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MATRIC NUMBER: 17/ENG02/061

DEPARTMENT: COMPUTER ENGINEERING

(a). Gaussian elimination method with the aid of Microsoft Excel

A						B
2	2	-4	2	6	-2	12
4	-2	2	4	2	-6	60
2	6	-6	-2	4	2	-45
10	4	-2	-2	4	2	-9
-6	-2	4	6	2	6	48
8	6	2	-12	-6	-4	-81

A						B	Factor
2	2	-4	2	6	-2	12	
0	-6	10	0	-10	-2	36	2
0	4	-2	-4	-2	4	-57	1
0	-6	18	-12	-26	12	-69	5
0	4	-8	12	20	0	84	-3
0	-2	18	-20	-30	4	-129	4

A						B	Factor
2	2	-4	2	6	-2	12	
0	-6	10	0	-10	-2	36	
0	0	4.666667	-4	-8.66667	2.666667	-33	-0.66667
0	0	8	-12	-16	14	-105	1
0	0	-1.33333	12	13.33333	-1.33333	108	-0.66667
0	0	14.66667	-20	-26.6667	4.666667	-141	0.333333

A						B	Factor
2	2	-4	2	6	-2	12	
0	-6	10	0	-10	-2	36	
0	0	4.666667	-4	-8.66667	2.666667	-33	
0	0	0	-5.14286	-1.14286	9.428571	-48.4286	1.714286
0	0	0	10.85714	10.85714	-0.57143	98.57143	-0.28571
0	0	0	-7.42857	0.571429	-3.71429	-37.2857	3.142857

A						B	Factor
2	2	-4	2	6	-2	12	
0	-6	10	0	-10	-2	36	
0	0	4.666667	-4	-8.66667	2.666667	-33	
0	0	0	-5.14286	-1.14286	9.428571	-48.4286	
0	0	0	0	8.444444	19.33333	-3.66667	-2.11111
0	0	0	0	2.222222	-17.3333	32.66667	1.444444

A						B	Factor
2	2	-4	2	6	-2	12	
0	-6	10	0	-10	-2	36	
0	0	4.666667	-4	-8.66667	2.666667	-33	
0	0	0	-5.14286	-1.14286	9.428571	-48.4286	
0	0	0	0	8.444444	19.33333	-3.66667	
0				0	-22.4211	33.63158	0.263158

T(°C)	
T1	1.5
T2	-3
T3	4.5
T4	6
T5	3
T6	-1.5

K=°C+273

T(K)	
T1	274.5
T2	270
T3	277.5
T4	279
T5	276
T6	271.5

(b). Gaussian elimination method with the aid of MathCAD

$$a := \begin{pmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ 4 & -2 & 2 & 4 & 2 & -6 \\ 2 & 6 & -6 & -2 & 4 & 2 \\ 10 & 4 & -2 & -2 & 4 & 2 \\ -6 & -2 & 4 & 6 & 2 & 6 \\ 8 & 6 & 2 & -12 & -6 & -4 \end{pmatrix} \qquad b := \begin{pmatrix} 12 \\ 60 \\ -45 \\ -9 \\ 48 \\ -81 \end{pmatrix}$$

