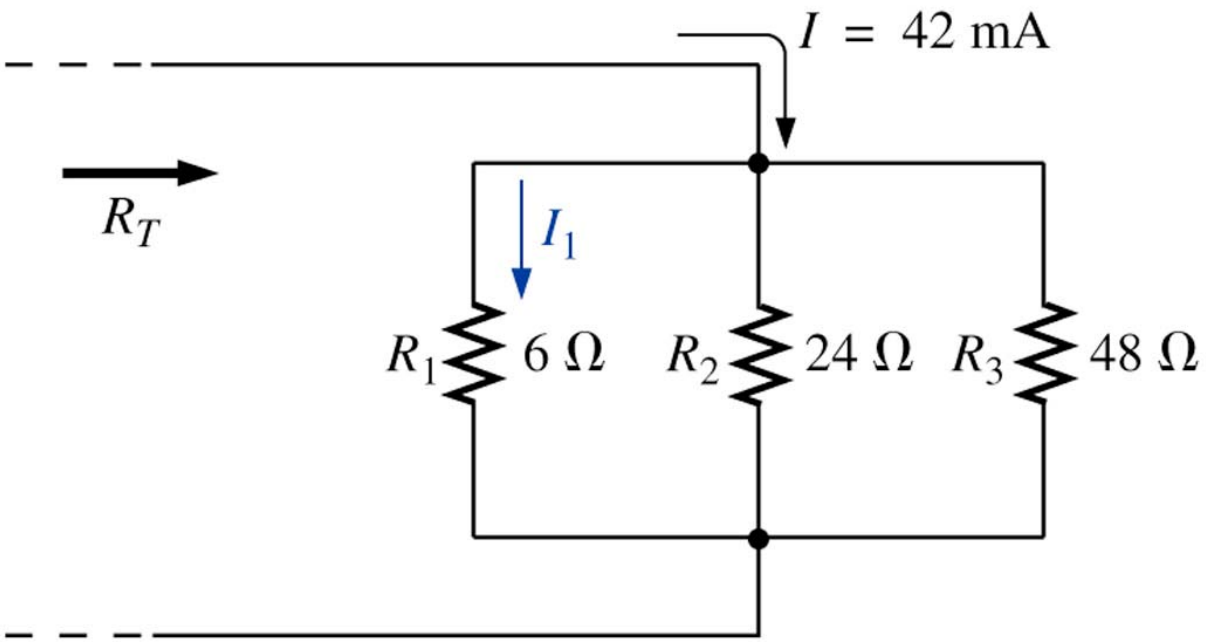
Today's Material

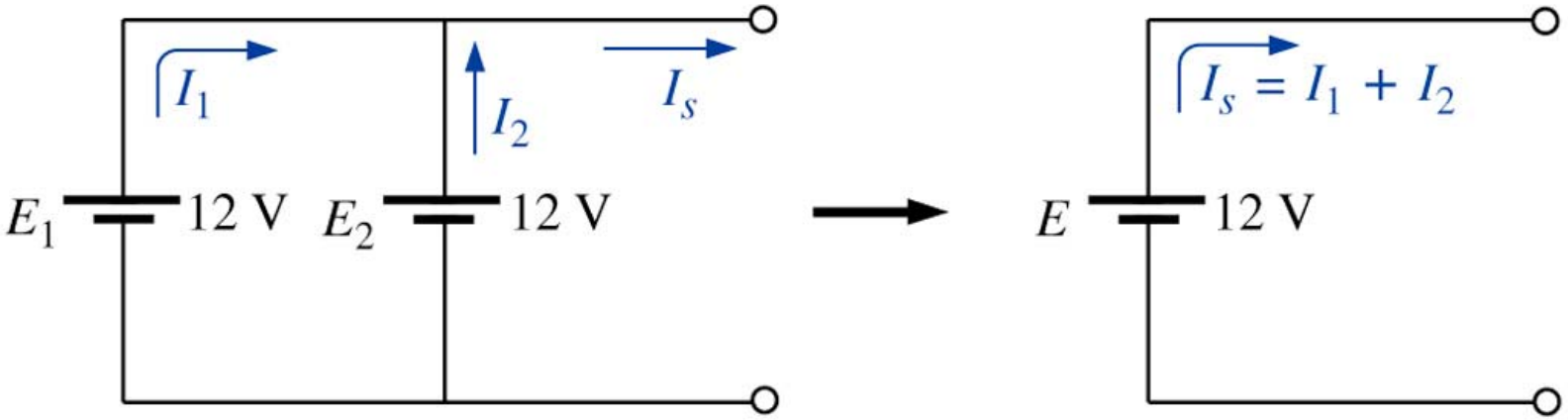
- Current Divider
  - Breakout #1
- Parallel Voltage Sources
  - Ideal and realistic examples
- Open and Short-Circuits
  - Description and examples
  - Breakout #2
  - Breakout #3
- Voltmeter Loading
  - Description and example
- Application – Automotive Electrical System (partial)

