15/ENG03/007
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ENG 382 Assignment 8.

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

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

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

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

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

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

Transforming the equations to matrix

$$\begin{array}{l} \text{Row1} \\ \text{Row2} \\ \text{Row3} \\ \text{Row4} \\ \text{Row5} \\ \text{Row1} \end{array} \begin{pmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 2 & -1 & 1 & 2 & 1 & -3 \\ 1 & 3 & -3 & -1 & 2 & 1 \\ 5 & 2 & -1 & -1 & 2 & 1 \\ -3 & -1 & 2 & 3 & 1 & 3 \\ 4 & 3 & 1 & -6 & -3 & -2 \end{pmatrix} \begin{pmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{pmatrix} = \begin{pmatrix} 4 \\ 20 \\ -15 \\ -3 \\ 16 \\ -27 \end{pmatrix}$$

Using a factor of (2) to multiply Row 1 and subtract Row 2

$2-(2)1$; $-1-(2)(1)$; $1-(2)(-2)$; $2-(2)(1)$; $1-(2)(3)$; $-3-(2)(-1)$; $20-(2)4$

0 −3 5 0 −5 1 12

Using a factor (1) to multiply Row 1 and subtract Row 3

$1-(1)(1)$; $3-(1)(1)$; $-3-(1)(-2)$; $-1-(1)(1)$; $2-(1)(3)$; $1-(1)(-1)$; $-15-(1)(4)$

0 2 −1 2 −1 2 −19

Using a factor (5) to multiply Row 5 and subtract Row 4

$5-(5)(1)$; $2-(5)(1)$; $-1-(5)(-2)$; $-1-(5)(1)$; $2-(5)(3)$; $1-(5)(-1)$; $-3-(5)(4)$

0 −3 9 −6 −13 6 −23

Using a factor (−3) to multiply Row 1 and subtract Row 5

$-3-(-3)(1)$; $-1-(-3)(1)$; $2-(-3)(-2)$; $3-(-3)(1)$; $1-(-3)(3)$; $3-(-3)(-1)$; $16-(-3)4$

0 2 −4 6 10 0 28

Using a factor (4) to multiply Row 1 and subtract Row 6

$4-(4)(1)$; $3-(4)(1)$; $1-(4)(-2)$; $-6-(4)(1)$; $-3-(4)(3)$ $-2-(4)(-1)$; $-27-(4)4$

0 −1 9 −10 −15 2 −43

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