PHYSICS DEPARTMENT COPY

Experiment 15
Data Sheet

Name: _____

Section: _____

Table 1: Parallel Circuits

Measured Voltage	Measured Current	Calculated Resistance	Graphical Resistance ("m")	Calculated Power Dissipated
0 V	0 A	0 ohms		0 Watts
Graphed	Graphed			

Voltage of Power supply_____

Voltage of black resistor _____ Voltage of red resistor _____

Table 2: Short Circuit

Measured Voltage	Measured Current	Calculated Resistance	Graphical Resistance	Calculated Power Dissipated
0V	0A	0 ohms		0 Watts
Graphed	Graphed			

Questions

1. Consider the wiring in your home. Would you expect it to be a series circuit, a parallel circuit, or a combination of the two types? Why? (Consider both electrical outlets as well as the fuse box.)

2. Explain what is happening in the circuit when you exchanged the elements for Step 10. That is, how is the circuit different than before the elements were exchanged?

3. The resistance measured in the parallel circuit (see graphical resistance, Table 1) was either less than or greater than what we found last week in a series circuit. Which is it, and why is this so?

4. What was the relationship between voltage and current found in this experiment?

5. When you measure something, you do not want the measurement you make to change the value of what you are measuring. Therefore, measuring devices are designed such that they do not affect, or affect very little, the elements they are supposed to measure. That said, the following statements are true.

> Voltage measurements are **always** done with the device connected in parallel.
>
> Current measurements are **always** made with the device connected in series.

What information does this give you concerning the internal resistances of the devices? Does a Voltemeter have a high or low internal resistance? Does an ammeter have a high or low internal resistance?