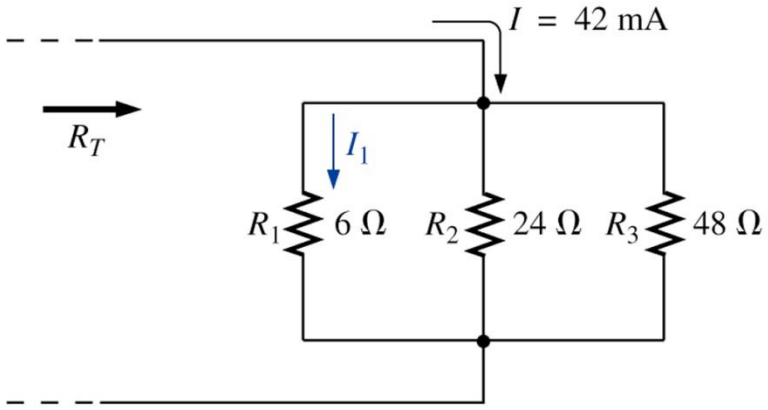
Breakout #1

- Find R_T, I_1, and P_{R3}

$$I_1 = I_T \frac{R_T}{R_1}$$



$$I_1 = 42\,\text{mA}\,\frac{4.36\,\Omega}{6\,\Omega} = 30.55\,\text{mA}$$

$$P_{R3} = \frac{V_{R3}^{\,2}}{R_3}$$

$$V_{R3} = 42\,\text{mA} \cdot 4.36\,\Omega = 183.3\,\text{mV}$$

$$R_T = \frac{1}{\frac{1}{6\,\Omega} + \frac{1}{24\,\Omega} + \frac{1}{48\,\Omega}}$$

$$= 4.36\,\Omega$$

$$\therefore P_{R3} = \frac{(183.3\,\text{mV})^2}{48\,\Omega} = 699.8\,\mu\text{W}$$

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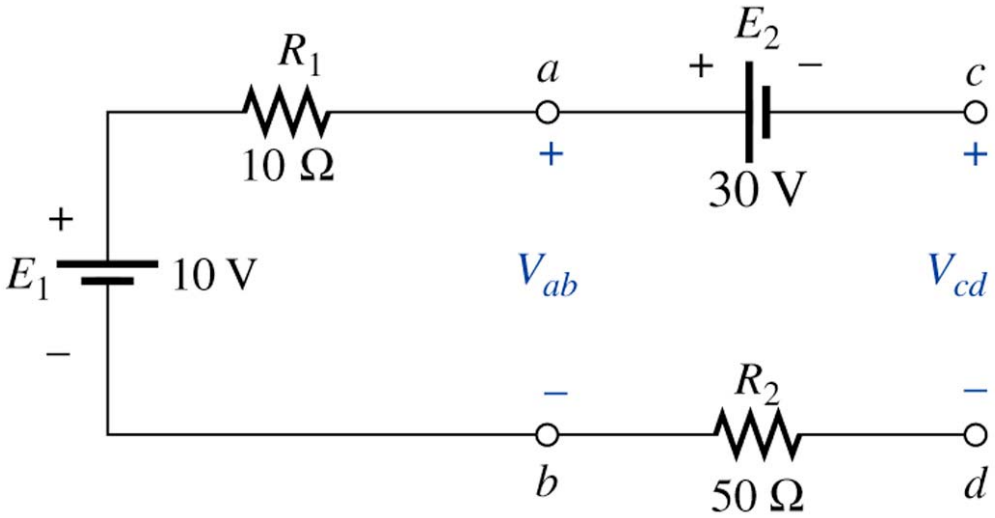
Breakout #2

