**Electricity and Ohm’s Law Handout**

Problem #1

A 110 volt wall outlet supplies power to a strobe light with a resistance of 2200 ohms. How much current is flowing through the strobe light?

Problem #2

A CD player with a resistance of 40 ohms has a current of 0.1 amps flowing through it. Sketch the circuit diagram and calculate how many volts supply the CD player.

Problem #3

A 120-volt power source supplies a lamp with a resistance of 192 ohms. What is the current flow of the circuit?

Problem #4

What is the resistance of the circuit conductors when the conductor voltage drop is 3 volts and the current flowing through the conductors is 100 amperes?

Problem #5

A night-light with a resistance of 2 ohms has a current of 15 amps flowing through it. Calculate how many volts supply the night-light.

Problem #6

A 250-V power source supplies a lamp with a resistance of 5 ohms. What is the current flow of the circuit?

Problem #7

What is the resistance of the circuit conductors when the conductor voltage drop is 100 volts and the current flowing through the conductors is .01 amperes?

**Quiz for Assessment: Ohm’s Law**

Define the following:

1. Write the main equation of Ohm’s law:

2. voltage

3. current

4. amps

5. resistance

6. A nine-volt battery supplies power to a cordless radio with a resistance of 27 ohms. How much current is flowing through the radio? Round to the nearest hundredth.

7. A tv remote control with a resistance of 10 ohms has a current of .2 amps flowing through it. How many volts supply the CD player?

8. What is the resistance of a 100 volt battery with a current of 5 amps flowing through the circuit?

9. A child’s ride-on toy with a resistance of 100 ohms has a current of 10 amps flowing through it. How many volts supply the ride-on toy?

10. A 100 volt battery supplies power to a cordless flashlight with a resistance of 20 ohms. How much current is flowing through the flashlight?

11. What is the resistance of a treadmill when the wall outlet voltage is 250 and the current flowing is 50 amps?

**Quiz: Ohm’s Law: Answer Key**

Define the following:

1. The equation of Ohm’s law: E=I x R

2. voltage- the difference in electrical potential between two points in a circuit; it’s measured in volts and represented by E.

3. current-what flows on a wire or conductor like water flowing down a river; it’s measured in amps and represented by I.

4. amps-current is measured in amperes or amps.

5. resistance- determines how much current will flow through a component; measured in ohms.

6. A nine volt battery supplies power to a cordless radio with a resistance of 27 ohms. How much current is flowing through the radio? Round to the nearest hundredth.

I=E/R

I=9/27

**I=.33 amps**

7. A tv remote control with a resistance of 10 ohms has a current of .2 amps flowing through it. How many volts supply the CD player?

E=I x R

E=.2 amps x 10 ohms

**E=2 volts**

8. What is the resistance of a 100 volt battery with a current of 5 amps flowing through the circuit?

R=E/I

R=100 volts / 5 amps

**R=20 ohms**

9. A kids ride-on toy with a resistance of 100 ohms has a current of 10 amps flowing through it. How many volts supply the ride-on toy?

E=I x R

E= 10 amps x 100 ohms

**E= 1,000 volts**

10. A 100 volt battery supplies power to a cordless flashlight with a resistance of 20 ohms. How much current is flowing through the flashlight?

I=E/R

I=100 volt / 20 ohms

**I=5 amps**

11. What is the resistance of a treadmill when the wall outlet voltage is 250 and the current flowing is 25 amps?

R=E/I

R=250 volts / 25 amps

**R=10 ohms**