



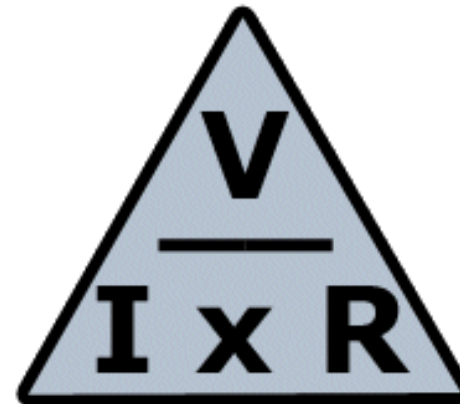
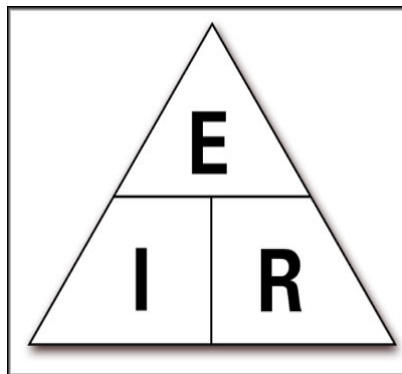
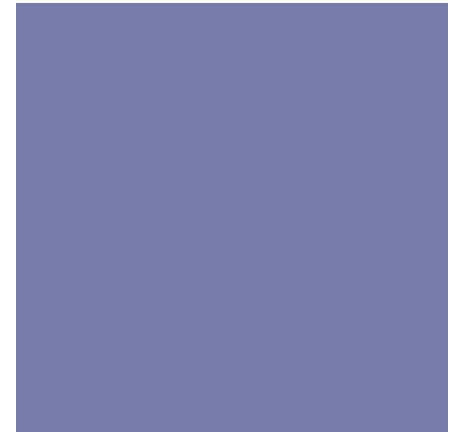
## SECTION 18.4



- **YOU NEED A CALCULATOR TODAY!!!!**



# 18.4 OHMS LAW





## Ohms Law



- Ohm's Law explains the **relationship** between current, resistance, and voltage.
- Used by electricians, automotive technicians, stereo installers

# + Current



**Current refers to the quantity/volume of electrical flow.**

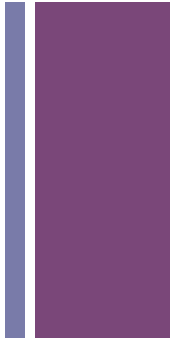
- **Symbol:  $I$**
- **Measured in **Amps (A)****



# + Resistance (R)

Resistance to the flow of the current.

- Symbol: **R**
- Measured in  **$\Omega$  (Ohms)**



# + Voltage



It is the push or pressure behind current flow through a circuit

- Symbol: **V**
- Measured in **Volts**





# Symbol Chart



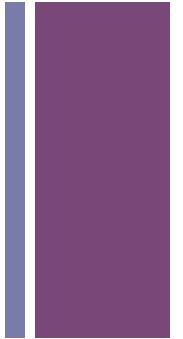
Quantity	Symbol	Unit of Measurement	Unit Abbreviation
Current	I	Ampere ("Amp")	A
Voltage	V	Volt	V
Resistance	R	Ohm	$\Omega$



## How do we use Ohm's law

$$V = I \times R$$

- **V = Voltage**
- **I = Current**
- **R = Resistance**







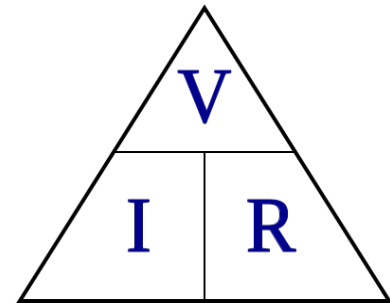
# Ohm's Law Formula's



$$V = I \times R \quad (\text{Solving for Voltage})$$

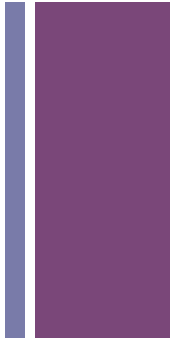
$$I = V / R \quad (\text{Solving for Current})$$

$$R = V / I \quad (\text{Solving for Resistance})$$

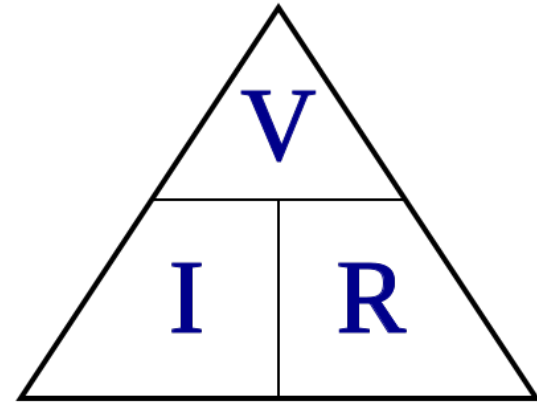




## Ohm's Law Example #1

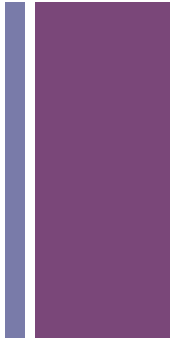


**A battery has a voltage of 12-V with a resistance of 2- $\Omega$ .  
What is the Current in amps?**

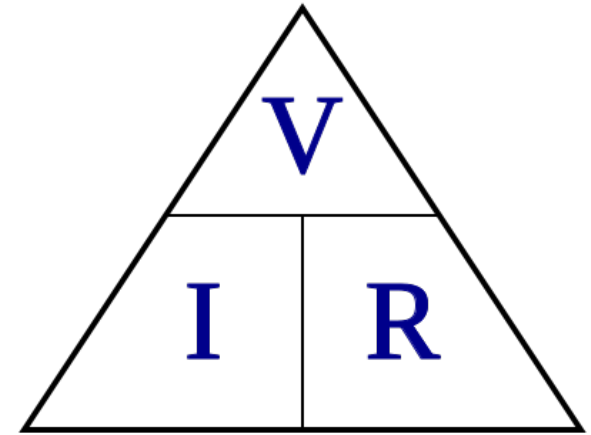




## Ohm's Law Example #2



If the Voltage of a power supply 12-V and can supply 4 amps, what is the resistance in Ohm's?





# How do we measure?

## Multi-Meter





## 18.4 Ohm's Law Problems



Please complete problems #1-20  
in your packet using Ohm's Law.

*Have me sign your packet by the end of  
the period!!*



# 18.4 Ohm's Law Problems



1. **150  $\Omega$**

2. **4.4 A**

3. **1.2 A**

4. **110 V**

5. **20  $\Omega$**

6. **50 V**

7. **0.026 A**

8. **2 A**

9. **24  $\Omega$**

10. **45 V**

11. **0.12 A**

12. **4.44  $\Omega$**

13. **240  $\Omega$**

14. **0.20 A**

15. **5 A**

16. **6 A**

17. **20 V**

18. **40 V**

19. **24  $\Omega$**

20. **80  $\Omega$**