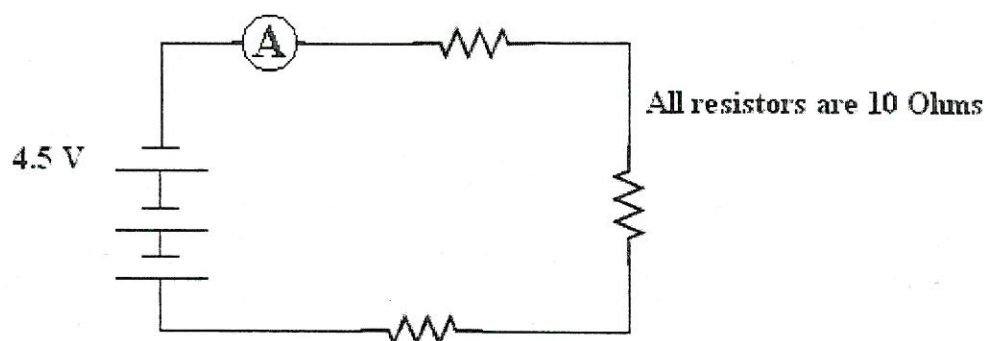


Science 9: Practice with Series Circuits

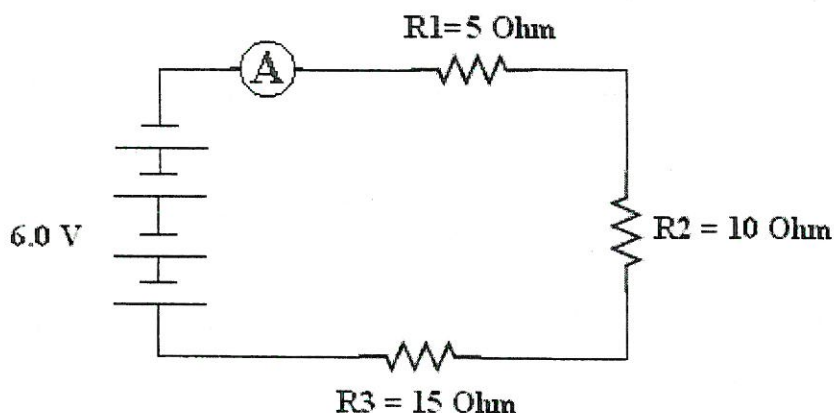
Name: KFY.

Date: _____

1. Calculate the current in the following circuit. $I_T = \frac{V_T}{R_T} = \frac{4.5V}{30\Omega} = 0.15 \text{ Amp}$
2. Calculate the voltage drop across each resistor. 1.5V 1.5V 1.5V
3. Calculate the total resistance (R_t). 30 Ω



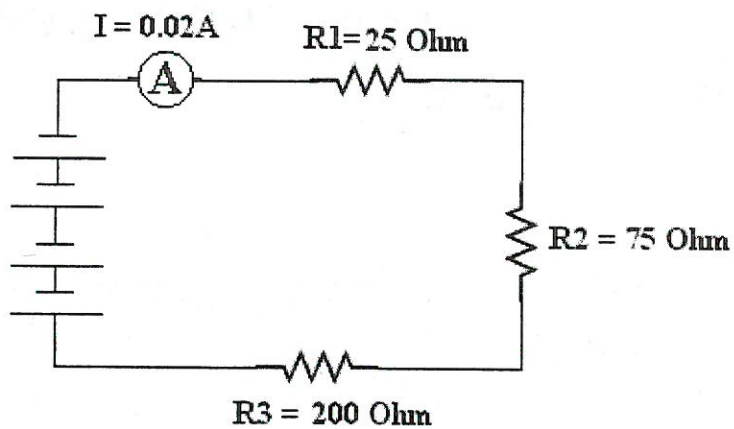
4. Calculate the current in the circuit below. $I_T = \frac{V_T}{R_T} = \frac{6.0V}{30\Omega} = 0.2 \text{ Amp}$
5. Calculate the voltage drop across each resistor. 1.0V 2.0V 3.0V
6. Calculate the total resistance (R_t). 30 Ω



7. Calculate the total resistance (R_t). 300Ω

8. Calculate the total voltage (V_t). $= I_t \cdot R_t = (0.02)(300) = 6.0V$

9. Calculate the voltage drop across each resistor. $0.5V$ $1.5V$ $4.0V$



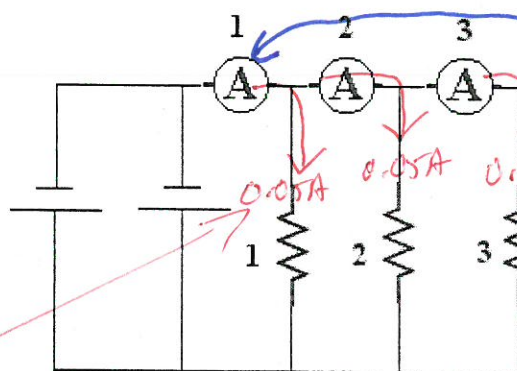
1. Calculate the total voltage (V_t) for the circuit below.

2. Calculate the resistance for each resistor.

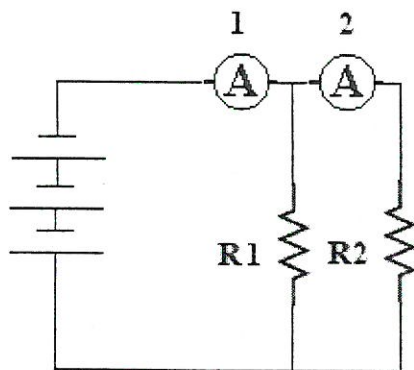
$$V_i = I_i \cdot R_i \quad \therefore R_i = \frac{V_i}{I_i}$$

$$V_t = I_t \cdot R_t = (0.15 \text{ Amps}) (30) = 4.5 \text{ V}$$

~~Assume all resistors are the same~~

 $R_t = 30 \text{ Ohms}$ $A_1 = 0.15 \text{ A}$ $A_2 = 0.10 \text{ A}$ $A_3 = 0.05 \text{ A}$
 $I_t = 0.15 \text{ Amps}$

Since equal currents, the resistors are the same

3. Calculate V_t for the circuit below if each cell is 1.5V.4.5V4. Calculate total current (I_t). $= \frac{V_t}{R_t} = \frac{4.5 \text{ V}}{20 \Omega} = 0.225 \text{ Amps}$ 5. Determine the resistance in R_1 and R_2 .40Ω40Ω6. Determine the current at A_1 and A_2 .0.225 Amps0.1125 Amps. $R_t = 20 \text{ Ohms}$

Assume all resistors have equal resistance

$\therefore$ half the current for each path.

$$R_i = \frac{V}{I} = \frac{4.5 \text{ V}}{0.1125 \text{ Amps}}$$

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