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15/ENG04/010

Electrical/Electronics Engineering

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

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

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

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

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

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

Row 1 is the pivot

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

$$= (2 - \frac{2}{1} \times 1)T_1 + (-1 - \frac{2}{1} \times 1)T_2 + (1 - \frac{2}{1} \times -2)T_3 + (2 - \frac{2}{1} \times 1)T_4$$

$$+ (1 - \frac{2}{1} \times 3)T_5 + (-3 - \frac{2}{1} \times -4) = (20 - \frac{2}{1} \times 4)$$

$$= (1 - \frac{1}{1} \times 1)T_1 + (3 - \frac{1}{1} \times 1)T_2 + (-3 - \frac{1}{1} \times -2)T_3 + (-1 - \frac{1}{1} \times 1)T_4$$

$$+ (2 - \frac{1}{1} \times 3)T_5 + (1 - \frac{1}{1} \times -1)T_6 = (-15 - \frac{1}{1} \times 4)$$

$$= (5 - \frac{5}{1} \times 1)T_1 + (2 - \frac{5}{1} \times 1)T_2 + (-1 - \frac{5}{1} \times -2)T_3 + (-1 - \frac{5}{1} \times 1)T_4$$

$$+ (2 - \frac{5}{1} \times 3)T_5 + (-1 - \frac{5}{1} \times -1)T_6 = (-3 - \frac{5}{1} \times 4)$$

$$= (-3 - \frac{-3}{1} \times 1)T_1 + (-1 - \frac{-3}{1} \times 1)T_2 + (2 - \frac{-3}{1} \times -2)T_3 + (3 - \frac{-3}{1} \times 1)T_4$$

$$+ (1 - \frac{-3}{1} \times 3)T_5 + (1 - \frac{-3}{1} \times -1)T_6 = (16 - \frac{-3}{1} \times 4)$$

$$= (4 - \frac{4}{1} \times 1)T_1 + (3 - \frac{4}{1} \times 1)T_2 + (1 - \frac{4}{1} \times -2)T_3 + (-6 - \frac{4}{1} \times 1)T_4$$

$$+ (-3 - \frac{4}{1} \times 3)T_5 + (-2 - \frac{4}{1} \times -1)T_6 = (-27 - \frac{4}{1} \times 4)$$

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

$$0 - 3T_2 + 5T_3 + 0T_4 - 5T_5 - T_6 = 12$$

$$0 + 2T_2 - T_3 - 2T_4 - T_5 + 2T_6 = -19$$

$$0 - 3T_2 + 9T_3 - 6T_4 - 13T_5 + 6T_6 = -23$$

$$0 + 2T_2 - 4T_3 + 6T_4 + 10T_5 + 0T_6 = 28$$

$$0 - 1T_2 + 9T_3 - 10T_4 - 15T_5 + 2T_6 = -43$$

Row 2 is the pivot.

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

$$0 - 3T_2 + 5T_3 + 0T_4 - 5T_5 - T_6 = 12$$

$$= \left(2 - \frac{2}{-3} \times 3\right)T_2 + \left(-1 - \frac{2}{-3} \times 5\right)T_3 + \left(-2 - \frac{2}{-3} \times 0\right)T_4 + \left(-1 - \frac{2}{-3} \times -5\right)T_5$$

$$+ \left(-1 - \frac{2}{-3} \times -1\right)T_6 = \left(-19 - \frac{2}{-3} \times 12\right)$$

$$= \left(-3 - \frac{-3}{-3} \times -3\right)T_2 + \left(9 - \frac{-3}{-3} \times 5\right)T_3 + \left(-6 - \frac{-3}{-3} \times 0\right)T_4 +$$

$$\left(-13 - \frac{-3}{-3} \times -5\right)T_5 + \left(6 - \frac{-3}{-3} \times -1\right)T_6 = \left(-23 - \frac{-3}{-3} \times 12\right)$$

$$\left(2 - \frac{2}{-3} \times -3\right)T_2 + \left(-4 - \frac{2}{-3} \times 5\right)T_3 + \left(6 - \frac{-2}{-3} \times 0\right)T_4 + \left(10 - \frac{2}{-3} \times -5\right)T_5$$

