

OHM'S LAW WORKSHEET

Answer the questions below!

State Ohm's law?

For any resistor the current is directly proportional to the voltage across it.

A circuit contains 12-volt battery connected to a light bulb having resistance of 5 ohms. Find the current.

$$I = V/R = 12 \text{ V} / 5 \text{ ohms} = 2.4 \text{ A}$$

Two batteries, one of 3 V and other one of 12 V are connected in series to a resistor of 1 kohm. Find the current that will flow through the resistors.

$$15 \text{ mA} \mid \text{Solution: } I = V/R = (3 \text{ V} + 12 \text{ V}) / 1 \text{ kohms} = 15 \text{ V} / 1 \text{ kohm} = 15 \text{ mA}$$

Certain resistance has 10 Amps current through it, when a 50 V source is applied. Find the value of resistance.

$$R = V / I = 50\text{V} / 10 \text{ A} = 5 \text{ ohms}$$

A 5V, 3 mA led connected to a 12 V source requires a series resistor of how many ohms?

$$R = V/I = (V_1 - V_2) / I = 12 \text{ V} - 5\text{V} / 3 \text{ mA} = 7\text{V} / 3 \text{ mA} = 2.33 \text{ kohm}$$

Find current supplied by 10 V source to two parallel resistors of 6 ohms?

$$I = V / R * (\text{eq}) = 10 / (6 \parallel 6) = 10 \text{ V} / 3 \text{ ohms} = 3.33 \text{ A}$$

Parallel resistance formula $1 / R * (\text{eq}) = 1 / R * 1 + 1 / R * 2$ $R(\text{eq}) = 3 \text{ ohms}$