

1. Define the following terms. Give their units and symbols.

Voltage:

Current:

Resistance:

2. The terms above are related by an equation known as Ohm's Law. Write Ohm's Law three ways.

3. Ohm's law tells us that $I = \frac{V}{R}$. Show what will happen to the amount of current when voltage and resistance change. Try to think both mathematically and in terms of the water analogy.

	Voltage doubles	Voltage is halved	Voltage doesn't change
Resistance doubles			
Resistance is halved			
Resistance doesn't change			

4. a. Draw a circuit with three resistors in **series**. Use a 12V battery and 3Ω light bulbs for resistors.

b. What is a **series** circuit? What makes this one?

d. For a series circuit, how does the voltage measured across each of the resistors relate to the overall voltage measured across the battery? Find the voltage drop for each resistor in this example.

c. For a series circuit, how does the current going through each of the resistors relate to the overall current going through the battery? Find the current for each resistor in this example.

e. For a series circuit, how does the power used by each of the resistors relate to the overall power taken from the battery? Find the power used by each resistor and the overall power consumed from the battery.

5. Draw a circuit with three resistors in **parallel**. Use a 12V battery and 3Ω light bulbs for resistors.

b. What is a **parallel** circuit? What makes this one?

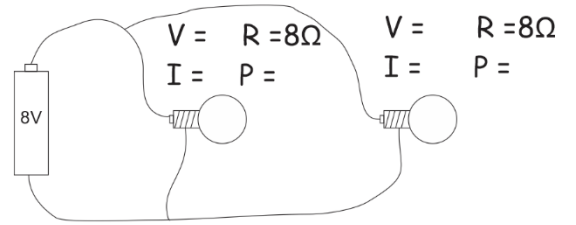
d. For a **parallel** circuit, how does the voltage measured across each of the resistors relate to the overall voltage measured across the battery? Find the voltage drop for each resistor in this example.

c. For a **parallel** circuit, how does the current going through each of the resistors relate to the overall current going through the battery? Find the current for each resistor in this example.

e. For a **parallel** circuit, how does the power used by each of the resistors relate to the overall power taken from the battery? Find the power used by each resistor and the overall power consumed from the battery.

Identify each of these circuits as either parallel or series. Then fill in the missing values.

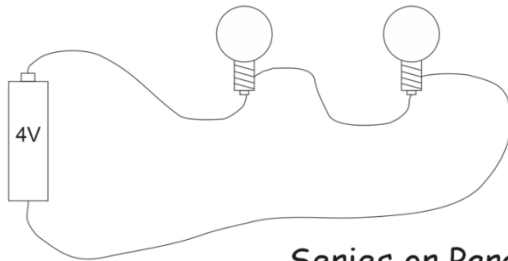
Total
Circuit
V = 8V
R =
I = 2A
P =



Series or Parallel?

Total
Circuit
V = 4V
R =
I =
P =

V = R = 8Ω V = R = 8Ω
I = P = I = P =



Series or Parallel?

