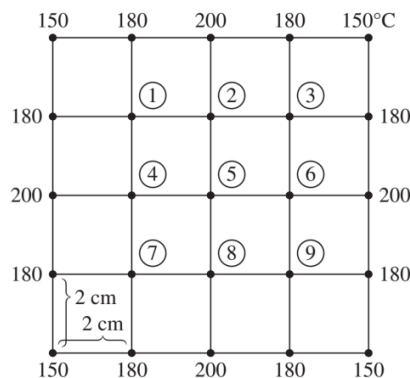


直接法求解过程

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由对称性可知：1, 3, 7, 9 节点、2, 4, 6, 8 节点温度相同

即：

$$T_1 = T_3 = T_7 = T_9 \quad (1)$$

$$T_2 = T_4 = T_6 = T_8 \quad (2)$$

对于节点 1:

$$\begin{aligned} 180^\circ\text{C} + T_4 + 180^\circ\text{C} + T_2 - 4T_1 &= 0 \\ 4T_1 - 2T_2 &= 360^\circ\text{C} \\ T_2 &= 2T_1 - 180^\circ\text{C} \end{aligned} \quad (3)$$

对于节点 2:

$$\begin{aligned} 200^\circ\text{C} + T_5 + T_1 + T_3 - 4T_2 &= 0 \\ 2T_1 + T_5 - 4T_2 &= -200^\circ\text{C} \end{aligned} \quad (4)$$

对于节点 5:

$$T_2 + T_8 + T_4 + T_6 - 4T_5 = 0$$

由(2)式得:

$$\begin{aligned} 4T_2 - 4T_5 &= 0 \\ T_2 &= T_5 \end{aligned} \quad (5)$$

联立(1)~(5)式，解得：

$$\begin{aligned} T_1 &= T_3 = T_7 = T_9 = 185^\circ\text{C} \\ T_2 &= T_4 = T_5 = T_6 = T_8 = 190^\circ\text{C} \end{aligned}$$