Breakout #1

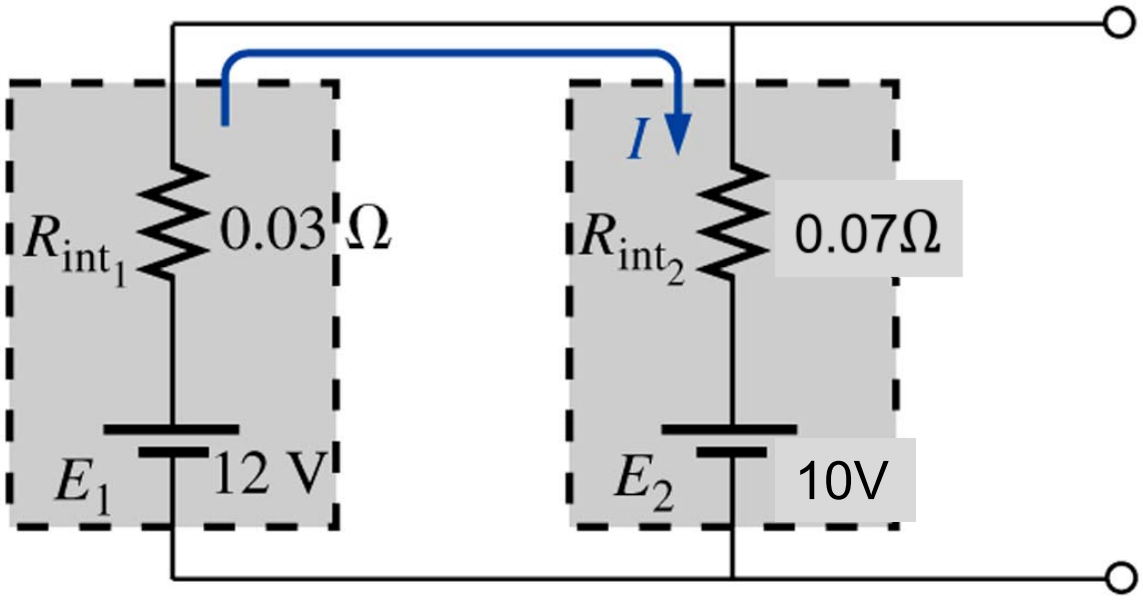
- Find R_T, I_1, and P_{R3}



Parallel Voltage Sources (ideal)



Parallel Voltage Sources (practical)



