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16/ENG05 1023
Engineering Mathematics

Assignment 3

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

Pivoting

$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3 \qquad —— (1)$$
$$T_1 + T_2 - 2T_3 + T_4 + 3T_5 - T_6 = 4 \qquad —— (2)$$
$$2T_1 - T_2 + T_3 - 2T_4 + T_5 - 3T_6 = 20 \qquad —— (3)$$
$$T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15 \qquad —— (4)$$
$$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + 3T_6 = 16 \qquad —— (5)$$
$$4T_1 - 2T_2 + T_3 - 6T_4 - 3T_5 - 2T_6 = -27 \qquad —— (6)$$

$(1)x^{1/5} = T_1 + 0.4T_2 - 0.2T_3 - 0.2T_4 + 0.4T_5 + 0.2T_6 = -0.6 \qquad — (a)$

$(1)x^{2/5} = 2T_1 + 0.8T_2 - 0.4T_3 - 0.4T_4 + 0.8T_5 + 0.4T_6 = -1.2 \qquad — (b)$

$(1) x^{1/5} = T_1 + 0.4T_2 - 0.2T_3 - 0.2T_4 + 0.4T_5 + 0.2T_6 = -0.6 \qquad — (c)$

$(1) x^{3/5} = -3T_1 - 1.2T_2 + 0.6T_3 + 0.6T_4 - 1.2T_5 - 0.6T_6 = 1.8 \qquad — (d)$

$(1) x^{4/5} = -4T_1 + 1.6T_2 - 0.8T_3 - 0.8T_4 + 1.6T_5 + 0.8T_6 = -2.4 \qquad — (e)$

minus $(2-a)$, $(3-b)$, $(4-c)$, $(5-d)$ and $(6-e)$

$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$$
$$0 + 0.6T_2 - 1.8T_3 + 1.2T_4 + 2.6T_5 - 1.2T_6 = 4.6$$
$$0 - 1.8T_2 + 1.4T_3 + 2.4T_4 + 0.2T_5 - 3.4T_6 = 21.2$$
$$0 + 2.6T_2 - 2.8T_3 - 0.8T_4 + 1.6T_5 + 0.8T_6 = -14.4$$
$$0 + 0.2T_2 + 1.4T_3 + 2.4T_4 + 2.2T_5 + 3.6T_6 = 14.2$$
$$0 + 1.4T_1 + 1.8T_3 - 5.2T_4 - 4.6T_5 - 2.8T_6 = -24.6$$

(2) $x \frac{-1.8}{0.6} = 0 - 1.8 T_2 + 5.1 T_3 - 3.6 T_4 - 7.8 T_5 + 3.6 T_6 = -13.8$

(3) $x \frac{2.6}{0.6} = 0 + 2.6 T_2 - 7.8 T_3 + 5.2 T_4 + \frac{16.9}{1.5} T_5 - 5.2 T_6 = \frac{29.9}{1.5}$

(4) $x \frac{0.4}{0.6} = 0 + 0.2 T_2 - 0.6 T_3 + 0.4 T_4 + \frac{3}{1.5} T_5 - 0.4 T_6 = \frac{2.3}{1.5}$ —

(5) $x \frac{1.4}{0.6} = 0 + 1.4 T_2 - 4.2 T_3 + 2.8 T_4 + \frac{9.1}{1.5} T_5 - 2.8 T_6 = \frac{11.1}{1.5}$

(6)

minus $(3-5)$ $(4-1)$ $(5-6)$ $(6-1)$

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

$0 + 0.6 T_2 - 18 T_3 + 1.2 T_4 + 2.6 T_5 - 1.2 T_6 = 4.6$

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

$0 + 0 + 5 T_3 - 6 T_4 - \frac{29}{3} T_5 + 6 T_6 = \frac{-103}{3}$