Resistor Configurations Lab – Sample Setups

This is **NOT A SUBSTITUTE** for the Lab Instructions!!!

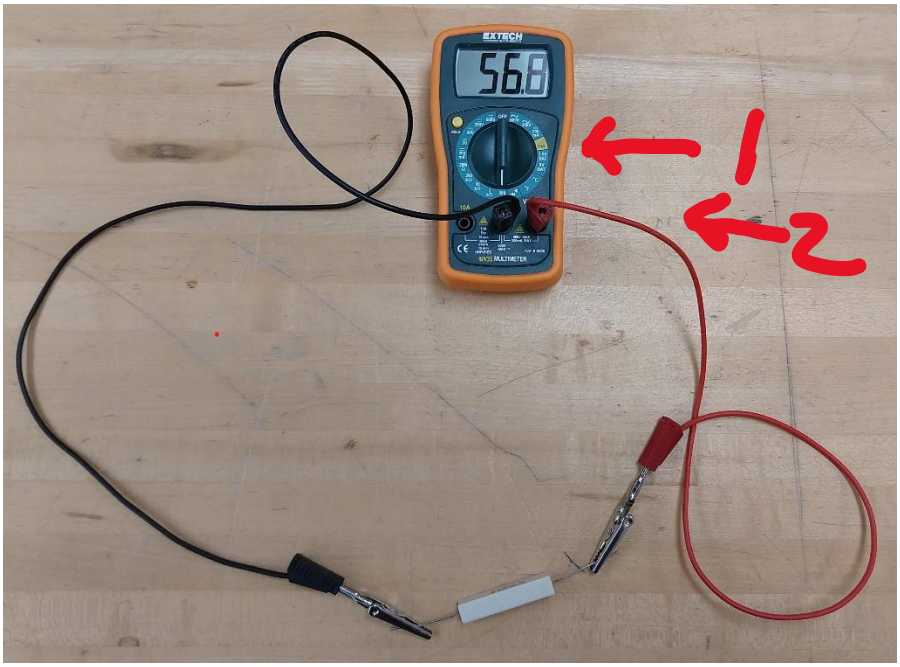

Figure 1. Measuring a single resistor's resistance. (1) The meter is set to measure resistance in ohms, and (2) The wires are plugged into the COM and Ω terminals of the meter. Note when measuring resistance there is no battery or power supply in the circuit.

