{bmatrix}$$

$$[A] \quad [x] = [k]$$

- Dengan metode invers matriks dapat dirumuskan

$$[x] = [A^{-1}] [k]$$

Dimana

$$[A] = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 3 \\ 2 & -3 & -5 \end{bmatrix}$$

$$[x] = \begin{bmatrix} x \\ y \\ z \end{bmatrix}$$

$$[A^{-1}] = \frac{\text{Adj}(B)}{|B|} = \frac{\begin{bmatrix} 4 & 2 & 2 \\ 11 & -7 & -2 \\ -5 & 5 & 0 \end{bmatrix}}{10} = \begin{bmatrix} \frac{2}{5} & \frac{1}{5} & \frac{1}{5} \\ \frac{11}{10} & -\frac{7}{10} & -\frac{1}{5} \\ -\frac{1}{2} & \frac{1}{2} & 0 \end{bmatrix}$$

$$[k] = \begin{bmatrix} 0 \\ 2 \\ 8 \end{bmatrix}$$

Sehingga

$$[x] = [A^{-1}] [k]$$

$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} \frac{2}{5} & \frac{1}{5} & \frac{1}{5} \\ \frac{11}{10} & -\frac{7}{10} & -\frac{1}{5} \\ -\frac{1}{2} & \frac{1}{2} & 0 \end{bmatrix} \begin{bmatrix} 0 \\ 2 \\ 8 \end{bmatrix} = \begin{bmatrix} 0 + \frac{2}{5} + \frac{8}{5} \\ 0 + \frac{7}{5} - \frac{8}{5} \\ 0 + 1 + 0 \end{bmatrix} = \begin{bmatrix} 2 \\ -3 \\ 1 \end{bmatrix}$$

Jadi  $x = 2, y = -3$  dan  $z = 1$

5.

$$\textcircled{5.} \quad \begin{aligned} 2y - 3x - 2z - 10 &= 0 \\ 3z - 2y + 12 &= -5x \\ 7x + 4y - 7 &= 20 - 5z \end{aligned}$$

Jawab:

Dengan Metode Baris Elemen

- Sempurnakan susunan sistem pers. linear

$$-3x + 2y - 2z = 10$$

$$5x - 2y + 3z = -12$$

$$7x + 4y + 5z = 27$$

- Rubah dalam bentuk matriks yang diperbesar

$$\left[ \begin{array}{ccc|c} -3 & 2 & -2 & 10 \\ 5 & -2 & 3 & -12 \\ 7 & 4 & 5 & 27 \end{array} \right] \text{ maka } \left[ \begin{array}{ccc|c} -3 & 2 & -2 & 10 \\ 5 & -2 & 3 & -12 \\ 7 & 4 & 5 & 27 \end{array} \right]$$

- Lakukan transformasi atau operasi elementer pada baris atau kolom dari matriks diperbesar sampai terbentuk matriks identitas.

$$1. 3R_2 + 5R_1$$

$$\left[ \begin{array}{ccc|c} -3 & 2 & -2 & 10 \\ 0 & 4 & -1 & -12 \\ 7 & 4 & 5 & 27 \end{array} \right]$$

$$2. 3R_3 + 7R_1$$

$$\left[ \begin{array}{ccc|c} -3 & 2 & -2 & 10 \\ 0 & 1 & -1 & 14 \\ 0 & 26 & 1 & 151 \end{array} \right]$$

$$3. 4R_3 - 26R_2$$

$$\left[ \begin{array}{ccc|c} -3 & 2 & -2 & 10 \\ 0 & 4 & -1 & 14 \\ 0 & 0 & 30 & 240 \end{array} \right]$$

$$4. 30R_2 + R_3$$

$$\left[ \begin{array}{ccc|c} -3 & 2 & -2 & 10 \\ 0 & 120 & 0 & 660 \\ 0 & 0 & 30 & 240 \end{array} \right]$$

$$5. 30R_1 + 2R_3$$

$$\left[ \begin{array}{ccc|c} -90 & 60 & 0 & 780 \\ 0 & 120 & 0 & 660 \\ 0 & 0 & 30 & 240 \end{array} \right]$$

$$\bullet 2R_1 - R_2$$

$$\begin{bmatrix} -180 & 0 & 0 & : 900 \\ 0 & 120 & 0 & : 660 \\ 0 & 0 & 30 & : 240 \end{bmatrix}$$

$$\Rightarrow -\frac{1}{180}R_1; \frac{1}{120}R_2; \frac{1}{30}R_3$$

$$\begin{bmatrix} 1 & 0 & 0 & : -\frac{900}{180} \\ 0 & 1 & 0 & : \frac{660}{120} \\ 0 & 0 & 1 & : \frac{240}{30} \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & : -5 \\ 0 & 1 & 0 & : 1\frac{1}{2} \\ 0 & 0 & 1 & : 8 \end{bmatrix}$$

- Kembalikan dalam bentuk sistem pers. linear

$$x = -5$$

$$y = 1\frac{1}{2}$$

$$z = 8$$

- Tentukan nilai variabel

Maka nilai  $x = -5$

$$y = 1\frac{1}{2} \text{ atau } 5,5$$

$$z = 8$$

6.

