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MATRIC NO: ~~WASRA~~ 15/ENG04/033

Assignment

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

$$2T_1 - T_2 + T_3 + 2T_4 + T_5 - 3T_6 = 20$$

$$T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15$$

$$5T_1 + 2T_2 - T_3 - T_4 - 2T_5 + T_6 = -3$$

$$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + 3T_6 = 16$$

$$4T_1 + 3T_2 + T_3 - 6T_4 - 3T_5 - 2T_6 = -27$$

solution

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 2 & -1 & 1 & 2 & 1 & -3 \\ 1 & 3 & -3 & -1 & 2 & 1 \\ 5 & 2 & -1 & -1 & 2 & 1 \\ -3 & -1 & 2 & 3 & 1 & 3 \\ 4 & 3 & 1 & -6 & -3 & -2 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 20 \\ -15 \\ -3 \\ 16 \\ -27 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 & : & 4 \\ 2 & -1 & 1 & 2 & 1 & -3 & : & 20 \\ 1 & 3 & -3 & -1 & 2 & 1 & : & -15 \\ 5 & 2 & -1 & -1 & 2 & 1 & : & -3 \\ -3 & -1 & 2 & 3 & 1 & 3 & : & 16 \\ 4 & 3 & 1 & -6 & -3 & -2 & : & -27 \end{bmatrix}$$

1	1	-2	1	3	-1	T_1	4
$2 - \frac{2}{1} \times 1$	$-1 - \frac{2}{1} \times 1$	$1 - \frac{2}{1} \times -2$	$2 - \frac{2}{1} \times 1$	$1 - \frac{2}{1} \times 3$	$-3 - \frac{2}{1} \times -1$	T_2	$20 - \frac{2}{1} \times 1$
$1 - \frac{1}{1} \times 1$	$3 - \frac{1}{1} \times 1$	$-3 - \frac{1}{1} \times -2$	$-1 - \frac{1}{1} \times 1$	$2 - \frac{1}{1} \times 3$	$1 - \frac{1}{1} \times -1$	T_3	$-15 - \frac{1}{1} \times 1$
$5 - \frac{5}{1} \times 1$	$2 - \frac{5}{1} \times 1$	$-1 - \frac{5}{1} \times -2$	$-1 - \frac{5}{1} \times 1$	$2 - \frac{5}{1} \times 3$	$1 - \frac{5}{1} \times -1$	T_4	$-30 - \frac{5}{1} \times 1$
$-3 + \frac{3}{1} \times 1$	$-1 + \frac{3}{1} \times 1$	$2 + \frac{3}{1} \times -2$	$3 + \frac{3}{1} \times 1$	$1 + \frac{3}{1} \times 3$	$3 + \frac{3}{1} \times -1$	T_5	$16 - \frac{3}{1} \times 1$
$4 - \frac{4}{1} \times 1$	$3 - \frac{4}{1} \times 1$	$1 - \frac{4}{1} \times -2$	$-6 - \frac{4}{1} \times 1$	$-3 - \frac{4}{1} \times 3$	$-2 - \frac{4}{1} \times -1$	T_6	$-27 - \frac{4}{1} \times 1$

1	1	-2	1	3	1	T_1	4
0	-3	5	0	-5	-1	T_2	12
0	2	-1	-2	-1	2	T_3	-19
0	-3	-9	-6	-13	6	T_4	-23
0	2	-3	6	10	0	T_5	28
0	-1	9	-10	-15	2	T_6	-43

1	1	-2	1	3	-1	T_1	4
0	-3	5	0	-5	-1	T_2	12
0	0	2.33	-2	-4.33	1.33	T_3	-11
0	0	4	-6	-8	6	T_4	-35
0	0	-0.67	6	6.67	-0.67	T_5	36
0	0	7.33	10	-13.33	2.33	T_6	-47

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & -0.57 & 4.71 \\ 0 & 0 & 0 & 5.43 & 5.43 & -0.29 \\ 0 & 0 & 0 & -3.71 & 0.29 & -1.85 \end{bmatrix} \cdot \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.14 \\ 32.86 \\ -12.43 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & -0.57 & 4.71 \\ 0 & 0 & 0 & 0 & 4.22 & 9.67 \\ 0 & 0 & 0 & 0 & 1.11 & -8.67 \end{bmatrix} \cdot \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.14 \\ -1.22 \\ 10.89 \end{bmatrix}$$

$$\begin{bmatrix} 1 & -1 & -2 & 1 & 3 & 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & -0.57 & 4.71 \\ 0 & 0 & 0 & 0 & 4.22 & 9.67 \\ 0 & 0 & 0 & 0 & 0 & -11.21 \end{bmatrix} \cdot \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.14 \\ -1.22 \\ 11.21 \end{bmatrix}$$

$$\frac{-11.21T_6}{-11.21} = \frac{11.21}{-11.21}$$

$$T_6 = 1$$

$$4.22T_5 + 9.67T_6 = -1.22$$

$$4.22T_5 + 9.67(-1) = -1.22$$

$$4.22T_5 - 9.67 = -1.22$$

$$4.22T_5 = -1.22 + 9.67$$

$$\frac{4.22T_5}{4.22} = \frac{8.45}{4.22}$$

$$T_5 = 2.002 \approx 2$$

$$-2.57T_4 + 0.57T_5 + 4.71T_6 = 16.14$$

$$-2.57T_4 + 1.14 - 4.71 = -16.14$$

$$-2.57T_4 = -16.14 - 1.14 + 4.71$$

$$\frac{-2.57T_4}{-2.57} = \frac{12.57}{2.57}$$

$$T_4 = 4.89$$

$$2.33T_3 - 2T_4 - 4.33T_5 + 1.33T_6 = -11$$

$$2.33T_3 - 2(4.89) - 4.33(2) + 1.33(-1) = -11$$

$$2.33T_3 - 9.78 - 8.66 - 1.33 = -11$$

$$2.33T_3 = -11 + 1.33 + 8.66 + 9.78$$

$$\begin{array}{r} 2.33T_3 = 8.77 \\ \hline 2.33 \quad 2.33 \end{array}$$

$$T_3 = 3.76$$

$$-3T_2 - 5T_3 - 5T_5 - T_4 = 12$$

$$-3T_4 + 18.8 - 10 + 1 = 12$$

$$T_2 = -0.73$$

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

$$T_1 - 0.73 - 7.52 + 4.89 + 6 + 1 = 4$$

$$T_1 = 0.36$$

$$T_1 = 0.36$$

$$T_2 = -0.73$$

$$T_3 = 3.76$$

$$T_4 = 4.89$$

$$T_5 = 2$$

$$T_6 = -1$$