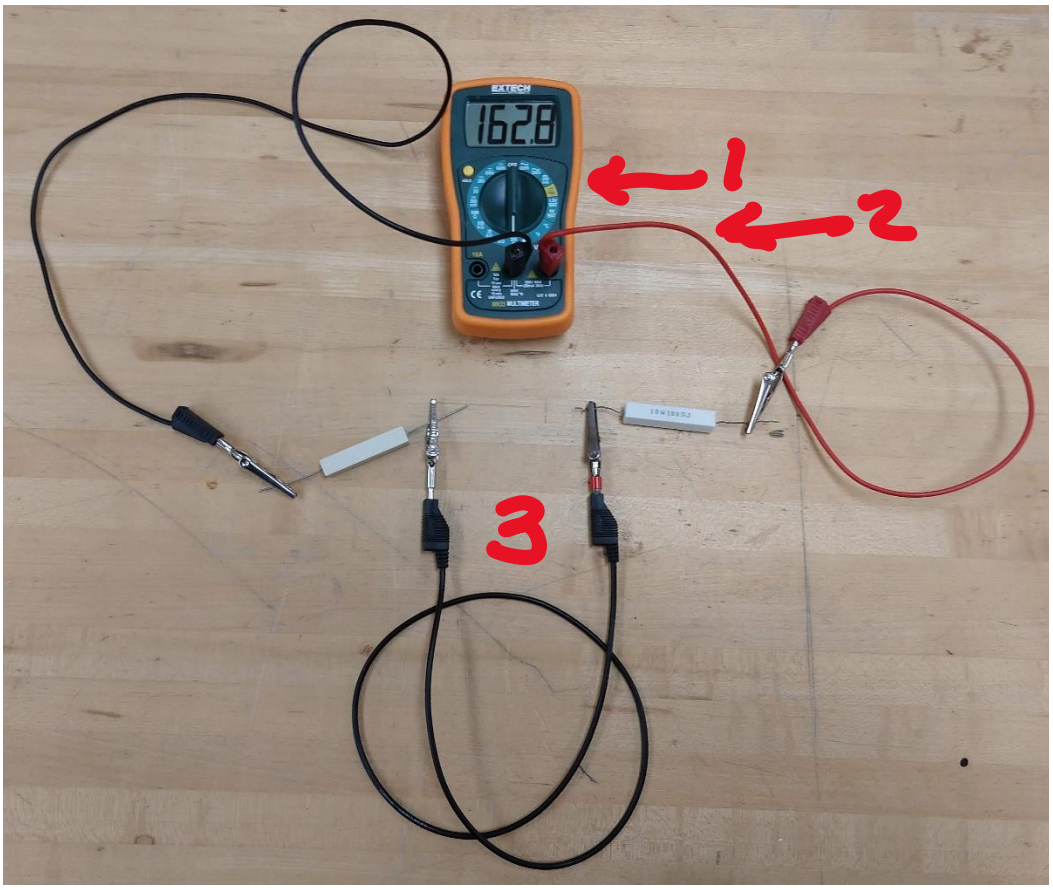

Figure 2. (Part #1, Step 1) Measuring the resistance of two resistors in series. (1) The meter is set to measure resistance in ohms, (2) the wires are plugged into the COM and Ω terminals of the meter, and (3) the third wire connects the resistors in series. Note when measuring resistance there is no battery or power supply.

