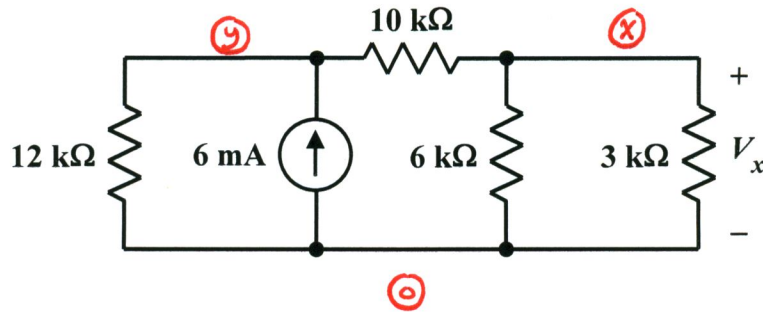


EE 2240
Problem #01

Use the nodal analysis method to determine the value of V_x .



$$\frac{V_y}{12k\Omega} - 6mA + \frac{V_y - V_x}{10k\Omega} = 0 \quad (\text{KCL at node } y)$$

$$\frac{V_x - V_y}{10k\Omega} + \frac{V_x}{6k\Omega} + \frac{V_x}{3k\Omega} = 0 \quad (\text{KCL at node } x)$$

$$\begin{bmatrix} -1/10000 & 11/60000 \\ 18/30000 & -1/10000 \end{bmatrix} \begin{bmatrix} V_x \\ V_y \end{bmatrix} = \begin{bmatrix} 0.006 \\ 0 \end{bmatrix}$$

$$V_x = 6V$$