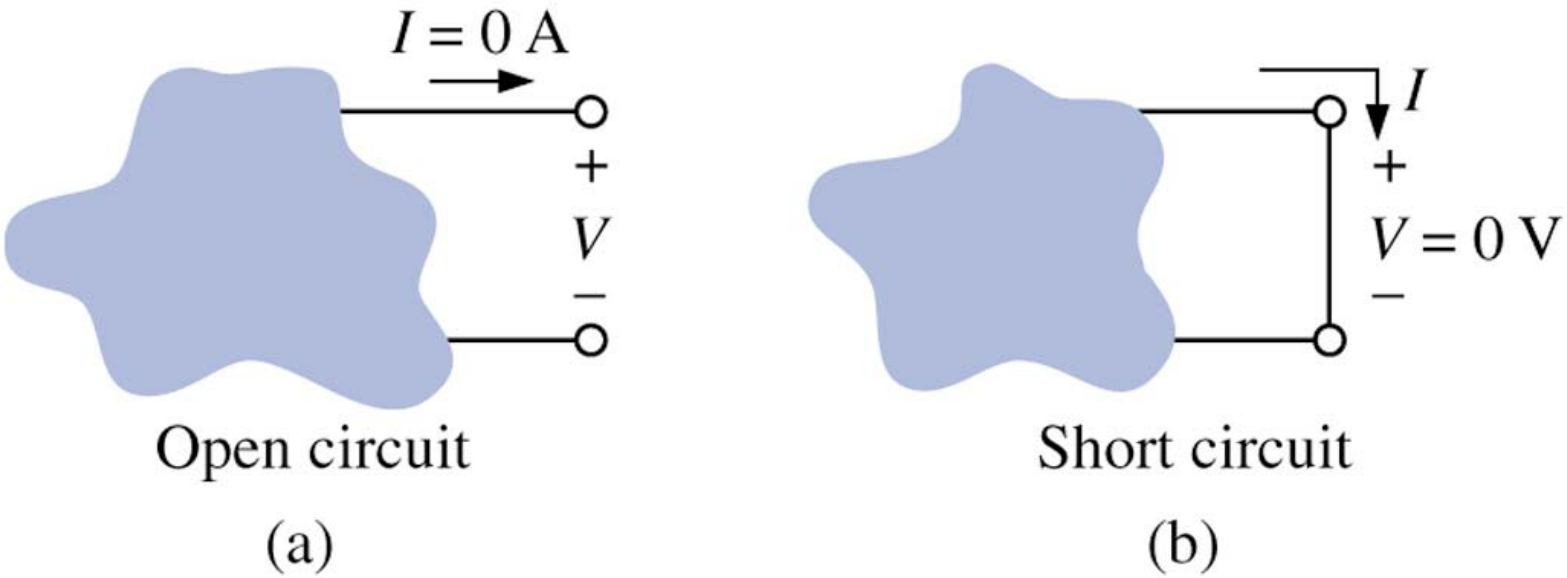
$$I = \frac{2V}{0.1\Omega} = 20\ \text{A}$$

- Find I

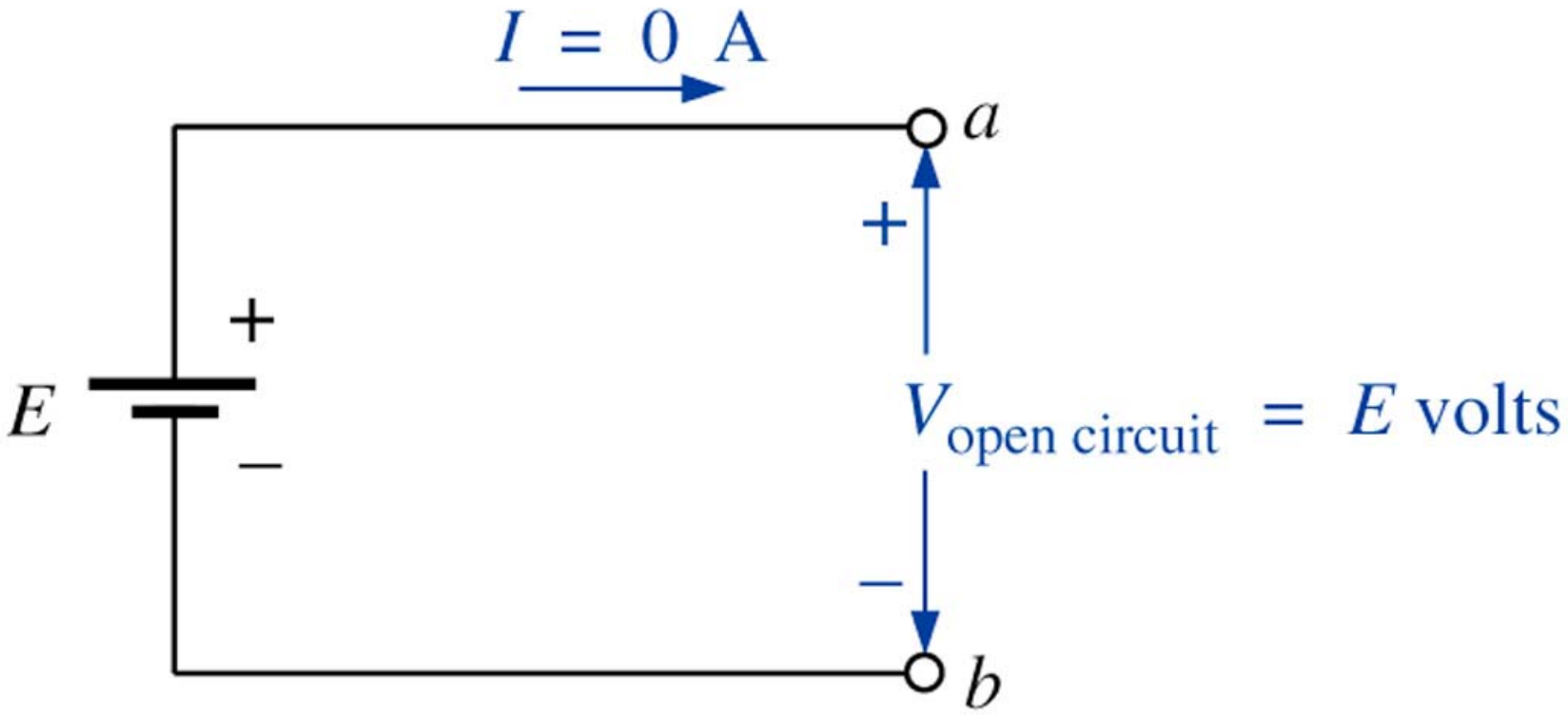
$$KVL: 12V - 0.03\Omega(I) - 0.07\Omega(I) - 10V = 0$$