$$a1 := \begin{bmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ a_{1,0} - \left(\frac{a_{1,0}}{a_{0,0}}\right)\cdot(a_{0,0}) & a_{1,1} - \left(\frac{a_{1,0}}{a_{0,0}}\right)\cdot(a_{0,1}) & a_{1,2} - \left(\frac{a_{1,0}}{a_{0,0}}\right)\cdot(a_{0,2}) & a_{1,3} - \left(\frac{a_{1,0}}{a_{0,0}}\right)\cdot(a_{0,3}) & a_{1,4} - \left(\frac{a_{1,0}}{a_{0,0}}\right)\cdot(a_{0,4}) & a_{1,5} - \left(\frac{a_{1,0}}{a_{0,0}}\right)\cdot(a_{0,5}) \\ a_{2,0} - \left(\frac{a_{2,0}}{a_{0,0}}\right)\cdot(a_{0,0}) & a_{2,1} - \left(\frac{a_{2,0}}{a_{0,0}}\right)\cdot(a_{0,1}) & a_{2,2} - \left(\frac{a_{2,0}}{a_{0,0}}\right)\cdot(a_{0,2}) & a_{2,3} - \left(\frac{a_{2,0}}{a_{0,0}}\right)\cdot(a_{0,3}) & a_{2,4} - \left(\frac{a_{2,0}}{a_{0,0}}\right)\cdot(a_{0,4}) & a_{2,5} - \left(\frac{a_{2,0}}{a_{0,0}}\right)\cdot(a_{0,5}) \\ a_{3,0} - \left(\frac{a_{3,0}}{a_{0,0}}\right)\cdot(a_{0,0}) & a_{3,1} - \left(\frac{a_{3,0}}{a_{0,0}}\right)\cdot(a_{0,1}) & a_{3,2} - \left(\frac{a_{3,0}}{a_{0,0}}\right)\cdot(a_{0,2}) & a_{3,3} - \left(\frac{a_{3,0}}{a_{0,0}}\right)\cdot(a_{0,3}) & a_{3,4} - \left(\frac{a_{3,0}}{a_{0,0}}\right)\cdot(a_{0,4}) & a_{3,5} - \left(\frac{a_{3,0}}{a_{0,0}}\right)\cdot(a_{0,5}) \\ a_{4,0} - \left(\frac{a_{4,0}}{a_{0,0}}\right)\cdot(a_{0,0}) & a_{4,1} - \left(\frac{a_{4,0}}{a_{0,0}}\right)\cdot(a_{0,1}) & a_{4,2} - \left(\frac{a_{4,0}}{a_{0,0}}\right)\cdot(a_{0,2}) & a_{4,3} - \left(\frac{a_{4,0}}{a_{0,0}}\right)\cdot(a_{0,3}) & a_{4,4} - \left(\frac{a_{4,0}}{a_{0,0}}\right)\cdot(a_{0,4}) & a_{4,5} - \left(\frac{a_{4,0}}{a_{0,0}}\right)\cdot(a_{0,5}) \\ a_{5,0} - \left(\frac{a_{5,0}}{a_{0,0}}\right)\cdot(a_{0,0}) & a_{5,1} - \left(\frac{a_{5,0}}{a_{0,0}}\right)\cdot(a_{0,1}) & a_{5,2} - \left(\frac{a_{5,0}}{a_{0,0}}\right)\cdot(a_{0,2}) & a_{5,3} - \left(\frac{a_{5,0}}{a_{0,0}}\right)\cdot(a_{0,3}) & a_{5,4} - \left(\frac{a_{5,0}}{a_{0,0}}\right)\cdot(a_{0,4}) & a_{5,5} - \left(\frac{a_{5,0}}{a_{0,0}}\right)\cdot(a_{0,5}) \end{bmatrix} \qquad b1 := \begin{bmatrix} b_0 \\ b_1 - \left(\frac{a_{1,0}}{a_{0,0}}\right)\cdot b_0 \\ b_2 - \left(\frac{a_{2,0}}{a_{0,0}}\right)\cdot b_0 \\ b_3 - \left(\frac{a_{3,0}}{a_{0,0}}\right)\cdot b_0 \\ b_4 - \left(\frac{a_{4,0}}{a_{0,0}}\right)\cdot b_0 \\ b_5 - \left(\frac{a_{5,0}}{a_{0,0}}\right)\cdot b_0 \end{bmatrix}$$

$$a1 = \begin{pmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ 0 & -6 & 10 & 0 & -10 & -2 \\ 0 & 4 & -2 & -4 & -2 & 4 \\ 0 & -6 & 18 & -12 & -26 & 12 \\ 0 & 4 & -8 & 12 & 20 & 0 \\ 0 & -2 & 18 & -20 & -30 & 4 \end{pmatrix} \qquad b1 = \begin{pmatrix} 12 \\ 36 \\ -57 \\ -69 \\ 84 \\ -129 \end{pmatrix}$$

