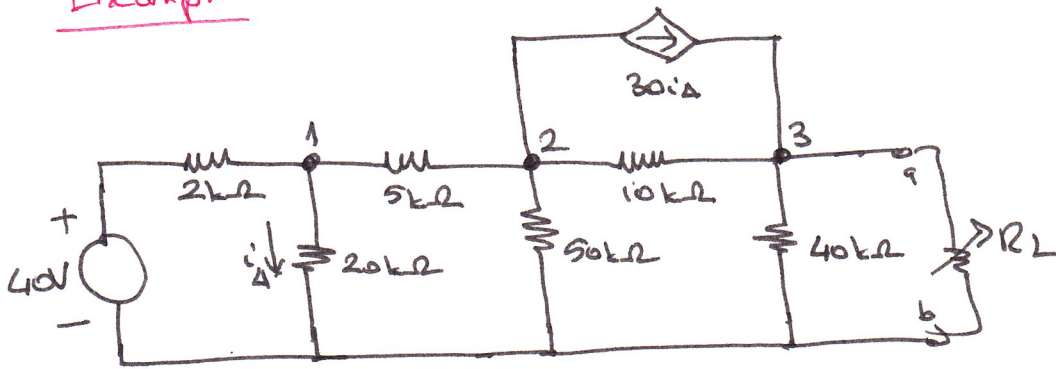


# Example



Find the Thevenin  
Eqn. w.r.t the  
terminals a & b.

$$* \frac{v_1 - 40}{2} + \frac{v_1}{20} + \frac{v_1 - v_2}{5} = 0 \Rightarrow 15v_1 - 4v_2 + 0v_3 = 400 \quad (1)$$

$$* \frac{v_2}{50} + \frac{v_2 - v_1}{5} + \frac{v_2 - v_3}{10} + 30\left(\frac{v_1}{20}\right) = 0 \Rightarrow 130v_1 + 32v_2 - 10v_3 = 0 \quad (2)$$

$$* \frac{v_3}{40} + \frac{v_3 - v_2}{10} - 30\left(\frac{v_1}{20}\right) = 0 \Rightarrow -60v_1 - 4v_2 + 5v_3 = 0 \quad (3)$$

$$v_3 = 280V \quad \text{so that } v_{Th} = 280V$$

$$R_{Th} \quad (2) \quad \frac{v_1}{20} + \frac{v_1 - 40}{2} + \frac{v_1 - v_2}{5} = 0 \quad (1)$$

$$\frac{v_2}{50} + \frac{v_2 - v_1}{5} + \frac{v_2}{10} + 30\left(\frac{v_1}{20}\right) = 0 \quad (2)$$

$$v_1 = 12.8V \quad v_2 = -52V_0$$

$$i_{sc} = 30mA + \frac{v_2}{10k\Omega} = 14mA$$

$$R_{Th} = \frac{V_{Th}}{I_{sc}} = 20k\Omega$$

$$V_{Test} \quad 2.4V \quad R_{Th} = \frac{V_T}{I_T} = 20k\Omega$$