$$2V = 0.1\Omega(I)$$

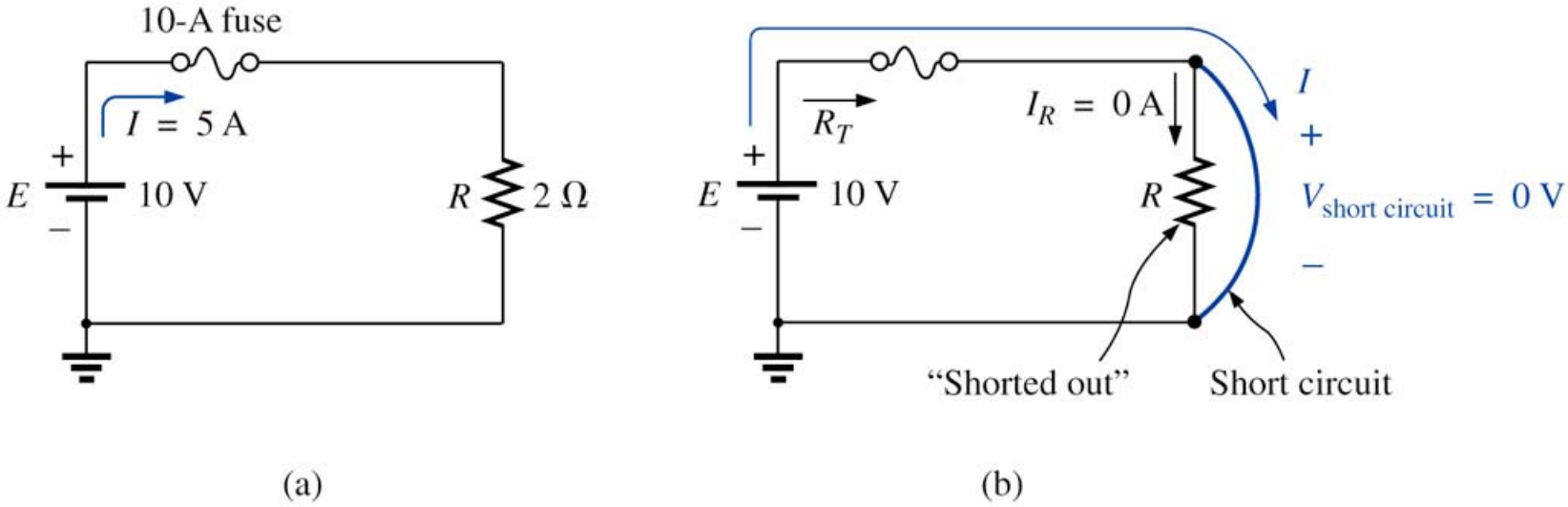
Open and Short-Circuits



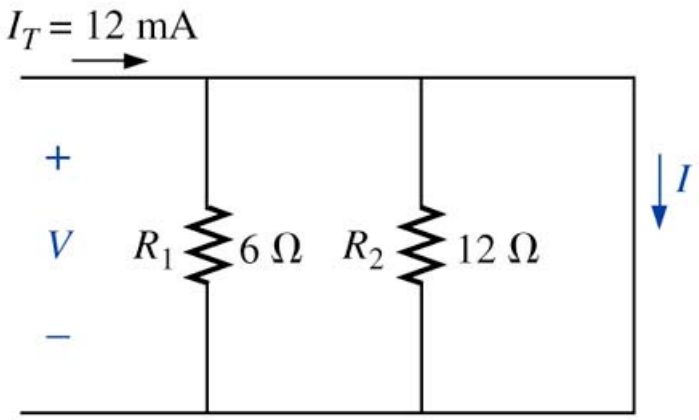
Open and Short-Circuits