$$a2 := \begin{bmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ al_{1,0} & al_{1,1} & al_{1,2} & al_{1,3} & al_{1,4} & al_{1,5} \\ al_{2,0} - \left(\frac{al_{2,1}}{al_{1,1}}\right)\cdot(al_{1,0}) & al_{2,1} - \left(\frac{al_{2,1}}{al_{1,1}}\right)\cdot(al_{1,1}) & al_{2,2} - \left(\frac{al_{2,1}}{al_{1,1}}\right)\cdot(al_{1,2}) & al_{2,3} - \left(\frac{al_{2,1}}{al_{1,1}}\right)\cdot(al_{1,3}) & al_{2,4} - \left(\frac{al_{2,1}}{al_{1,1}}\right)\cdot(al_{1,4}) & al_{2,5} - \left(\frac{al_{2,1}}{al_{1,1}}\right)\cdot(al_{1,5}) \\ al_{3,0} - \left(\frac{al_{3,1}}{al_{1,1}}\right)\cdot(al_{1,0}) & al_{3,1} - \left(\frac{al_{3,1}}{al_{1,1}}\right)\cdot(al_{1,1}) & al_{3,2} - \left(\frac{al_{3,1}}{al_{1,1}}\right)\cdot(al_{1,2}) & al_{3,3} - \left(\frac{al_{3,1}}{al_{1,1}}\right)\cdot(al_{1,3}) & al_{3,4} - \left(\frac{al_{3,1}}{al_{1,1}}\right)\cdot(al_{1,4}) & al_{3,5} - \left(\frac{al_{3,1}}{al_{1,1}}\right)\cdot(al_{1,5}) \\ al_{4,0} - \left(\frac{al_{4,1}}{al_{1,1}}\right)\cdot(al_{1,0}) & al_{4,1} - \left(\frac{al_{4,1}}{al_{1,1}}\right)\cdot(al_{1,1}) & al_{4,2} - \left(\frac{al_{4,1}}{al_{1,1}}\right)\cdot(al_{1,2}) & al_{4,3} - \left(\frac{al_{4,1}}{al_{1,1}}\right)\cdot(al_{1,3}) & al_{4,4} - \left(\frac{al_{4,1}}{al_{1,1}}\right)\cdot(al_{1,4}) & al_{4,5} - \left(\frac{al_{4,1}}{al_{1,1}}\right)\cdot(al_{1,5}) \\ al_{5,0} - \left(\frac{al_{5,1}}{al_{1,1}}\right)\cdot(al_{1,0}) & al_{5,1} - \left(\frac{al_{5,1}}{al_{1,1}}\right)\cdot(al_{1,1}) & al_{5,2} - \left(\frac{al_{5,1}}{al_{1,1}}\right)\cdot(al_{1,2}) & al_{5,3} - \left(\frac{al_{5,1}}{al_{1,1}}\right)\cdot(al_{1,3}) & al_{5,4} - \left(\frac{al_{5,1}}{al_{1,1}}\right)\cdot(al_{1,4}) & al_{5,5} - \left(\frac{al_{5,1}}{al_{1,1}}\right)\cdot(al_{1,5}) \end{bmatrix} \quad b2 := \begin{bmatrix} bl_0 \\ bl_1 \\ bl_2 - \left(\frac{al_{2,1}}{al_{1,1}}\right)\cdot bl_1 \\ bl_3 - \left(\frac{al_{3,1}}{al_{1,1}}\right)\cdot bl_1 \\ bl_4 - \left(\frac{al_{4,1}}{al_{1,1}}\right)\cdot bl_1 \\ bl_5 - \left(\frac{al_{5,1}}{al_{1,1}}\right)\cdot bl_1 \end{bmatrix}$$

$$a2 = \begin{pmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ 0 & -6 & 10 & 0 & -10 & -2 \\ 0 & 0 & 4.667 & -4 & -8.667 & 2.667 \\ 0 & 0 & 8 & -12 & -16 & 14 \\ 0 & 0 & -1.333 & 12 & 13.333 & -1.333 \\ 0 & 0 & 14.667 & -20 & -26.667 & 4.667 \end{pmatrix} \quad b2 = \begin{pmatrix} 12 \\ 36 \\ -33 \\ -105 \\ 108 \\ -141 \end{pmatrix}$$

