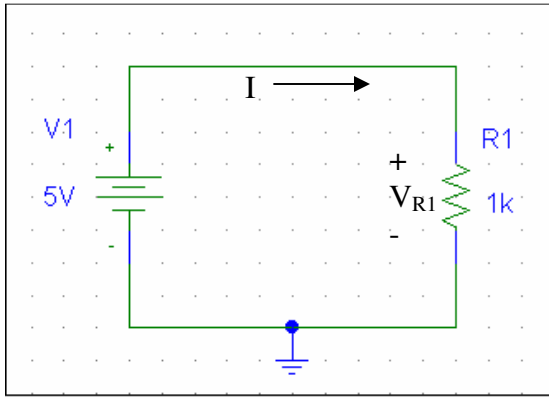


LAB #1: MEASURING ELECTRICAL QUANTITIES

Given:



- 1) Identify the components of the circuit.
- 2) Find the components that you will need to realize the circuit.
- 3) Measure the resistance of R1 (the 1kΩ resistor) using the multimeter. **REMEMBER** to set your multimeter to measure resistance. Write your measurement in the space provided below.

- 4) Wire the circuit using wires and the breadboard provided.
- 5) Measure the voltage of R1 and V1 (the power supply). **REMEMBER** to set your multimeter to measure voltage. Write your measurements in the space provided below.
- 6) Next, measure the current (I) flowing through the circuit. Remember to set your multimeter to measure current and that you break the circuit. Write your measurement in the space provided below.

MEASUREMENTS (Don't forget the units) (5 pts. Each)

Resistance of R1 = _____
 Voltage of R1 (V_{R1}) = _____
 Voltage of V1 = _____
 Current of the circuit (I) = _____

QUESTIONS

1. Name 3 physical components of the circuit. (15 pts.)

1. _____ 2. _____ 3. _____

2. Is the measured resistance of R1 within tolerance? Why? (15 pts.)
 (Remember Gold = 5%, Silver = 10%)

$$\text{Tolerance} = \left| 1 - \left(\frac{\text{Measured}}{\text{Specified}} \right) \right| * 100$$

3. Is the measured value of the voltage across R1 (V_{R1}) within 10% tolerance if the ideal value of V_{R1} is 5V? Why? (10 pts.)

4. Describe how current is measured in a circuit. (10 pts.)

5. Describe how voltage is measured in a circuit. (10 pts.)

6. What relationship, if any, exists between the voltages V_1 and V_{R1} ? (5 pts.)

7. What was the objective of this lab? (10 pts.)

8. List all of the equipment that was used in the lab today. (5 pts.)