- Find Vab and Vcd



$$V_{cd} = 10\,V - 30\,V$$
$$= -20\,V$$

$$V_{ab} = 10\,V$$

$$KVL: V_{ab} - 30\,V - V_{cd} + 0 = 0$$

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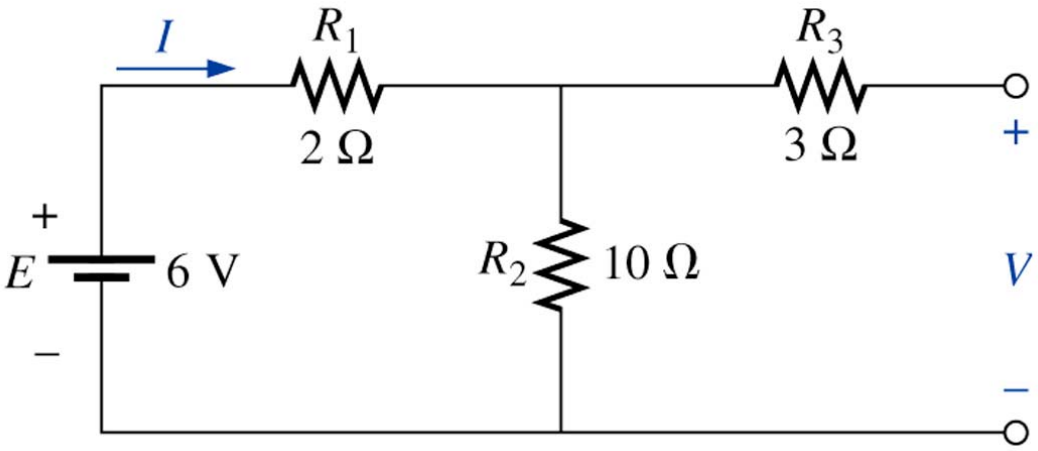
Breakout #3

- Find I and V



$$I = \frac{6\,V}{12\,\Omega} = 0.5\,A$$

$$V = V_{R2} = 0.5\,A \cdot 10\,\Omega$$

$$= 5\,V$$

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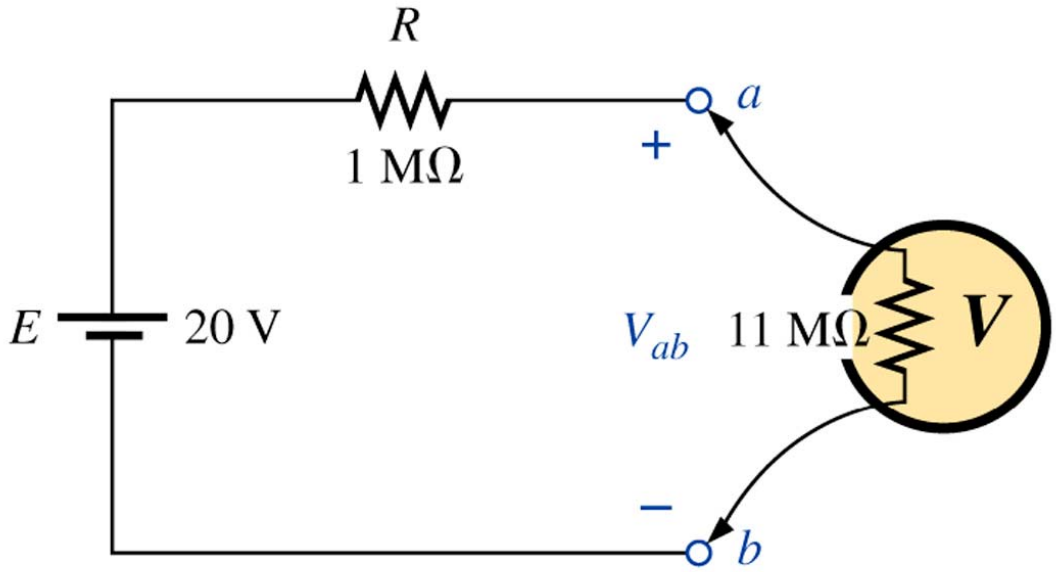
Example

- Find Vab w/DMM connected



$$V = 20\,V \cdot \frac{11\,M\Omega}{12\,M\Omega} = 18.33\,V$$

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