Name: Period: Date:

Ohm's Law Calculations

In your own words, state the relationship between voltage, resistance and current in a circuit.

What happens to the current in a circuit if a 1.5-volt battery is removed and is replaced by a 9-volt battery?

How much current is in a circuit that includes a 9-volt battery and a bulb with a resistance of 3 ohms?

A circuit contains two 1.5 volt batteries and a bulb with a resistance of 3 ohms. Calculate the current.

What is the voltage of a circuit with 15 amps of current and toaster with 8 ohms of resistance?

A light bulb has a resistance of 4 ohms and a current of 2 A. What is the voltage across the bulb?

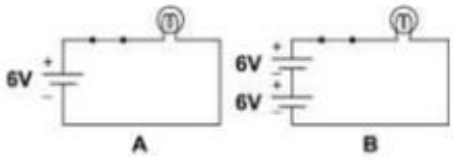
How many ohms of resistance must be present in a circuit that has 120 volts and a current of 10 amps?

You have a large flashlight that takes 4 D-cell batteries. If the current in the flashlight is 2 amps, what is the resistance of the light bulb? (Hint: A D-cell battery has 1.5 volts.)

Use the diagram to the right to answer the following problems.

a. What is the total voltage in each circuit?

b. How much current would be measured in each circuit if the light bulb has a resistance of 6 ohms?



c. Is the bulb brighter in circuit A or circuit B? Why?

Name: Period: Date:

A voltage of 80 volts is applied to a resistor and the current going through is found to be 200 mA.

a) Convert the current to Amperes. Answer _____A

b) Calculate the **resistance** of the resistor.

Answer _____Ω

A kettle operates from a 120 V outlet. It has a heating element with a resistance of 8.0 Ω. Calculate the **current** going through the element.

Answer _____A

A certain electric stove has a 16 Ω heating element. (The resistance is 16 Ω.) The current going through the element is 15 A. Calculate the **voltage** across the element.

Answer _____v

In a small mp3 player, the current going through a 1800 Ω resistor is 1.67 mA.

a) Convert the current into Amperes.

Answer _____A

b) Calculate the **voltage** across the resistor.

Answer _____v