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$$\begin{bmatrix} 1 & -1 & -2 & 1 & 0 & -1 \\ 2 & -3 & 1 & 2 & -3 & 0 \\ 1 & 3 & -3 & -1 & 1 & 0 \\ 5 & 2 & -1 & -1 & 1 & 0 \\ -5 & -1 & 2 & 3 & 3 & 0 \\ 4 & 3 & 1 & -6 & -2 & 0 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 20 \\ -15 \\ -3 \\ 16 \\ -2 \end{bmatrix}$$

$$\begin{bmatrix} 1 & -1 & -2 & 1 & 0 & -1 \\ 2-(2/1) & -3-(-1/1) & 1-(2/1)-2 & 2-(2/1) & -3-(-1/1) & 0 \\ 1-(1/1) & 3-(-1/1) & -3-(2/1)+2 & -1-(1/1) & 1-(2/1) & 0 \\ 5-(5/1) & 2-(-1/1) & -1-(2/1)-2 & -1-(5/1) & 1-(2/1) & 0 \\ -5-(-5/1) & -1-(3/1) & 2-(-3/1)+2 & 3-(3/1) & 1-(3/1) & 0 \\ 4-(4/1) & 3-(3/1) & 1-(3/1)-2 & -6-(3/1) & -2-(3/1) & 0 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 20-(2/1)4 \\ -15-(1/1)4 \\ -3-(5/1)4 \\ 16-(3/1)4 \\ -2-(4/1)4 \end{bmatrix}$$

$$\begin{bmatrix} 1 & -1 & -2 & 1 & 0 & -1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 2 & -1 & -2 & -1 & 0 \\ 0 & -3 & 9 & -6 & -13 & 6 \\ 0 & 2 & -4 & 6 & 10 & 0 \\ 0 & -1 & 9 & -10 & -15 & 2 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ 19 \\ -23 \\ 28 \\ 43 \end{bmatrix}$$



$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0 & -5 & 1 \\ 0 & 2 - (-\frac{2}{3}) \cdot 3 & -1 - (-\frac{2}{3}) \cdot 5 & -2 - (-\frac{2}{3}) \cdot 0 & -1 - (-\frac{2}{3}) \cdot 5 & 2 - (-\frac{2}{3}) \cdot 1 \\ 0 & -3 - (-\frac{2}{3}) \cdot 3 & 4 - (-\frac{2}{3}) \cdot 5 & -6 - (-\frac{2}{3}) \cdot 0 & -13 - (-\frac{2}{3}) \cdot 5 & 6 - (-\frac{2}{3}) \cdot 1 \\ 0 & 2 - (-\frac{2}{3}) \cdot 3 & 4 - (-\frac{2}{3}) \cdot 5 & 6 - (-\frac{2}{3}) \cdot 0 & 10 - (-\frac{2}{3}) \cdot 5 & 0 - (-\frac{2}{3}) \cdot 1 \\ 0 & -1 - (-\frac{1}{3}) \cdot 3 & 9 - (-\frac{1}{3}) \cdot 5 & -10 - (-\frac{1}{3}) \cdot 0 & -15 - (-\frac{1}{3}) \cdot 5 & 2 - (-\frac{1}{3}) \cdot 1 \end{bmatrix} \begin{bmatrix} \bar{T}_1 \\ \bar{T}_2 \\ \bar{T}_3 \\ \bar{T}_4 \\ \bar{T}_5 \\ \bar{T}_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -35 \\ 36 \\ -47 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0 & -5 & 1 \\ 0 & 0 & 2.4 & -2 & -4.4 & 1.4 \\ 0 & 0 & 4 & -6 & -8 & 7 \\ 0 & 0 & -0.7 & 6 & 6.7 & -0.7 \\ 0 & 0 & 7.4 & -10 & -13.4 & 2.4 \end{bmatrix} \begin{bmatrix} \bar{T}_1 \\ \bar{T}_2 \\ \bar{T}_3 \\ \bar{T}_4 \\ \bar{T}_5 \\ \bar{T}_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -35 \\ 36 \\ -47 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0 & -5 & 1 \\ 0 & 0 & 2.4 & -2 & -4.4 & 1.4 \\ 0 & 0 & 4 - (\frac{4}{2.4}) \cdot 2.4 & -6 - (\frac{4}{2.4}) \cdot 2 & -8 - (\frac{4}{2.4}) \cdot 4 & 7 - (\frac{4}{2.4}) \cdot 1.4 \\ 0 & 0 & -0.7 - (\frac{0.7}{2.4}) \cdot 2.4 & 6 - (\frac{0.7}{2.4}) \cdot 2 & 6.7 - (\frac{0.7}{2.4}) \cdot 4 & -0.7 - (\frac{0.7}{2.4}) \cdot 1.4 \\ 0 & 0 & 7.4 - (\frac{7.4}{2.4}) \cdot 2.4 & -10 - (\frac{7.4}{2.4}) \cdot 2 & -13.4 - (\frac{7.4}{2.4}) \cdot 4 & 2.4 - (\frac{7.4}{2.4}) \cdot 1.4 \end{bmatrix} \begin{bmatrix} \bar{T}_1 \\ \bar{T}_2 \\ \bar{T}_3 \\ \bar{T}_4 \\ \bar{T}_5 \\ \bar{T}_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -35 \\ 36 \\ -47 \end{bmatrix}$$