$$a3 := \begin{bmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ al_{1,0} & al_{1,1} & al_{1,2} & al_{1,3} & al_{1,4} & al_{1,5} \\ a2_{2,0} & a2_{2,1} & a2_{2,2} & a2_{2,3} & a2_{2,4} & a2_{2,5} \\ a2_{3,0} - \left(\frac{a2_{3,2}}{a2_{2,2}}\right)\cdot(a2_{2,0}) & a2_{3,1} - \left(\frac{a2_{3,2}}{a2_{2,2}}\right)\cdot(a2_{2,1}) & a2_{3,2} - \left(\frac{a2_{3,2}}{a2_{2,2}}\right)\cdot(a2_{2,2}) & a2_{3,3} - \left(\frac{a2_{3,2}}{a2_{2,2}}\right)\cdot(a2_{2,3}) & a2_{3,4} - \frac{a2_{3,2}}{a2_{2,2}}\cdot(a2_{2,4}) & a2_{3,5} - \left(\frac{a2_{3,2}}{a2_{2,2}}\right)\cdot(a2_{2,5}) \\ a2_{4,0} - \left(\frac{a2_{4,2}}{a2_{2,2}}\right)\cdot(a2_{2,0}) & a2_{4,1} - \left(\frac{a2_{4,2}}{a2_{2,2}}\right)\cdot(a2_{2,1}) & a2_{4,2} - \left(\frac{a2_{4,2}}{a2_{2,2}}\right)\cdot(a2_{2,2}) & a2_{4,3} - \left(\frac{a2_{4,2}}{a2_{2,2}}\right)\cdot(a2_{2,3}) & a2_{4,4} - \left(\frac{a2_{4,2}}{a2_{2,2}}\right)\cdot(a2_{2,4}) & a2_{4,5} - \left(\frac{a2_{4,2}}{a2_{2,2}}\right)\cdot(a2_{2,5}) \\ a2_{5,0} - \left(\frac{a2_{5,2}}{a2_{2,2}}\right)\cdot(a2_{2,0}) & a2_{5,1} - \left(\frac{a2_{5,2}}{a2_{2,2}}\right)\cdot(a2_{2,1}) & a2_{5,2} - \left(\frac{a2_{5,2}}{a2_{2,2}}\right)\cdot(a2_{2,2}) & a2_{5,3} - \left(\frac{a2_{5,2}}{a2_{2,2}}\right)\cdot(a2_{2,3}) & a2_{5,4} - \left(\frac{a2_{5,2}}{a2_{2,2}}\right)\cdot(a2_{2,4}) & a2_{5,5} - \left(\frac{a2_{5,2}}{a2_{2,2}}\right)\cdot(a2_{2,5}) \end{bmatrix} \quad b3 := \begin{bmatrix} b2_0 \\ b2_1 \\ b2_2 \\ b2_3 - \left(\frac{a2_{3,2}}{a2_{2,2}}\right)\cdot b2_2 \\ b2_4 - \left(\frac{a2_{4,2}}{a2_{2,2}}\right)\cdot b2_2 \\ b2_5 - \left(\frac{a2_{5,2}}{a2_{2,2}}\right)\cdot b2_2 \end{bmatrix}$$

$$a3 = \begin{pmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ 0 & -6 & 10 & 0 & -10 & -2 \\ 0 & 0 & 4.667 & -4 & -8.667 & 2.667 \\ 0 & 0 & 0 & -5.143 & -1.143 & 9.429 \\ 0 & 0 & 0 & 10.857 & 10.857 & -0.571 \\ 0 & 0 & 0 & -7.429 & 0.571 & -3.714 \end{pmatrix} = \begin{pmatrix} 12 \\ 36 \\ -33 \\ -48.429 \\ 98.571 \\ -37.286 \end{pmatrix}$$

