Name: _____ Physics 11

Lesson 3.9 – Voltage, Current, Resistance

Many particles are either positively or negatively charged. The charge of a particle (Q) is measured in coulombs. For example, the charge of a proton or electron is called the **elementary charge, $e = 1.6 \times 10^{-19}$ C.**

Current electricity is all about…

The number of charges flowing per second is defined by the specific quantity – current.

Current (I): The unit of current is _____ or _____ ( ).

Voltage (V):

The units of voltage are _____ ( )

Resistance (R):

The units of resistance are _____ ( )

These three quantities are related using Ohm's Law:

Power

We often talk about the amount of power used by different electrical devices. This is often confused with **voltage** or **energy**.

Recall that power is…

From the definition of power and Ohm's Law we can derive some formulae to describe **electric power**.

Example: An electric fan has a resistance of 12 and requires 0.75 A of current to function properly. What voltage is required to operate the fan?

Example: An electric heater emits 1.00×10^2 W when connected to a 120 V power line. What is the resistance in the heater?