⑥. Dikatahui

$$[A] = \begin{bmatrix} 3 & 7 & 4 \\ 2 & 3 & -2 \\ 7 & 3 & 2 \end{bmatrix} \text{ dan } [B] = \begin{bmatrix} 2 \\ -16 \\ 31 \end{bmatrix}$$

Tentukan  $[c]$  sehingga  $[A][c] = [B]$

Jawab :

Dengan Metode Eliminasi Gauss

- Rubah dalam bentuk matriks yang diperbesar

$$\begin{bmatrix} 3 & 7 & 4 \\ 2 & 3 & -2 \\ 7 & 3 & 2 \end{bmatrix} \begin{bmatrix} I \\ T \\ A \end{bmatrix} = \begin{bmatrix} 2 \\ -16 \\ 31 \end{bmatrix}$$

$$[A] \quad [c] = [B]$$

- Lakukan transformasi atau operasi elemen ter pada baris atau kolom dari matriks drperbesar sampai terbentuk matriks segitiga atas.

$$1. 3R_2 - 2R_1$$

$$\begin{bmatrix} 3 & 7 & 4 : 2 \\ 0 & -5 & -14 : -52 \\ 7 & 3 & 2 : 31 \end{bmatrix}$$

$$2. 3R_3 - 7R_1$$

$$\begin{bmatrix} 3 & 7 & 4 : 2 \\ 0 & -5 & -14 : -52 \\ 0 & -40 & -22 : 79 \end{bmatrix}$$

$$3. R_3 - 8R_2$$

$$\begin{bmatrix} 3 & 7 & 4 : 2 \\ 0 & -5 & -14 : -52 \\ 0 & 0 & 90 : 495 \end{bmatrix}$$

$$1. \frac{1}{3}R_1 ; -\frac{1}{5}R_2 ; \frac{1}{90}R_3$$

$$\begin{bmatrix} 1 & \frac{7}{3} & \frac{4}{3} : \frac{2}{3} \\ 0 & 1 & \frac{14}{5} : \frac{52}{5} \\ 0 & 0 & 1 : \frac{495}{90} \end{bmatrix} = \begin{bmatrix} 1 & \frac{7}{3} & \frac{4}{3} : \frac{2}{3} \\ 0 & 1 & \frac{14}{5} : \frac{52}{5} \\ 0 & 0 & 1 : \frac{11}{2} \end{bmatrix}$$

- Kembalikan dalam bentuk matriks

$$\begin{bmatrix} 1 & 7/3 & 1/3 \\ 0 & 1 & 14/5 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} I \\ T \\ A \end{bmatrix} = \begin{bmatrix} 2/3 \\ 52/5 \\ 11/2 \end{bmatrix}$$

$[A] \quad [c] \quad = [B]$

- Kembalikan dalam bentuk pers. linear

$$I + \frac{7}{3}T + \frac{1}{3}A = \frac{2}{3}$$

$$T + \frac{14}{5}A = \frac{52}{5}$$

$$A = \frac{11}{2}$$

- Substitusikan nilai variabel

$$1. A = \frac{11}{2}$$

$$2. T + \frac{14}{5}A = \frac{52}{5}$$

$$T + \frac{14}{5} \cdot \frac{11}{2} = \frac{52}{5}$$

$$T + \frac{154}{10} = \frac{52}{5}$$

$$T = \frac{52}{5} - \frac{154}{10}$$

$$= \frac{104 - 154}{10}$$

$$T = \frac{-50}{10}$$

$$T = -5$$

$$3. I + \frac{7}{3}T + \frac{1}{3}A = \frac{2}{3}$$

$$I + \frac{7}{3} \cdot -5 + \frac{1}{3} \cdot \frac{11}{2} = \frac{2}{3}$$

$$I + \left(-\frac{35}{3}\right) + \frac{11}{6} = \frac{2}{3}$$

$$I = \frac{-70 + 11}{6} = \frac{2}{3}$$

$$I = \frac{26}{6} = \frac{2}{3}$$

$$I = \frac{2}{3} + \frac{26}{6}$$

$$I = \frac{A + 26}{6}$$

$$I = \frac{30}{6}$$

$$I = 5$$

$$\text{Jadi } [c] = \begin{bmatrix} 1 \\ T \\ A \end{bmatrix} = \begin{bmatrix} 5 \\ -5 \\ 1\frac{1}{2} \end{bmatrix}$$

Sehingga

$$[A] [c] = [B]$$

$$\begin{bmatrix} 3 & 7 & 4 \\ 2 & 3 & -2 \\ 7 & 3 & 2 \end{bmatrix} \begin{bmatrix} 5 \\ -5 \\ 1\frac{1}{2} \end{bmatrix} = \begin{bmatrix} 2 \\ -16 \\ 31 \end{bmatrix}$$

$$\begin{bmatrix} 15 - 35 + 22 \\ 10 - 15 - 11 \\ 35 - 15 + 11 \end{bmatrix} = \begin{bmatrix} 2 \\ -16 \\ 31 \end{bmatrix}$$

$$\begin{bmatrix} 2 \\ -16 \\ 31 \end{bmatrix} = \begin{bmatrix} 2 \\ -16 \\ 31 \end{bmatrix}$$