V = voltage (units: volts, V) I = current (units: amps, A) R = resistance (units: ohms, Ω)

Physics **Name _____**
Simple Circuits & Unknown Resistors **Date _____**

Post-lab Questions –

1. What is the equation for Ohm's Law?

2. How can you determine the resistance of the resistor by using the equation of the straight lines produced on each of your three graphs?

3. Use your **experimental values for resistance** along with the equation below to calculate the percent error for each resistor. Please show your work.

$$\textbf{Percent Error} = \frac{\textbf{experimental value – actual (accepted) value}}{\textbf{actual (accepted) value}} \times 100\ \%$$

Ohm's Law Practice Problems

1. Draw a circuit diagram to include a 60.0-V battery, an ammeter, and a resistance of 12.5 Ω in series. Indicate the ammeter reading (calculate the current) and the direction of the current.

2. Draw a series-circuit diagram showing a 4.5-V battery, a resistor, and an ammeter reading 0.090 A. Label the size of the resistor (calculate the resistance). Choose a direction for the conventional current and indicate the positive terminal of the battery.

3. There is a current of 3.00 A through a resistor when it is connected to a 12.0-V battery. What is the resistance of the resistor?

4. A small lamp is designed to draw a current of 3.00×10^2 mA in a 6.00-V circuit. What is the resistance of the lamp? (1000 mA = 1 A)

5. An electric toaster has a resistance of 12.0 Ω when hot. What will be the current though it when it is connected to 125 V?

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