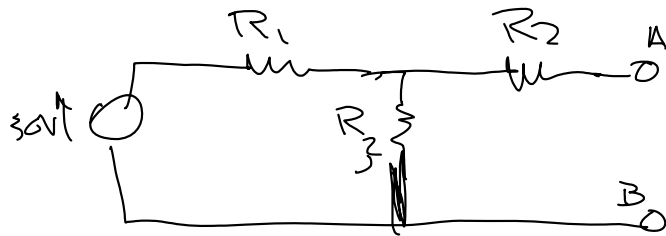
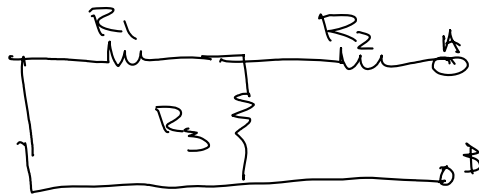


Method 2



A) Remove load & Short out Voltage source



B) calculate R_{eq} between A & B

$$R_{Th} = R_{AB} = R_2 + R_1 // R_3 = R_2 + \frac{R_1 R_3}{R_1 + R_3}$$

$$R_{Th} = 10k\Omega + \frac{100k\Omega^2}{20k\Omega} = 15k\Omega$$

C) Put the Voltage source back in



D) Calculate $V_{AB} = V_{OC}$ from the voltage source

Here current does not flow through R_2 (nowhere to go!)

Voltage divider R_1 & R_3 and Voltage at R_1 - R_3 Node is the Voltage at A

$$V_{AB} = V_{OC} = 30V \cdot \frac{R_3}{R_1 + R_3}$$

$$= 30V \cdot \frac{10k\Omega}{20k\Omega}$$

$$= 15V$$

e) we have V_{OC} and R_{Th} .

$$V_{OC} / R_{Th} = I_{SC}$$

$$I_{SC} = \frac{15V}{15k\Omega} = 1mA$$

Note in D)

we could have calculated



$I_{SC} + I_3 = I$
and solved for I_{SC}
then $V_{OC} = I_{SC} \cdot R_{Th}$