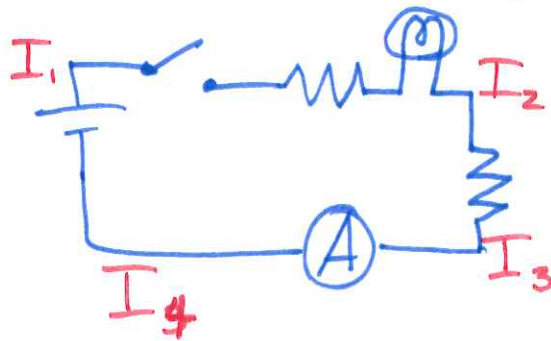


Unit: Circuits

Topic: Rules for Series Circuits 3/20

1. Same current (I in Amps) through the entire circuit



$$I_1 = I_2 = I_3 \dots$$

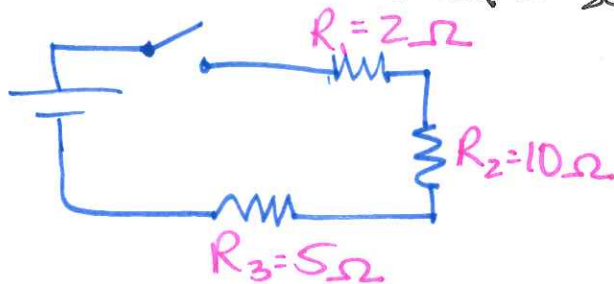
~~NOT~~ I ↓ after  $R_1$  (slows current)

True Resistance of each component is applied to whole circuit

otherwise ex: beaver dam or stoplight = build up or store or bottleneck

don't happen

2. Total Resistance = sum of individual R

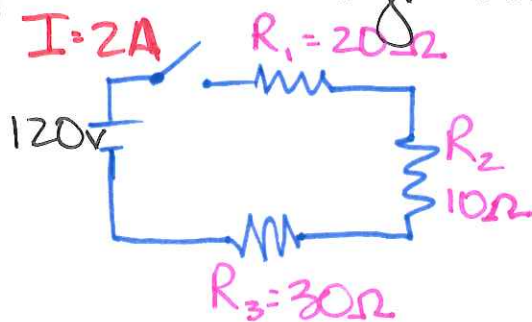


$$R_T = R_1 + R_2 + R_3 \dots$$

$$R_T = 2 + 10 + 5 = 17 \Omega$$

↑ applied to whole circuit

3. Total Voltage = sum individual voltage "drop"



$$V_T = V_1 + V_2 + V_3 \dots$$

- voltage drop
- resulting V of each component
- $V = IR$

$$V @ R_1 \text{ or } V_{R_1} \rightarrow V_1 = I R_1 = 2(20) = 40V @ R_1$$

$$V_2 = I R_2 = 2(10) = 20V$$

$$V_3 = I R_3 = 2(30) = 60V = \frac{60V}{120V} = \text{battery}$$