

# Assignment 3

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Elect / elect.

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

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

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

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

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

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

Soln

1	1	-2	1	3	-1	$T_1$	4
2	-1	1	2	1	-3	$T_2$	20
1	3	-3	-1	2	1	$T_3$	-15
5	2	-1	-1	2	1	$T_4$	-3
-3	-1	2	3	1	3	$T_5$	16
4	3	1	-6	-3	-2	$T_6$	-27

$$f_1 = 2/1 = 2$$

$$f_2 = 1/1 = 1$$

$$f_3 = 5/1 = 5$$

$$f_4 = -3/1 = -3$$

$$f_5 = 4/1 = 4$$

1	1	-2	1	3	-1	$T_1$
2-2(1)	-1-2(1)	1-2(-2)	2-2(1)	1-2(3)	-3-2	$T_2$
1-1(1)	3-1(1)	-3-1(2)	-1-1(1)	2-1(3)	-1-3	$T_3$
5-5(1)	2-5(1)	-1-5(-2)	-1-5(1)	2-5(3)	2-5(3)	$T_4$
-3+3(1)	-1+3(1)	2+3(-2)	3+3(1)	1+3(3)	1+3(3)	$T_5$
4-4(1)	3-4(1)	1-4(-2)	-6-4(1)	-3-4(3)	-3-4(3)	$T_6$

$$\begin{array}{l}
 4 \\
 20 - 2(4) \\
 -15 - 1(4) \\
 -3 - 5(4) \\
 16 + 3(4) \\
 -27 - 4(4)
 \end{array}$$

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	4	6	10	0	$T_5$	28
0	-1	7	10	-15	2	$T_6$	-43

$$\begin{array}{l}
 f_1 = -2/3 \\
 f_2 = -3/-3-1 \\
 f_3 = -2/3 \\
 f_4 = -1/-2 = 1/2
 \end{array}$$

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

1	1	-2	1	3	-1	$T_1$	4
0	-3	5	0	-5	-1	$T_2$	12
0	0	$7/3$	-2	$-13/3$	$4/3$	$T_3$	-11
0	0	4	-6	-8	2	$T_4$	-55
0	0	$-2/3$	6	$20/3$	$-4/3$	$T_5$	+36
0	0	$22/3$	10	$-40/3$	$7/3$	$T_6$	-77



$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 7/3 & -2 & -13/3 & 4/3 \\ 0 & 0 & 0 & -6 - \frac{2}{7}(-2) & 8 - \frac{12}{7} & 7 - \frac{12}{2} \\ 0 & 0 & 0 & 6 + \frac{2}{7}(-2) & 20/3 + \frac{2}{7} & -3/3 \\ 0 & 0 & 0 & 10 - \frac{22}{7}(-2) & 40/3 - \frac{22}{7} & 7/8 \end{bmatrix} \begin{matrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{matrix} = \begin{bmatrix} 4 \\ 12 \\ -21 \\ -55 - \frac{12}{2} \\ 86 + \frac{22}{7} \\ -42 - \frac{2}{7} \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 7/3 & -2 & -13/3 & 4/3 \\ 0 & 0 & 0 & -18/7 & -4/8 & 33/4 \\ 0 & 0 & 0 & 0 & 38/9 & 27/3 \\ 0 & 0 & 0 & 0 & 17/9 & -28/3 \end{bmatrix} \begin{matrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{matrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -113/9 \\ -11/7 \\ -98/9 \end{bmatrix}$$

$$f_1 = \frac{10 \times 9}{9 \times 38} = \frac{5}{19}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 7/3 & -2 & -13/3 & 4/3 \\ 0 & 0 & 0 & -18/7 & -4/7 & 33/7 \\ 0 & 0 & 0 & 0 & 38/9 & 27/3 \\ 0 & 0 & 0 & 0 & 17/9 - \frac{8}{19} \left( \frac{38}{9} \right) & -26/2 \end{bmatrix} \begin{matrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{matrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -113/7 \\ -11/7 \\ 95/9 - 5/19 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 7/3 & -2 & -13/3 & 4/3 \\ 0 & 0 & 0 & -18/7 & -4/7 & 33/7 \\ 0 & 0 & 0 & 0 & 38/9 & 27/3 \\ 0 & 0 & 0 & 0 & 0 & -213/9 \end{bmatrix} \begin{matrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{matrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -113/2 \\ -11/9 \\ 213/19 \end{bmatrix}$$

$$-213/19 T_6 = 2/3/19$$

$$T_6 - \frac{213}{19} + \frac{19}{213} = -1$$

$$58/9 T_5 + 29/3 T_6 = -4/9$$

$$35/9 T_5 + 29/3(-1) = -7/9$$

$$T_6 = \left[ \frac{-11}{9} + \frac{29}{3} \right] \times \frac{9}{38}$$

$$= 211$$

$$T_1 + T_2 - 2T_3 + T_4 + 5T_5 - T_6 = 4$$

$$T_1 - 2 - 2(3) + 4 + 3(2) + 1 = 4$$

$$T_1 = 2 - 6 + 4 + 6 + 1 = 4$$

$$T_1 = 4 + 2 + 6 - 4 - 6 - 1 = 1$$