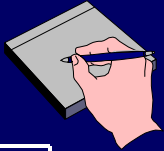
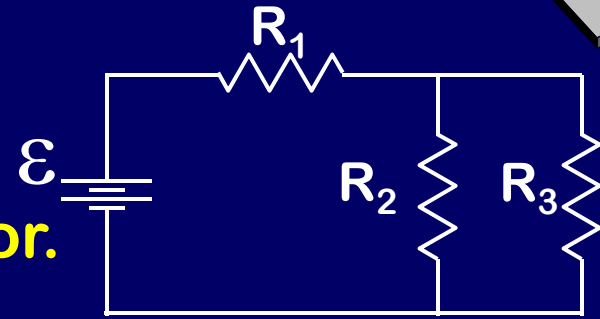


Example

Try it!

Calculate current through each resistor.

$$R_1 = 10 \Omega, R_2 = 20 \Omega, R_3 = 30 \Omega, \mathcal{E} = 44 \text{ V}$$

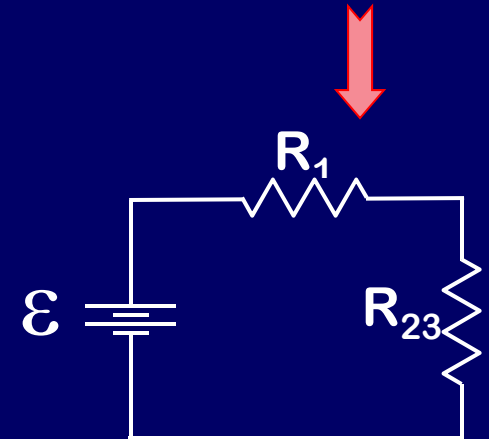


Simplify: R_2 and R_3 are in parallel

$$1/R_{23} = 1/R_2 + 1/R_3 \quad : R_{23} = 12 \Omega$$

$$V_{23} = V_2 = V_3$$

$$I_{23} = I_2 + I_3$$

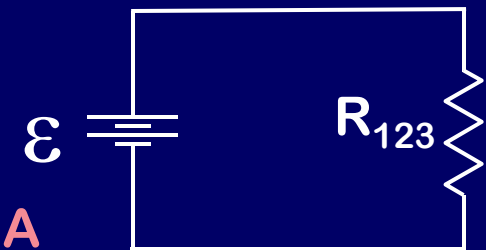


Simplify: R_1 and R_{23} are in series

$$R_{123} = R_1 + R_{23} \quad : R_{123} = 22 \Omega$$

$$V_{123} = V_1 + V_{23} = \mathcal{E}$$

$$I_{123} = I_1 = I_{23} = I_{\text{battery}} \quad : I_{123} = 44 \text{ V} / 22 \Omega = 2 \text{ A}$$



Power delivered by battery?

$$P = IV = 2 \times 44 = 88 \text{ W}$$