$$a4 := \begin{bmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ a1_{1,0} & a1_{1,1} & a1_{1,2} & a1_{1,3} & a1_{1,4} & a1_{1,5} \\ a2_{2,0} & a2_{2,1} & a2_{2,2} & a2_{2,3} & a2_{2,4} & a2_{2,5} \\ a3_{3,0} & a3_{3,1} & a3_{3,2} & a3_{3,3} & a3_{3,4} & a3_{3,5} \\ a3_{4,0} - \left(\frac{a3_{4,3}}{a3_{3,3}}\right)\cdot(a3_{3,0}) & a3_{4,1} - \left(\frac{a3_{4,3}}{a3_{3,3}}\right)\cdot(a3_{3,1}) & a3_{4,2} - \left(\frac{a3_{4,3}}{a3_{3,3}}\right)\cdot(a3_{3,2}) & a3_{4,3} - \left(\frac{a3_{4,3}}{a3_{3,3}}\right)\cdot(a3_{3,3}) & a3_{4,4} - \left(\frac{a3_{4,3}}{a3_{3,3}}\right)\cdot(a3_{3,4}) & a3_{4,5} - \left(\frac{a3_{4,3}}{a3_{3,3}}\right)\cdot(a3_{3,5}) \\ a3_{5,0} - \left(\frac{a3_{5,3}}{a3_{3,3}}\right)\cdot(a3_{3,0}) & a3_{5,1} - \left(\frac{a3_{5,3}}{a3_{3,3}}\right)\cdot(a3_{3,1}) & a3_{5,2} - \left(\frac{a3_{5,3}}{a3_{3,3}}\right)\cdot(a3_{3,2}) & a3_{5,3} - \left(\frac{a3_{5,3}}{a3_{3,3}}\right)\cdot(a3_{3,3}) & a3_{5,4} - \left(\frac{a3_{5,3}}{a3_{3,3}}\right)\cdot(a3_{3,4}) & a3_{5,5} - \left(\frac{a3_{5,3}}{a3_{3,3}}\right)\cdot(a3_{3,5}) \end{bmatrix} \quad b4 := \begin{bmatrix} b3_0 \\ b3_1 \\ b3_2 \\ b3_3 \\ b3_4 - \left(\frac{a3_{4,3}}{a3_{3,3}}\right)\cdot b3_3 \\ b3_5 - \left(\frac{a3_{5,3}}{a3_{3,3}}\right)\cdot b3_3 \end{bmatrix}$$

$$a4 = \begin{pmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ 0 & -6 & 10 & 0 & -10 & -2 \\ 0 & 0 & 4.667 & -4 & -8.667 & 2.667 \\ 0 & 0 & 0 & -5.143 & -1.143 & 9.429 \\ 0 & 0 & 0 & 0 & 8.444 & 19.333 \\ 0 & 0 & 0 & 0 & 2.222 & -17.333 \end{pmatrix} \quad b4 = \begin{pmatrix} 12 \\ 36 \\ -33 \\ -48.429 \\ -3.667 \\ 32.667 \end{pmatrix}$$

$$a5 := \begin{bmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ a1_{1,0} & a1_{1,1} & a1_{1,2} & a1_{1,3} & a1_{1,4} & a1_{1,5} \\ a2_{2,0} & a2_{2,1} & a2_{2,2} & a2_{2,3} & a2_{2,4} & a2_{2,5} \\ a3_{3,0} & a3_{3,1} & a3_{3,2} & a3_{3,3} & a3_{3,4} & a3_{3,5} \\ a4_{4,0} & a4_{4,1} & a4_{4,2} & a4_{4,3} & a4_{4,4} & a4_{4,5} \\ a4_{5,0} - \left(\frac{a4_{5,4}}{a4_{4,4}}\right)\cdot(a4_{4,0}) & a4_{5,1} - \left(\frac{a4_{5,4}}{a3_{4,4}}\right)\cdot(a4_{4,1}) & a4_{5,2} - \left(\frac{a4_{5,4}}{a4_{4,4}}\right)\cdot(a4_{4,2}) & a4_{5,3} - \left(\frac{a4_{5,4}}{a3_{4,4}}\right)\cdot(a4_{4,3}) & a4_{5,4} - \left(\frac{a4_{5,4}}{a4_{4,4}}\right)\cdot(a4_{4,4}) & a4_{5,5} - \left(\frac{a4_{5,4}}{a4_{4,4}}\right)\cdot(a4_{4,5}) \end{bmatrix} \quad b5 := \begin{bmatrix} b4_0 \\ b4_1 \\ b4_2 \\ b4_3 \\ b4_4 \\ b4_5 - \left(\frac{a4_{5,4}}{a4_{4,4}}\right)\cdot b4_4 \end{bmatrix}$$

$$a5 = \begin{pmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ 0 & -6 & 10 & 0 & -10 & -2 \\ 0 & 0 & 4.667 & -4 & -8.667 & 2.667 \\ 0 & 0 & 0 & -5.143 & -1.143 & 9.429 \\ 0 & 0 & 0 & 0 & 8.444 & 19.333 \\ 0 & 0 & 0 & 0 & 0 & -22.421 \end{pmatrix} \quad b5 = \begin{pmatrix} 12 \\ 36 \\ -33 \\ -48.429 \\ -3.667 \\ 33.632 \end{pmatrix}$$