$$\begin{bmatrix} 4 \\ 12 \\ 29 - (-2/3)12 \\ 13 - (-2/3)12 \\ 8 - (-2/3)12 \\ 43 - (-2/3)12 \end{bmatrix}$$

$$\begin{bmatrix} \bar{r}_1 \\ \bar{r}_2 \\ \bar{r}_3 \\ \bar{r}_4 \\ \bar{r}_5 \\ \bar{r}_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.7 \\ 32.79 \\ -13.08 \end{bmatrix}$$

Then for:

$$\begin{bmatrix} 0 & 0 & 0 & 5.42 - (5.42/2.7) \cdot 2.7 & 5.42 - (5.42/2.7) \cdot 0.7 & -0.79 - (5.42/2.7) \cdot (-16.7) \\ 0 & 0 & 0 & -3.84 - (-3.84/2.7) \cdot 2.7 & 0.17 - (-3.84/2.7) \cdot 0.7 & -1.91 - (-3.84/2.7) \cdot (-16.7) \end{bmatrix}$$

$$\begin{bmatrix} \bar{r}_5 \\ \bar{r}_6 \end{bmatrix} = \begin{bmatrix} 32.79 - (5.42/2.7) \cdot (-16.7) \\ -13.08 - (-3.84/2.7) \cdot (-16.7) \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0.5 & 0 & -5 & -1 \\ 0 & 0 & 2.4 & -2 & -2 & -4.4 & 1.4 \\ 0 & 0 & 0 & 0 & 2.7 & -0.7 & 4.7 \\ 0 & 0 & 0 & 0 & 0 & 4.01 & 9.4 \\ 0 & 0 & 0 & 0 & 0 & 1.16 & -8.59 \end{bmatrix} \begin{bmatrix} \bar{r}_1 \\ \bar{r}_2 \\ \bar{r}_3 \\ \bar{r}_4 \\ \bar{r}_5 \\ \bar{r}_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.7 \\ -0.74 \\ 10.7 \end{bmatrix}$$



Answer:

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$$\begin{bmatrix} 0 & 0 & 0 & 0 & 1.16 - \left(\frac{1.16}{4.01}\right)(4.01) & -8.54\left(\frac{1.16}{4.01}\right)(9.2) \end{bmatrix} \begin{bmatrix} T_6 \end{bmatrix} = \left[ 10.7\left(\frac{1.16}{4.01}\right)(4.01) \right]$$

$$\begin{bmatrix} 1 & -2 & 1 & 3 & -1 & 0 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.4 & -2 & -4.4 & 1.4 \\ 0 & 0 & 0 & -2.7 & -0.7 & 4.7 \\ 0 & 0 & 0 & 0 & 4.0 & 9.2 \\ 0 & 0 & 0 & 0 & 0 & -11.3 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 13 \\ -11 \\ -16.2 \\ -0.74 \\ 10.92 \end{bmatrix}$$

Then we can deduce  $T_6$

$$-11.3 T_6 = 10.92$$

$$T_6 = \frac{-10.92}{11.3}$$

$$T_6 = -0.966 //$$

$$4.01 T_5 + 9.2 T_6 = -0.74$$

$$T_5 = \frac{-0.74 - 9.2(-0.966)}{4.01} = 2.08 //$$

~~0.000 0.000 0.000 0.000~~

$$-2.7 T_4 - 0.7 T_5 + 4.7 T_6 = -16.7 //$$



$$T_4 = \frac{0.7(2.031) - (4.7(-0.966)) - 16.7}{-2.7} = 3.977$$

$$2.4 T_3 - 2 T_4 - 4.4 T_5 + 1.4 T_6 = -11$$

$$T_3 = \frac{2(3.977) + 4.4(2.031) - 1.4(-0.966) - 11}{2.4}$$

$$= 3.017 //$$

$$-3 T_2 + 5 T_3 + 0 T_4 - 5 T_5 - 1 T_6 = 13$$

$$T_2 = \frac{-5(3.017) - 0(3.977) + 5(2.031) + 1(-0.966) + 13}{-3}$$

$$= -2.034 //$$

$$T_1 + T_2 - 2 T_3 + T_4 + 3 T_5 - T_6 = 4$$

$$T_1 = -(-2.034) + 2(3.017) - (3.977) - 3(2.031) - (-0.966) + 4$$

$$= 1.032 //$$

$$T_1 = 1.032^\circ\text{C}$$

$$T_2 = -2.034^\circ\text{C}$$

$$T_3 = 3.017^\circ\text{C}$$

$$T_4 = 3.977^\circ\text{C}$$

$$T_5 = 2.031^\circ\text{C}$$

$$T_6 = -0.966^\circ\text{C}$$