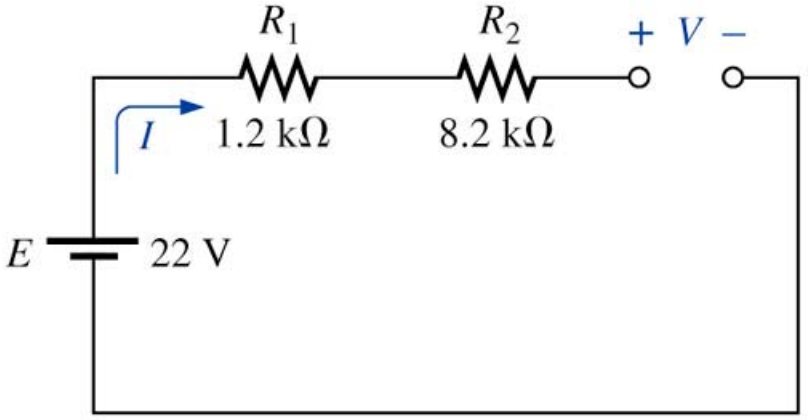
Open and Short-Circuits



Open and Short-Circuits

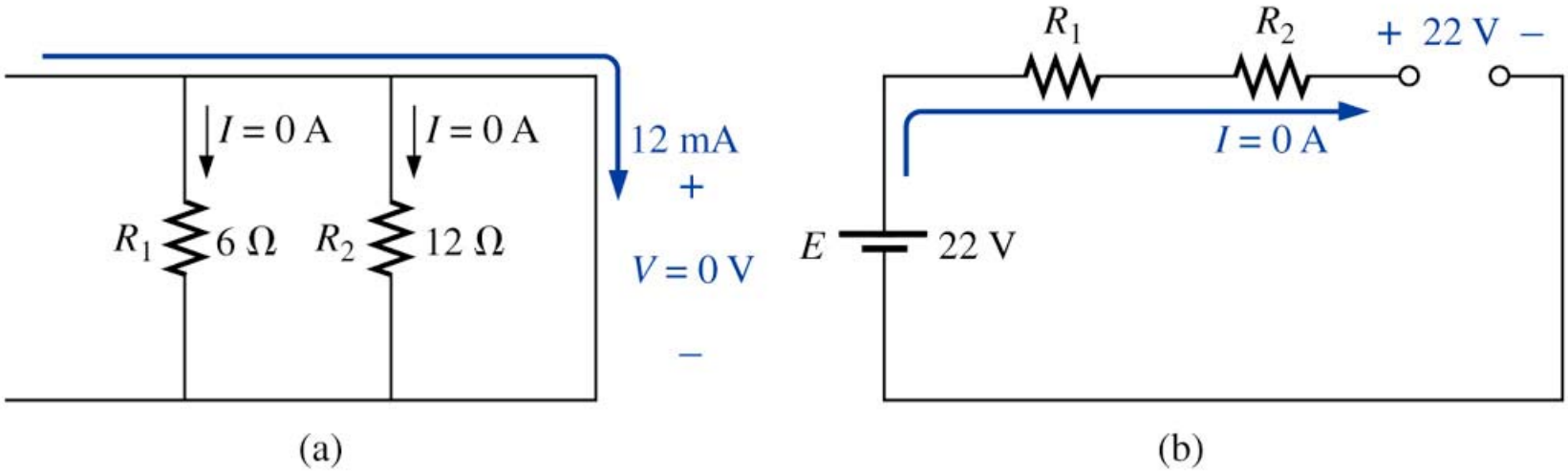


(a)



