May 27, 2011

1) Check HW #1-12 Ohms Law Worksheet.
2) Ohms Law cont

Test Next Friday

Warm-Up

1. How much resistance does a line with a voltage of 400 volts and a current of 100 amps have?

$$R = \frac{V}{I} = \frac{400V}{100A} = 4\,\Omega$$

1. What is the voltage in a circuit that has a current of 2.4A and a resistance of 4.0 Ω ?

V = ?
I = 2.4A
V = 4.0 Ω

V= I x R
V = 2.4A x 4.0 Ω
V = 9.6 volt

V=9.6 V

2. A circuit has a resistance of 12 Ω and draws a current of 6.0A what is the potential difference in the circuit?

(voltage)

R = 12 Ω
I = 6.0 A
V = ?

V = I x R
V = 6.0A x 12 Ω
V = 72 volts

V=72 V

3. A walkman uses a current of 2.0A and has an internal resistance of 3.0 Ω, how many 1.5 V batteries are required?

I = 2.0A
R = 3.0 Ω
V = ?

V = I x R
V = 2.0 A x 3.0 Ω
V = 6.0 volts

You would need four 1.5 volt batteries to have 6 volts in your circuit

4. A TV set uses a current of 12A and has a resistance of 10. Ω, what is the potential difference?

(voltage)

V = ?
I = 12A
R = 10. Ω

V = I X R
V = 12A x 10. Ω
V = 120 volts

5. A circuit has a potential difference of 20.V and has a resistance of 4.5 Ω, how much current will the circuit use?

V = 20.V
R = 4.5 Ω
I = ?

I = V / R
I = 20.V / 4.5 Ω
I = 4.4 A

6. A circuit has an internal resistance of 8.0 Ω and uses a potential difference of 12V what is the current in the circuit?

R = 8.0 Ω
V = 12V
I = ?

I = V /R
I = 12V / 8.0 Ω
I = 1.5 A

7. A toaster has a resistance of 60. Ω and is plugged into a 120V power supply, what is the current in the toaster?

R = 60. Ω
V = 120V
I = ?

I = V/R
I = 120V / 60. Ω
I = 2.0A

8. A circuit has a potential difference of 20.V and draws a current of 4.2A, what is the resistance in the circuit?

V = 20.V
I = 4.2A
R = ?

R = V /I
R = 20.V / 4.2A
R = 4.8 Ω

R = 4.8 ohms

9. A circuit has a potential difference of 60.V and a current of 15A, what is the resistance in the circuit?

V = 60.V
I = 15A
R = ?

R = V / I
R = 60.V / 15A
R = 4.0 Ω

10. A stove uses a power source of 240V and draws a current of 5.0 A, what is the resistance in the stove?

V = 240V
I = 5.0A
R = ?

R = V/I
R = 240V / 5.0A
R = 48 Ω

11. A dryer has a resistance of 800. Ω and draws a current of 0.30A what is the potential difference? (voltage)

R = 800. Ω
I = 0.30 A
V = ?

V = I x R
V = 0.30 A x 800. Ω
V = 240 volts

12. A radio has a power source of 6.0V and operates with a current of 0.40 A what is the resistance in the circuit?

R = V/ I
R = 6.0V / 0.40A
R = 15Ω

Complete:

Ohm's Law Practice WS #1-18