

### **Converting Watts to Amps**

The conversion of Watts to Amps is governed by the equation  $\text{Amps} = \text{Watts}/\text{Volts}$

For example  $12 \text{ watts}/12 \text{ volts} = 1 \text{ amp}$

### **Converting Amps to Watts**

The conversion of Amps to Watts is governed by the equation  $\text{Watts} = \text{Amps} \times \text{Volts}$

For example  $1 \text{ amp} \times 110 \text{ volts} = 110 \text{ watts}$

### **Converting Watts to Volts**

The conversion of Watts to Volts is governed by the equation  $\text{Volts} = \text{Watts}/\text{Amps}$

For example  $100 \text{ watts}/10 \text{ amps} = 10 \text{ volts}$

### **Converting Volts to Watts**

The conversion of Volts to Watts is governed by the equation  $\text{Watts} = \text{Amps} \times \text{Volts}$

For example  $1.5 \text{ amps} \times 12 \text{ volts} = 18 \text{ watts}$

### **Converting Volts to Amps at fixed wattage**

The conversion of Volts to Amps is governed by the equations  $\text{Amps} = \text{Watts}/\text{Volts}$

For example  $120 \text{ watts}/110 \text{ volts} = 1.09 \text{ amps}$

### **Converting Amps to Volts at fixed wattage**

The conversion of Amps to Volts is governed by the equation  $\text{Volts} = \text{Watts}/\text{Amps}$

For Example,  $48 \text{ watts} / 12 \text{ Amps} = 4 \text{ Volts}$

## **Explanation**

Amps are how many electrons flow past a certain point per second. Volts is a measure of how much force that each electron is under. Think of water in a hose. A gallon a minute (think amps) just dribbles out if it is under low pressure (think voltage). But if you restrict the end of the hose, letting the pressure build up, the water can have more power (like watts), even though it is still only one gallon a minute. In fact the power can grow enormous as the pressure builds, to the point that a water knife can cut a sheet of glass. In the same manner as the voltage is increased a small amount of current can turn into a lot of watts.