

Ohm's Law Questions and Problems

- 1) What is current, potential difference and resistance in an electrical system? What are the units for each of these?
- 2) How does wetness affect the resistance of your body?
- 3) What is the difference between AC and DC current? Where do you normally find AC? DC?
- 4) Calculate the current in a toaster that has a heating element of 14 ohms when connected to a 120 Volt outlet.
- 5) Calculate the current in the coiled heating element of a 240 Volt stove. The resistance of the element is 60 ohms.
- 6) Electric socks have a 90 ohm heating element that is powered by a 9 volt battery. How much current is passing through the socks?
- 7) Calculate the resistance of a filament in a lightbulb that carries .4 A when 3 volts is placed on the system.
- 8) What is the resistance of an electric frying pan that draws 12 Amps of current when connected to a 120 Volt circuit?
- 9) How much current is drawn by a lamp that has a resistance of 100 ohms when it is connected to a 50 volt circuit?
- 10) If the resistance of your dry skin is 100,000 ohms what would be the current in your body when you touched the terminals of a 9 volt battery?
- 11) If you licked your finger (cover them with salt water) and the resistance in your skin was now 200 ohms what would be the current if you placed your fingers on a 9 volt battery?
- 12) Which is more harmful: current or voltage?
- 13) How much current is in a circuit that includes a 9-Volt battery and a bulb with a resistance of 3 ohms?

- 14) How much current is in a circuit that includes a 9-Volt battery and a bulb with a resistance of 12 ohms?
- 15) A circuit contains a 1.5 volt battery and a bulb with a resistance of 3 ohms. What is the current?
- 16) What is the voltage of a circuit with 15 amps of current and toaster with 8 ohms of resistance?
- 17) A light bulb has a resistance of 4 ohms and a current of 2 A. What is the voltage across the bulb?
- 18) How much voltage would be necessary to generate 10 amps of current in a circuit that has 5 ohms of resistance?
- 19) How many ohms of resistance must be present in a circuit that has 120 volts and a current of 10 amps?
- 20) An alarm clock draws 0.5 A of current when connected to a 120 volt circuit. Calculate its resistance.
- 21) 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.)
- 22) In your own words, state the relationship between resistance and current in a circuit.
- 23) In your own words, state the relationship between voltage and current in a circuit.