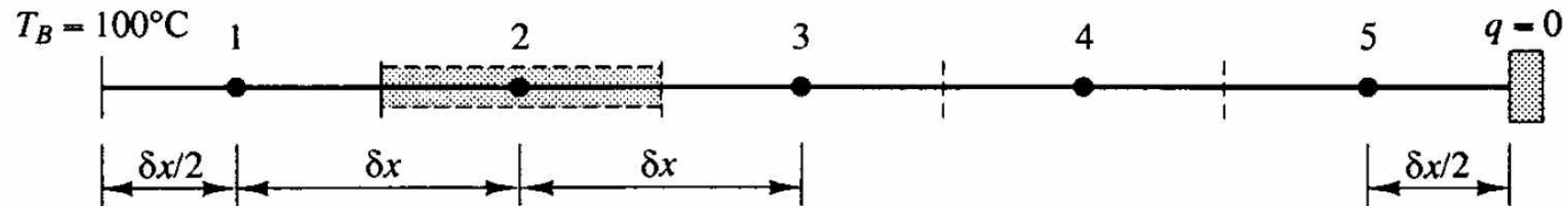# 7.5 Examples

- Example 7.1

Fig. 7.3

$$\begin{bmatrix} 20 & -5 & 0 & 0 & 0 \\ -5 & 15 & -5 & 0 & 0 \\ 0 & -5 & 15 & -5 & 0 \\ 0 & 0 & -5 & 15 & -5 \\ 0 & 0 & 0 & -5 & 10 \end{bmatrix} \begin{bmatrix} \phi_1 \\ \phi_2 \\ \phi_3 \\ \phi_4 \\ \phi_5 \end{bmatrix} = \begin{bmatrix} 1100 \\ 100 \\ 100 \\ 100 \\ 100 \end{bmatrix} \qquad (4.49)$$
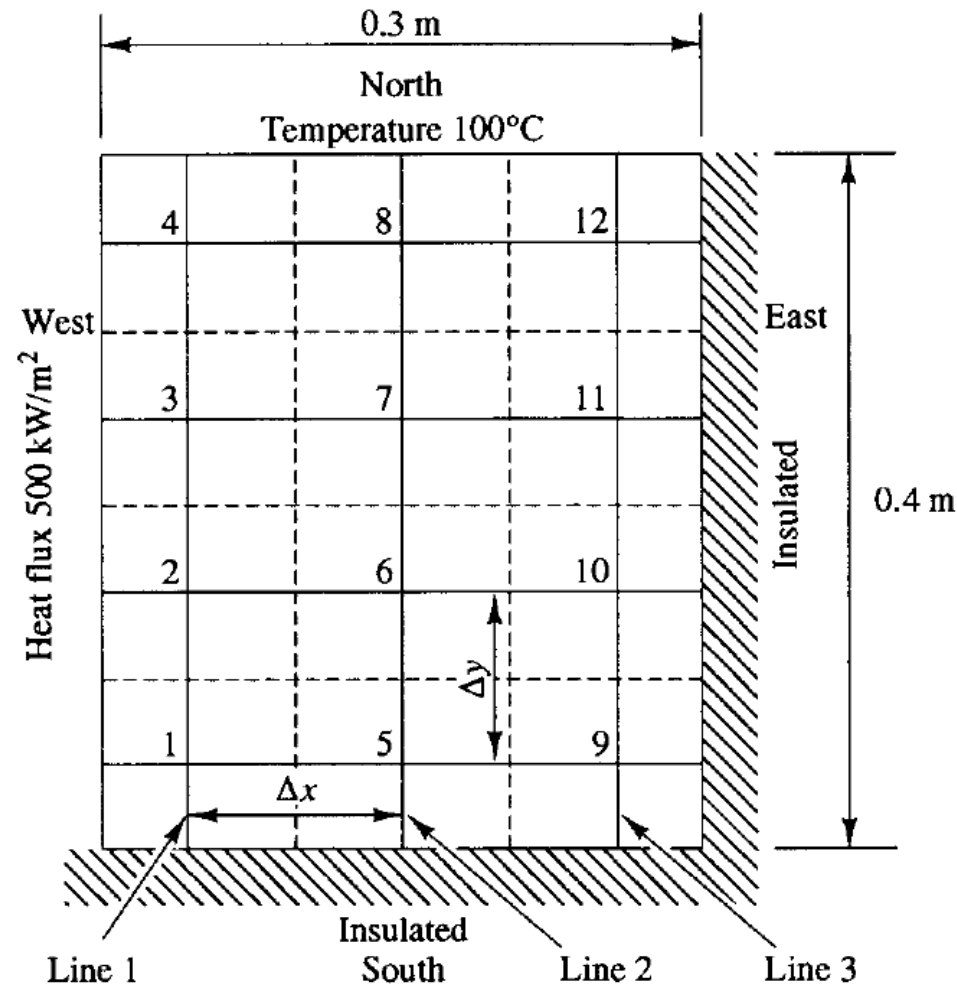
$$-\beta_j \phi_{j-1} + D_j \phi_j - \alpha_j \phi_{j+1} = C_j \qquad (7.2)$$

Table 7.1

Point	β_j	D_j	α_j	C_j	A_j	C'_j
1	0	20	5	1100	0.25	55
2	5	15	5	100	0.3636	27.2737
3	5	15	5	100	0.3793	17.9311
4	5	15	5	100	0.3816	14.4736
5	5	10	0	100	0.00	22.1852

7.5 Examples

- Example 7.2

$$\frac{\partial}{\partial x}\left(k \frac{\partial T}{\partial x} \right) + \frac{\partial}{\partial y}\left(k \frac{\partial T}{\partial y} \right) = 0 \qquad (7.11)$$

$$a_P T_P = a_W T_W + a_E T_E + a_S T_S + a_N T_N \qquad (7.12a)$$