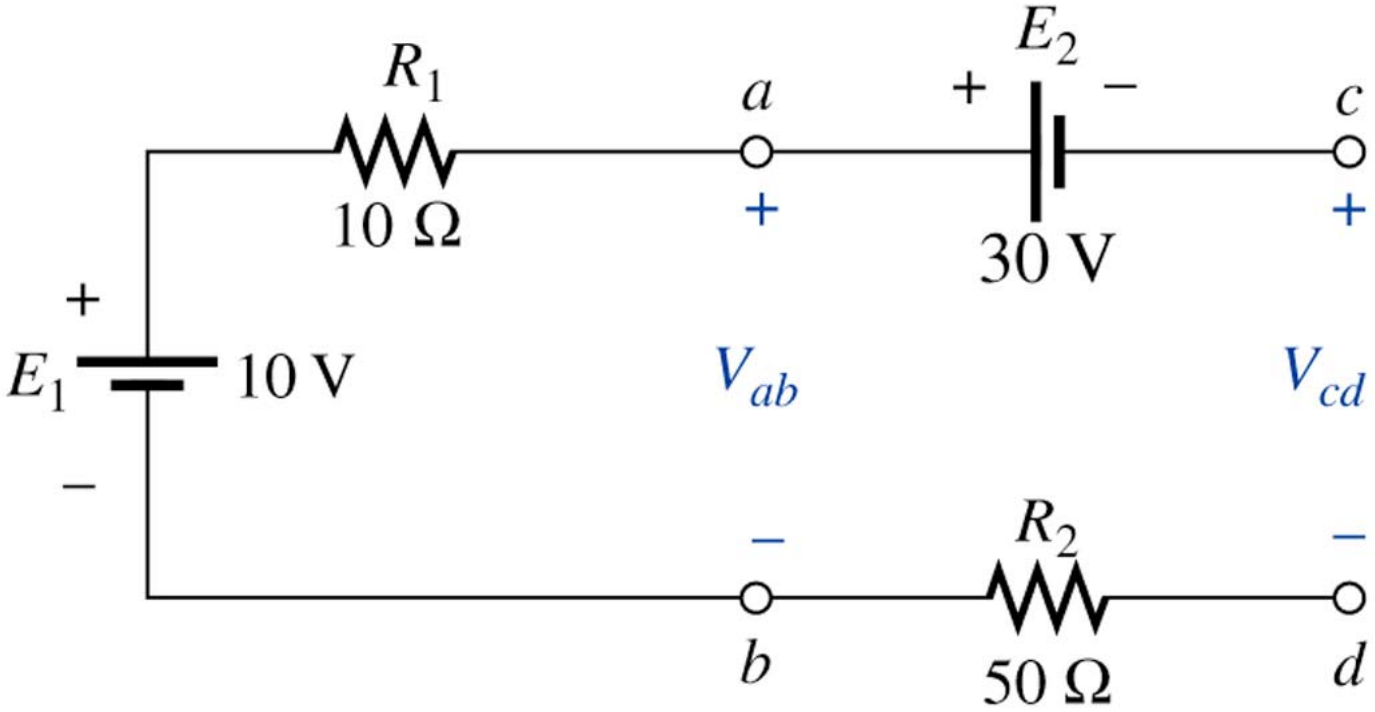
(b)

