Resistance

NAME:

Complete the following assignment:

1. What is resistance?

2. What is a resistor?

3. Would a resistor be a poor conductor or a good conductor?

4. What is the unit and symbol for resistance?

5. When reading colour bands of a carbon resistor, how do you know which end to start reading from?

6. Describe the purpose of each band on a carbon resistor:

a) 1st band

b) 2nd band

c) 3rd band

d) 4th band

7. A resistor has a ohm-rating of 100 Ω. What would the possible range of resistance if the resistor had a:

a) Gold band: _____ to _____

b) Silver band: _____ to _____

c) No 4th band: _____ to _____

8. How would current change in a circuit where a 1000 Ω resistor is replaced by a 10 Ω resistor?

9. Determine the resistance of a resistor with the following bands:

a) blue, green, brown: _____ ± _____

b) yellow, white, black, gold: _____ ± _____

c) red, yellow, orange, silver: _____ ± _____

10. The following appliances all run on a 120 V circuit. Based on the current draw of each appliance, arrange the appliances from greatest to least resistance:

Appliance	Kettle	T.V.	Toaster	Microwave	Light Bulb
Current Draw (A)	12	1.7	8.3	5	0.8

Highest Resistance

(1) _____

(2) _____

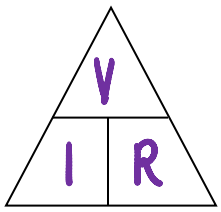
(3) _____

(4) _____

(5) _____

Lowest Resistance

OHM'S LAW PROBLEMS



Complete the following questions. Show all work.

1. What current will flow through a wire of 2 Ω resistance, connected to a 6 V automobile battery?

2. What voltage is necessary to cause a current of 2 A through a wire of 40 Ω resistance?

3. A wire whose resistance is 3 Ω is connected to the poles of a storage battery and the voltage between the ends of the wire is 6 V. What is the current in the wire?

4. The resistance of an electric iron is 20 Ω and the current through it is 6 A. What is the voltage of the heater coil in the iron?

5. The current through a 60 watt lamp is 0.5 A and the voltage between the ends of the filament wire is 120 V. What is the resistance of the filament in the lamp?

6. If the current through the filament of an automobile's tail-light is 3 A and the resistance of the filament is 2 Ω, what is the voltage between the ends of the filaments?

7. What is the current through a 20 Ω resistor with a 6V potential across it?

8. What is the potential difference (voltage) across a 25 Ω resistor if the current flowing through it is 25 A?

9. What is the resistance of a circuit in which a 100 V battery produces a 12 A current?

10. A carbon resistor permits 0.3 mA current to run through it when the potential difference across it is 5000 V. What is the resistance?

11. What is the voltage drop (voltage at a particular point) across a 15 000 Ω resistor if the current through it is 0.0025 A?

12. How much current will run through a 25 MΩ resistor with 10 000 volts across it?