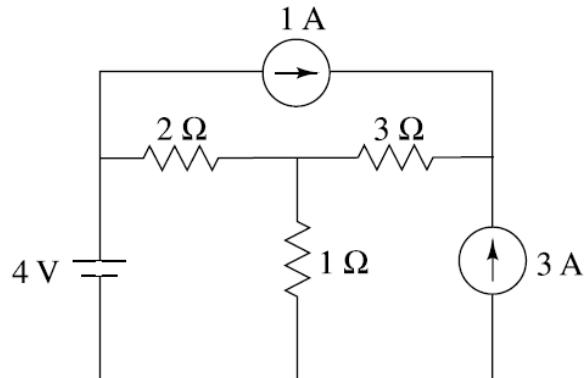


Lecture 14

2. Find the current through the 1Ω resistor using Thevenin's Theorem.

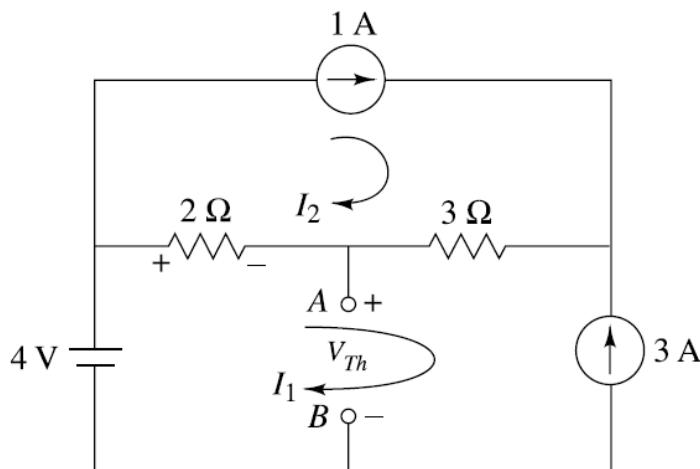


Solvability

Solution:

Step I: Calculation of V_{Th}

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



Unit I: Assessment: Q & A (Selected)

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

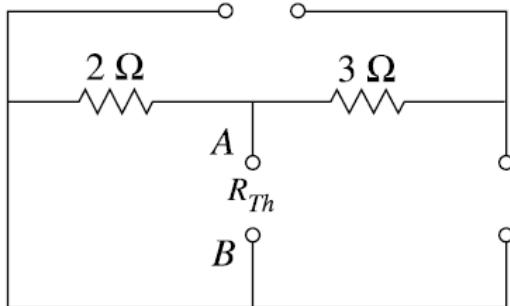
$$I_2 = 1 \text{ A}$$

Writing V_{Th} equation,

$$\begin{aligned} 4 - 2(I_1 - I_2) - V_{Th} &= 0 \\ V_{Th} &= 4 - 2(-3 - 1) \\ &= 4 - 2(-4) = 12 \text{ V} \end{aligned}$$

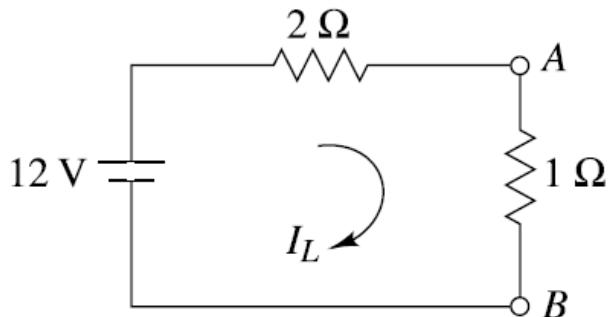
Step II: Calculation of R_{Th}

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



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