Open and Short-Circuits



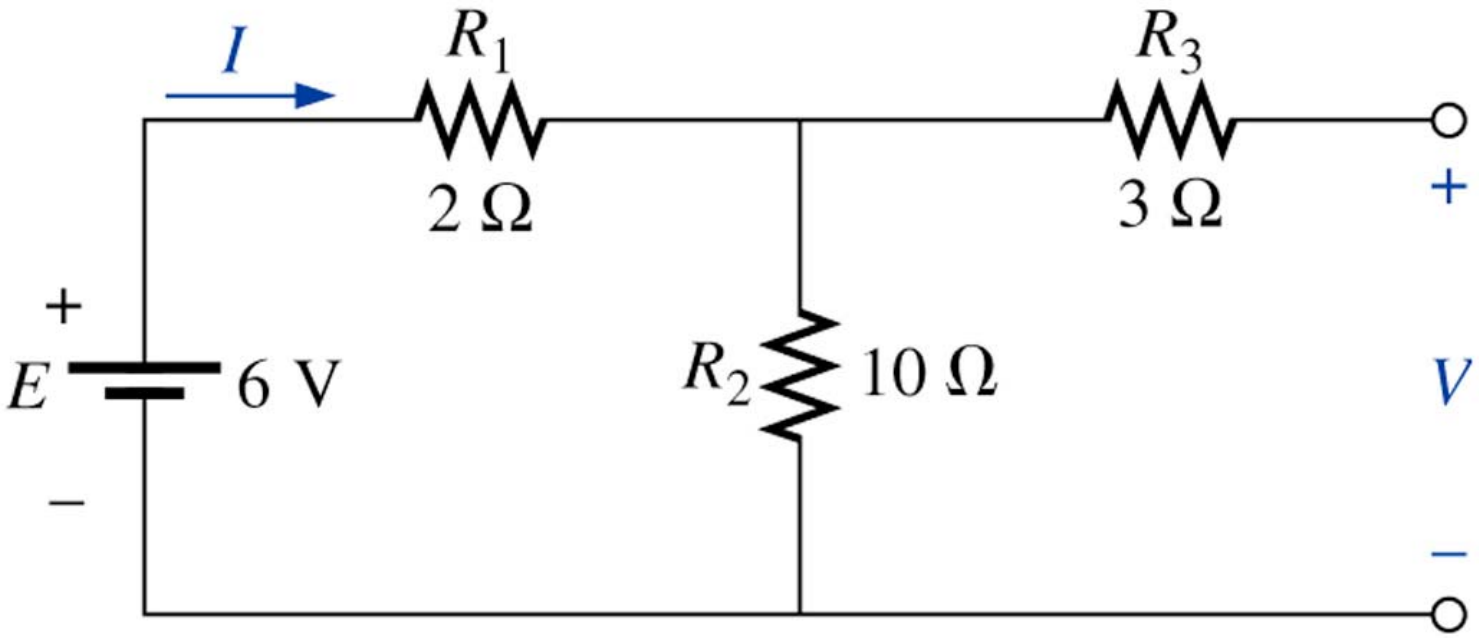
Breakout #2

- Find Vab and Vcd

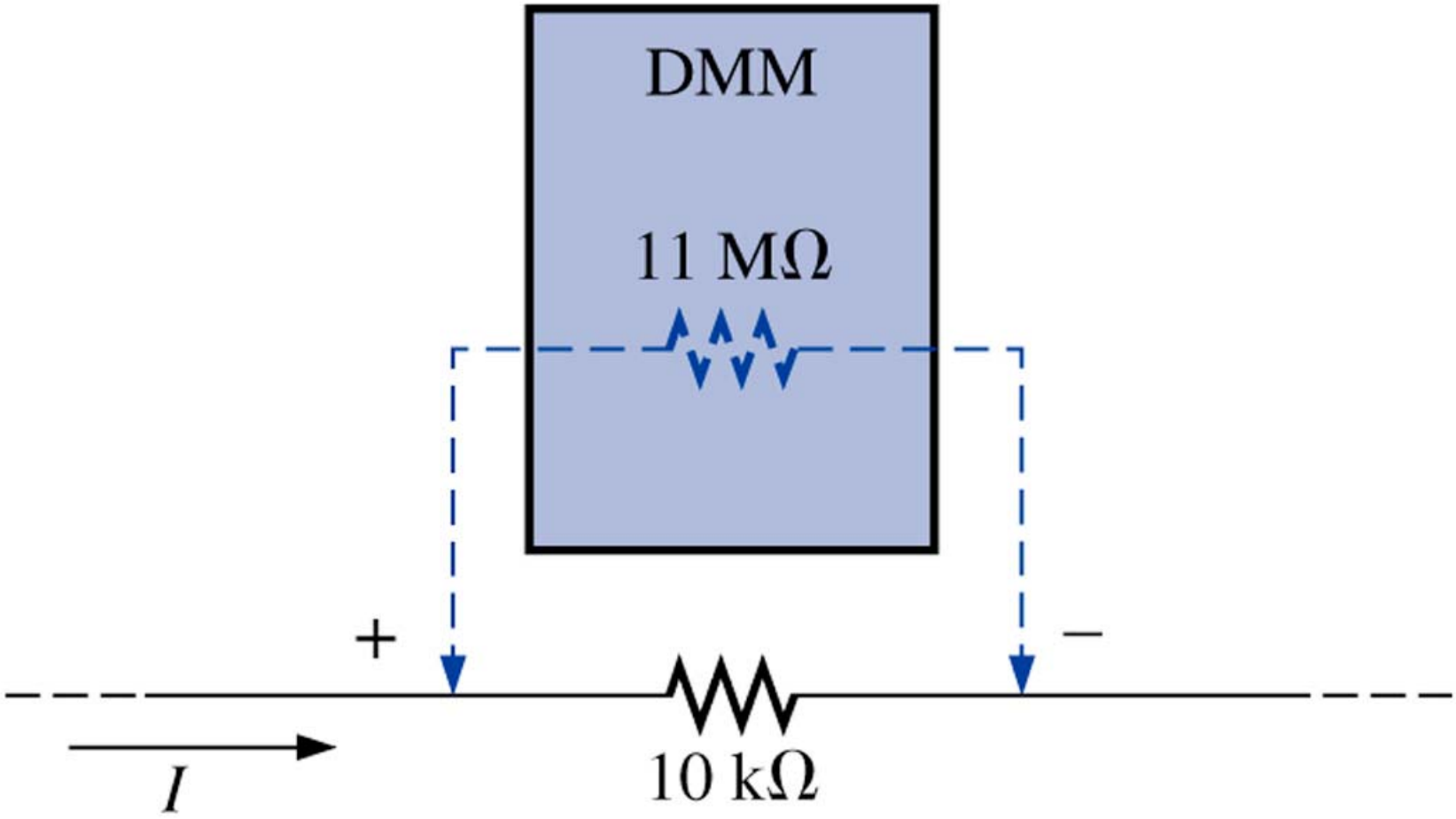


Breakout #3

- Find I and V

