ELT 101: Basic Electricity: AC/DC
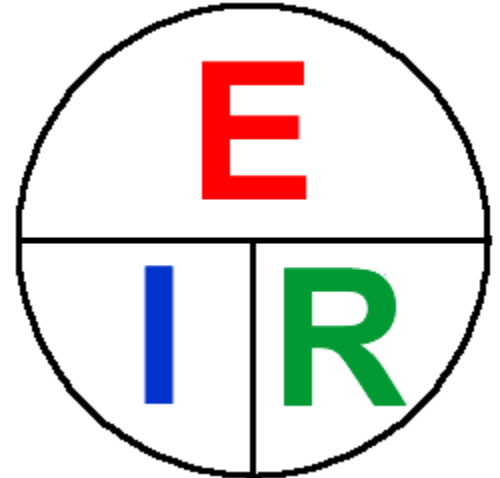
LAB 6-1: Ohm's Law

Objectives

1) Utilize Ohm's Law to calculate circuit parameters.

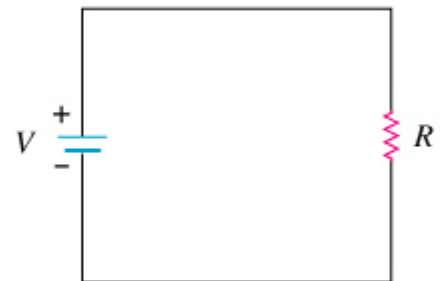2) Verify the relationship of current, voltage and resistance.

Equipment and materials

1) Safety glasses

2) Fluke 179 DMM

3) Electrical trainer

4) Jumper leads

Procedure 1: Utilize Ohm's Law to calculate circuit parameters

1) Complete the pre-use tests on the Fluke 179.

2) Set the Fluke 179 to read current.

3) Make sure power is off on your trainer.

4) Connect the circuit shown at right with jumper leads using the 5V binding posts and the 22 ohm resistor.

5) Disconnect the jumper wire that connects the 5V binding post to the 22 ohm resistor and replace this with the leads from your meter as follows:

- o Black meter lead to the resistor
- o Red meter lead (connected to the mA terminal) to the red 5V binding post

6) Using Ohm's Law, calculate the current that should flow when the circuit is energized and record this in the chart below.

	22 ohm resistor	33 ohm resistor	47 ohm resistor	220 ohm resistor
Calculated I				
Measured I				

7) Plot a graph of current versus resistance on

the graph paper below.
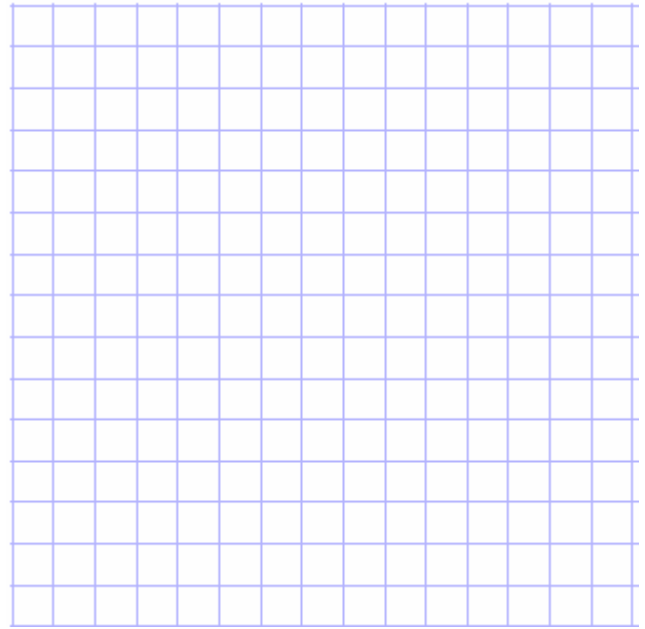
Procedure 2: Verify the relationship of current, voltage and resistance

1) What does the graph tell you about the relationship of current and resistance in a DC circuit?

_____

_____

_____

2) If the voltage is varied in a circuit, what happen to resistance?

_____

_____

3) Calculate the power dissipation for each resistor used and record these values in the chart

below.

	22 ohm resistor	33 ohm resistor	47 ohm resistor	220 ohm resistor
Calculated power				

4) What does tell you about the relationship between power and current in a DC circuit?

_____

_____

**** end of lab 6-1 ****