



National Aeronautics and  
Space Administration

Glenn Research Center

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Educational Product

Teachers Grades 9-12

# OHM'S LAW

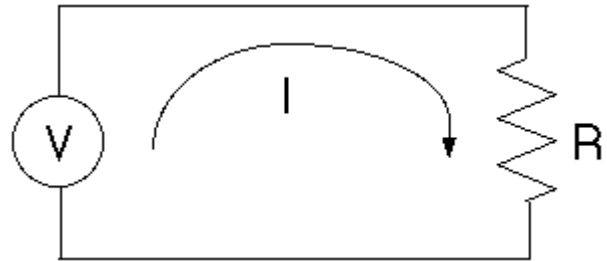
$$V = I \times R$$

Where:

V = [Voltage](#)

I = [Current](#)

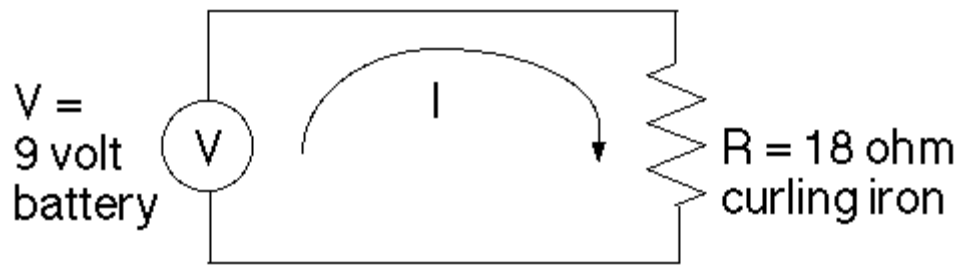
R = [Resistance](#)



## Example Problem:

A nine volt battery supplies power to a cordless curling iron with a resistance of 18 ohms. How much current is flowing through the curling iron?

Sketch:



**Solution:**

$$V = I \times R$$

1.) Since V(Voltage) and R(Resistance) are known, solve for I(Current) by dividing both sides of the equation by R.

$$\frac{V}{R} = \frac{I \times R}{R}$$

2.) The R's on the right hand side of the equation cancel.

$$\frac{V}{R} = \frac{I \times \cancel{R}}{\cancel{R}}$$

3.) I is then left in terms of V and R.

$$I = \frac{V}{R}$$

4.) Substitute in the values for V(Voltage) and R(Resistance).

$$I = \frac{9}{18}$$

5.) Solve for I(Current).

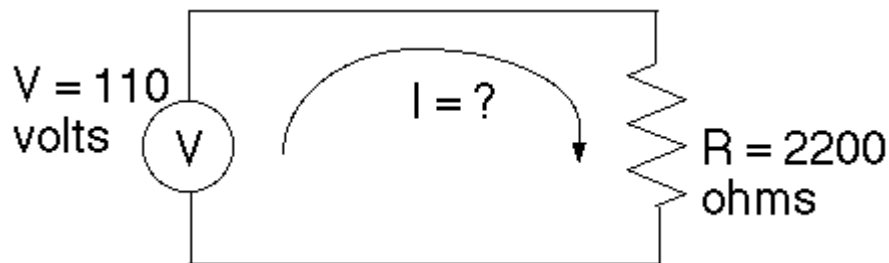
$$I = 0.5 \text{ Amps}$$

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## 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?

Sketch:



Choose your answer below

1. [0.5 amps](#)
  2. [2.0 amps](#)
  3. [0.05 amps](#)
  4. [1.0 amps](#)
- 

## 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?

Choose your answer below

1. [0.0025 volts](#)
2. [4.0 volts](#)
3. [10.0 volts](#)
4. [400.0 volts](#)

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*Please direct any comments to:*

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