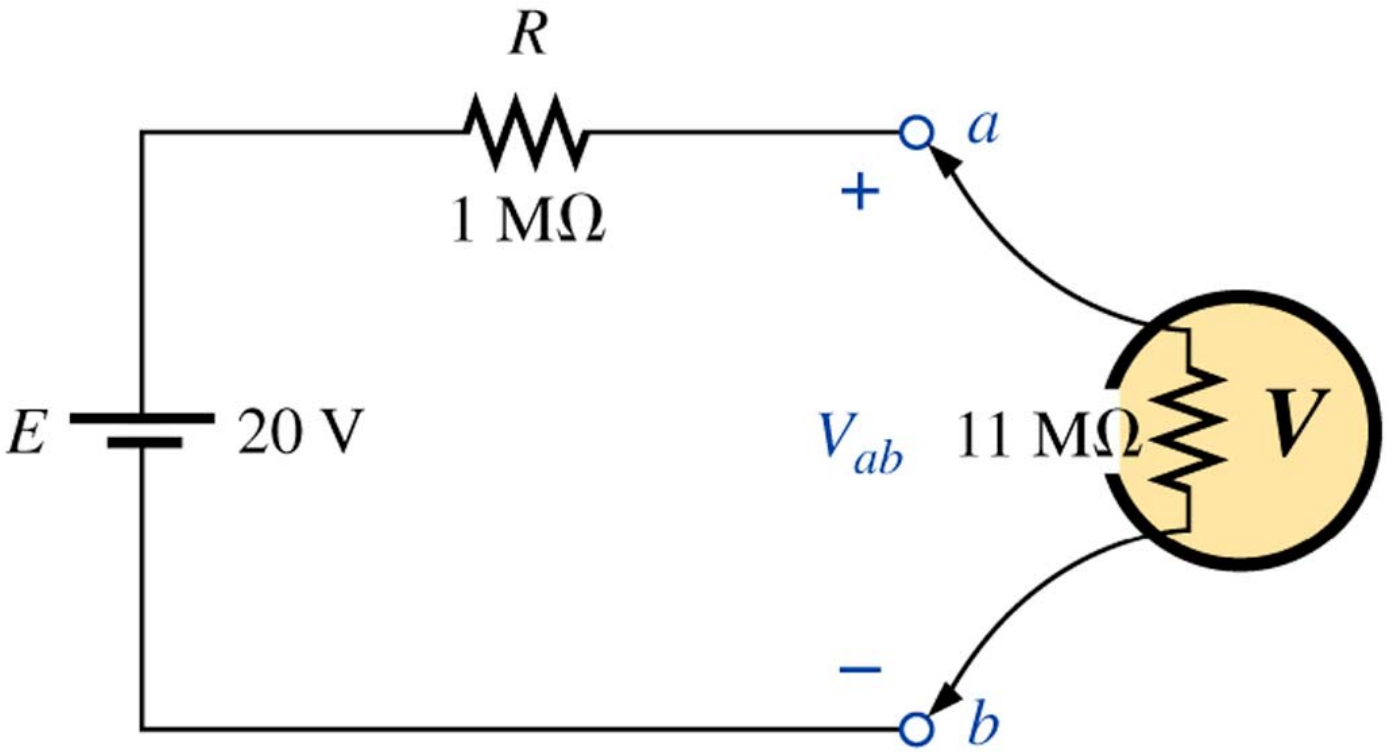


Voltmeter Loading



Example – Voltmeter Loading

- Find V_{ab} w/DMM connected



Automotive Electrical System (partial)