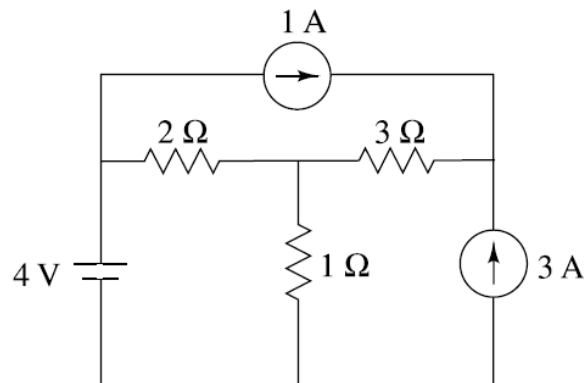


Unit I: Assessment: Q & A (Selected)

Lecture 14

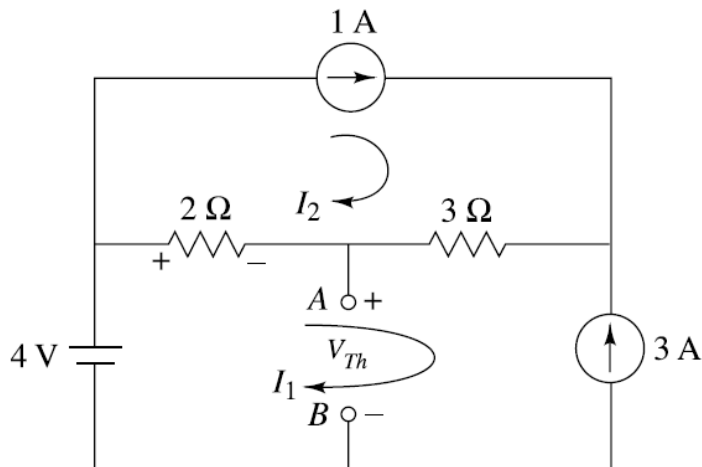
2. Find the current through the $1\ \Omega$ resistor using Thevenin's Theorem.



Solution:

Step I: Calculation of V_{Th}

Removing the $1\text{-}\Omega$ resistor from the network, Writing the current equation for Meshes 1 and 2



Unit I: Assessment: Q & A (Selected)

$$I_1 = -3 \text{ A}$$

$$I_2 = 1 \text{ A}$$

Writing V_{Th} equation,

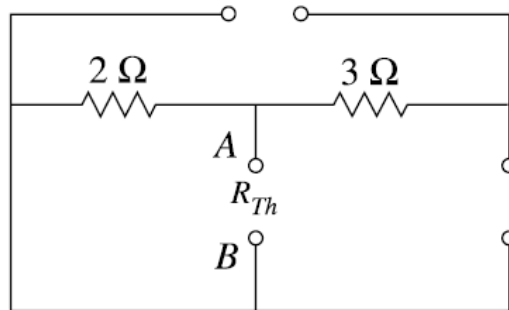
$$4 - 2(I_1 - I_2) - V_{Th} = 0$$

$$V_{Th} = 4 - 2(-3 - 1)$$

$$= 4 - 2(-4) = 12 \text{ V}$$

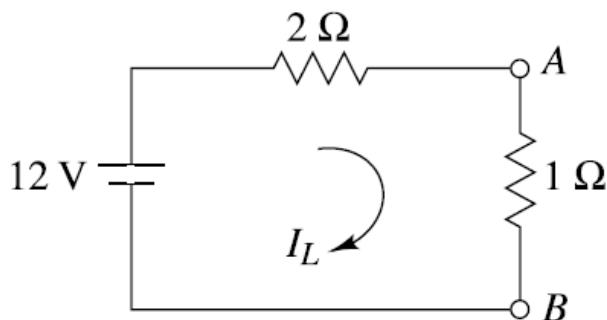
Step II: Calculation of R_{Th}

Replacing the voltage source by a short circuit and the current source by an open circuit



$$R_{th} = 2 \Omega$$

Step III: Calculation of I_L



$$I_L = \frac{12}{2+1} = 4 \text{ A}$$