$$+ \left(0 - \frac{2}{-3} \times -1\right)T_6 = \left(28 - \frac{2}{-3} \times 12\right)$$

$$= \left(-1 - \frac{-1}{-3} \times -3\right)T_2 + \left(9 - \frac{-1}{-3} \times 5\right)T_3 + \left(-10 - \frac{-1}{-3} \times 0\right)T_4$$

$$+ \left(-15 - \frac{-1}{-3} \times -5\right)T_5 + \left(+2 - \frac{-1}{-3} \times -1\right)T_6 = \left(-43 - \frac{-1}{-3} \times 12\right)$$

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

$$0 - 3T_2 + 5T_3 + 0T_4 - 5T_5 - T_6 = 12$$

$$0 + 0 + 2.33T_3 - 2T_4 - 4.33T_5 + 1.33T_6 = -11$$

$$0 + 0 + 4T_3 - 6T_4 - 8T_5 + 7T_6 = -35$$

$$0 + 0 - 0.673T_3 + 6T_4 + 6.67T_5 - 0.67T_6 = 36$$

$$0 + 0 + 7.33T_3 - 10T_4 - 13.33T_5 + 2.33T_6 = -47$$

Row 3 is the pivot

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

$$0 - 3T_2 + 5T_3 + 0T_4 - 5T_5 - T_6 = 12$$

$$0 + 0 + 2.33T_3 - 2T_4 - 4.33T_5 + 1.33T_6 = -11$$

$$0 + 0 + 0 - 2.57143T_4 - 0.571T_5 + 4.71T_6 = -16.1429$$

$$0 + 0 + 0 + 0 + 4.22T_5 + 9.67T_6 = -1.22$$

$$0 + 0 + 0 + 5.43T_4 + 5.429T_5 - 0.286T_6 = 32.86$$

$$0 + 0 + 0 - 3.71T_4 + 0.2857T_5 - 1.86T_6 = -12.43$$

Row 4 is the pivot

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

$$0 - 3T_2 + 5T_3 + 0T_4 - 5T_5 - T_6 = 12$$

$$0 + 0 + 2.33T_3 - 2T_4 - 4.33T_5 + 1.33T_6 = -11$$

$$0 + 0 + 0 - 2.57143T_4 - 0.571T_5 + 4.71T_6 = -16.1429$$

$$0 + 0 + 0 + 0 + 4.22T_5 + 9.67T_6 = -1.22$$

$$0 + 0 + 0 + 0 + 4T_5 - 2.05T_6 = 10.053$$

Row 5 is the pivot

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

$$0 - 3T_2 + 5T_3 + 0T_4 - 5T_5 - T_6 = 12$$

$$0 + 0 + 2.33T_3 - 2T_4 - 4.33T_5 + 1.33T_6 = -11$$

$$0 + 0 + 0 + 0 + 4.22T_5 + 9.67T_6 = -1.22$$

$$0 + 0 + 0 + 0 + 0 - 11.21T_6 = 11.21$$

$$T_6 = \frac{11 \cdot 21}{-11 \cdot 21} = -1$$

$$T_5 = \frac{-1 \cdot 22 - 9 \cdot 67(-1)}{4 \cdot 22} = 2$$

$$T_4 = \frac{-16 \cdot 1429 - 4 \cdot 71(-1) + 0 \cdot 57(2)}{-2 \cdot 57} = 4$$

$$T_3 = \frac{-11 - 1 \cdot 3(-1) + 4 \cdot 3(2) + 2(4)}{2 \cdot 3 \cdot 3} = 3$$

$$T_2 = \frac{12 + -1 + 5(2) - 3(3)}{-3} = -2$$

$$T_1 = \frac{4 + -1 - 3(2) - 4 + 2(3) - (-2)}{1} = 1$$

$$T_6 = -1$$

$$T_5 = 2$$

$$T_4 = 4$$

$$T_3 = 3$$

$$T_2 = -2$$

$$T_1 = 1$$