$$T_5 := \frac{b5_5}{a5_{5,5}} \qquad T_5 = -1.5$$

$$T_4 := \frac{b5_4 - \left(a5_{4,5} T_5\right)}{a5_{4,4}} \qquad T_4 = 3$$

$$T_3 := \frac{b5_3 - \left(a5_{3,5} T_5\right) - \left(a5_{3,4} \cdot T_4\right)}{a5_{3,3}} \qquad T_3 = 6$$

$$T_2 := \frac{b5_2 - \left(a5_{2,5} T_5\right) - \left(a5_{2,4} \cdot T_4\right) - \left(a5_{2,3} \cdot T_3\right)}{a5_{2,2}} \qquad T_2 = 4.5$$

$$T_1 := \frac{b5_1 - \left(a5_{1,5} T_5\right) - \left(a5_{1,4} \cdot T_4\right) - \left(a5_{1,3} \cdot T_3\right) - \left(a5_{1,2} \cdot T_2\right)}{a5_{1,1}} \qquad T_1 = -3$$

$$T_0 := \frac{b5_0 - \left(a5_{0,5} T_5\right) - \left(a5_{0,4} \cdot T_4\right) - \left(a5_{0,3} \cdot T_3\right) - \left(a5_{0,2} \cdot T_2\right) - \left(a5_{0,1} \cdot T_1\right)}{a5_{0,0}} \qquad T_0 = 1.5$$

$$T = \begin{pmatrix} 1.5 \\ -3 \\ 4.5 \\ 6 \\ 3 \\ -1.5 \end{pmatrix}$$

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(c). Matrix inverse method with the aid of Microsoft Excel

A						T	B
2	2	-4	2	6	-2	T1	12
4	-2	2	4	2	-6	T2	60
2	6	-6	-2	4	2	T3	-45
10	4	-2	-2	4	2	T4	-9
-6	-2	4	6	2	6	T5	48
8	6	2	-12	-6	-4	T6	-81

A(INVERSE)					
-0.15141	0.077465	0.042254	0.098592	-0.05282	-0.0493
-0.27465	0.2723	0.406103	-0.10798	0.117371	0.053991
0.165493	-0.01878	-0.13146	-0.00117	0.164319	0.125587
-0.45775	0.342723	0.399061	-0.04108	0.001174	-0.10446
0.545775	-0.26761	-0.37324	0.045775	0.091549	0.102113
-0.07746	-0.07277	-0.00939	0.089202	0.011737	-0.0446

B
12
60
-45
-9
48
-81

T(°C)	
T1	1.5
T2	-3
T3	4.5
T4	6
T5	3
T6	-1.5

K=°C+273

T(K)	
T1	274.5
T2	270
T3	277.5
T4	279
T5	276
T6	271.5

(d). Matrix inverse method with the aid of MathCAD

$$A := \begin{pmatrix} 2 & 2 & -4 & 2 & 6 & -2 \\ 4 & -2 & 2 & 4 & 2 & -6 \\ 2 & 6 & -6 & -2 & 4 & 2 \\ 10 & 4 & -2 & -2 & 4 & 2 \\ -6 & -2 & 4 & 6 & 2 & 6 \\ 8 & 6 & 2 & -12 & -6 & -4 \end{pmatrix} \qquad B := \begin{pmatrix} 12 \\ 60 \\ -45 \\ -9 \\ 48 \\ -81 \end{pmatrix}$$

$$T := A^{-1}B \qquad K := 273 + T$$

$$A^{-1} = \begin{pmatrix} -0.151 & 0.077 & 0.042 & 0.099 & -0.053 & -0.049 \\ -0.275 & 0.272 & 0.406 & -0.108 & 0.117 & 0.054 \\ 0.165 & -0.019 & -0.131 & -1.174 \times 10^{-3} & 0.164 & 0.126 \\ -0.458 & 0.343 & 0.399 & -0.041 & 1.174 \times 10^{-3} & -0.104 \\ 0.546 & -0.268 & -0.373 & 0.046 & 0.092 & 0.102 \\ -0.077 & -0.073 & -9.39 \times 10^{-3} & 0.089 & 0.012 & -0.045 \end{pmatrix}$$

$$K = \begin{pmatrix} 274.5 \\ 270 \\ 277.5 \\ 279 \\ 276 \\ 271.5 \end{pmatrix} \qquad T = \begin{pmatrix} 1.5 \\ -3 \\ 4.5 \\ 6 \\ 3 \\ -1.5 \end{pmatrix}$$