Ohm's Law and Power

Objectives:

Learn what Ohm's Law is and how voltage, current, and resistance are related.
Learn what power is and how voltage, current, and resistance are related to power.
Prove the Ohm's Law relationship of voltage, current, and resistance

Ohm's Law

Ohm's Law: States the relationships between voltage, current, and resistance.

Voltage: The electrical pressure or force that makes current flow in a circuit.

Two types of Voltages: Voltage source and voltage drop

Voltage Source: Energizes a circuit. Directly proportional to current flowing through a circuit.

Voltage Drop: This is the voltage that is dropped across a component. Directly proportional Resistance of the component.

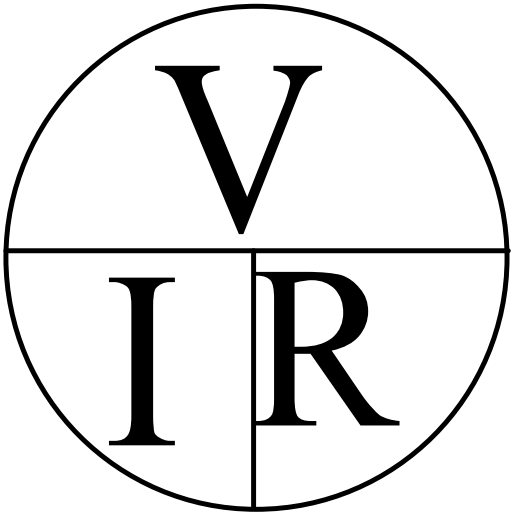
Current: flow of electrons through an electrical circuit. Current is directly proportional to voltage source. Current is inversly proportional to resistance and voltage drop.

Resistance: The opposition to current flow. Resistance is inversely proportional to current and directly proportional to voltage drops.

Voltage: Represented by the letters V or E. Unit of measure Volt (V)

Current: Represented by the letter I (Intensity). Unit of measure Ampere or Amp (A)

Resistance: Represented by the letter R. Unit of measure Ohm (Ω)



$$V = I \times R$$

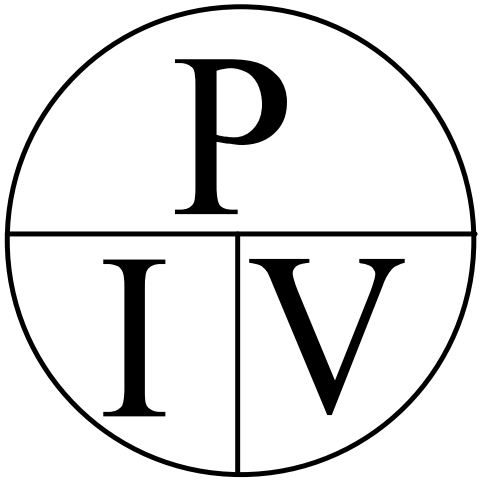
$$I = V / R$$

$$R = V / I$$

Power: The rate of doing work.

Power is directly proportional to current and voltage.

Power: Represented by the letter P. Unit of Measure is the Watt (W)



$P = I \times V$

$I = P / V$

$V = P / I$