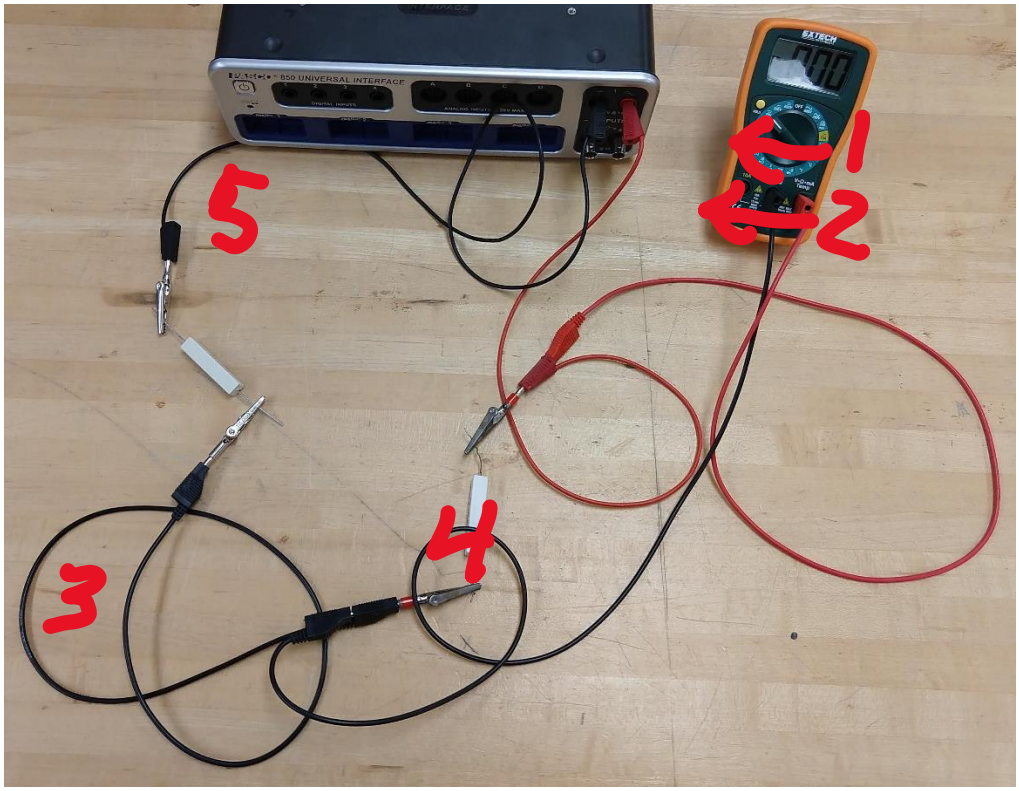

Figure 3. (Part #1, Step 5) Measuring the voltage of a resistor in a series circuit. (1) The meter is set to measure DC (⎓) voltage with a range large enough to handle the power supply voltage. (2) The meter wires are connected to COM and V terminals, (3) a single wire connects the two resistors in series, (4) The meter is connected across one of the resistors, and (5) the power supply acts as a battery.

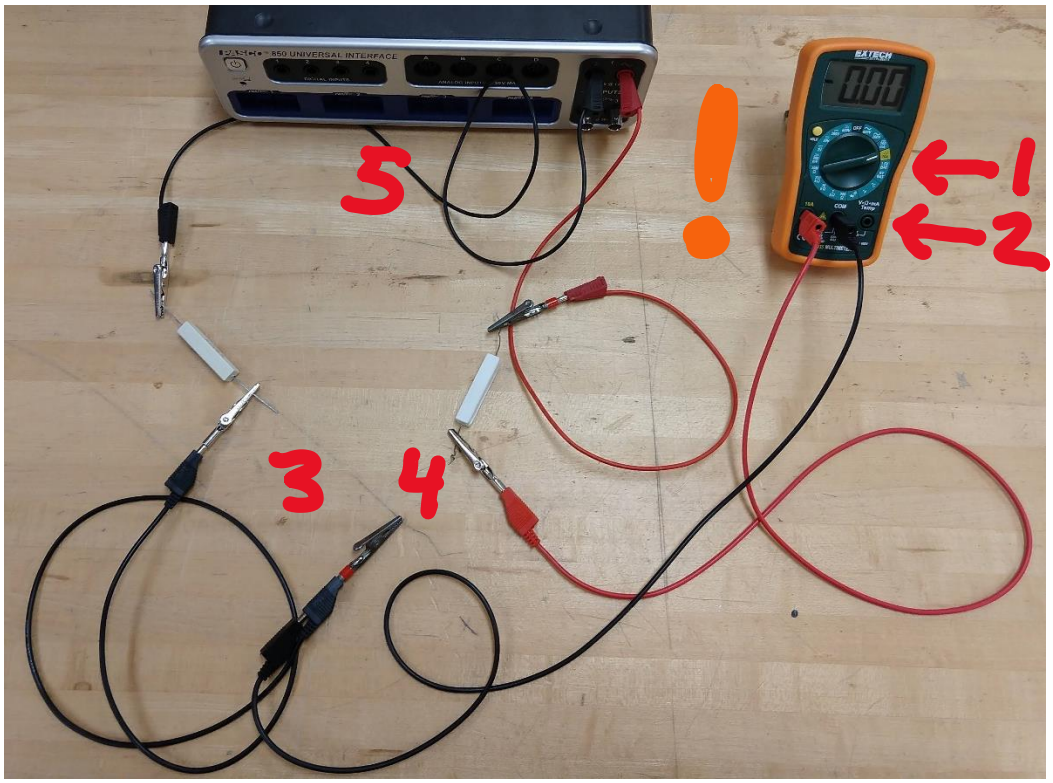

Figure 4. (Part #1, Step 6) Measuring the current of a series circuit. (1) The meter is set to measure DC (⎓) current in amps (A), not milliamps (mA), (2) The meter wires are connected to the COM and A (or 10 A) terminals, (3) a single wire connects the resistors in series, (4) The meter is also in series between the resistors, and (5) the power supply acts as a battery. **CAUTION**, using an ammeter incorrectly can break or BURN the equipment.

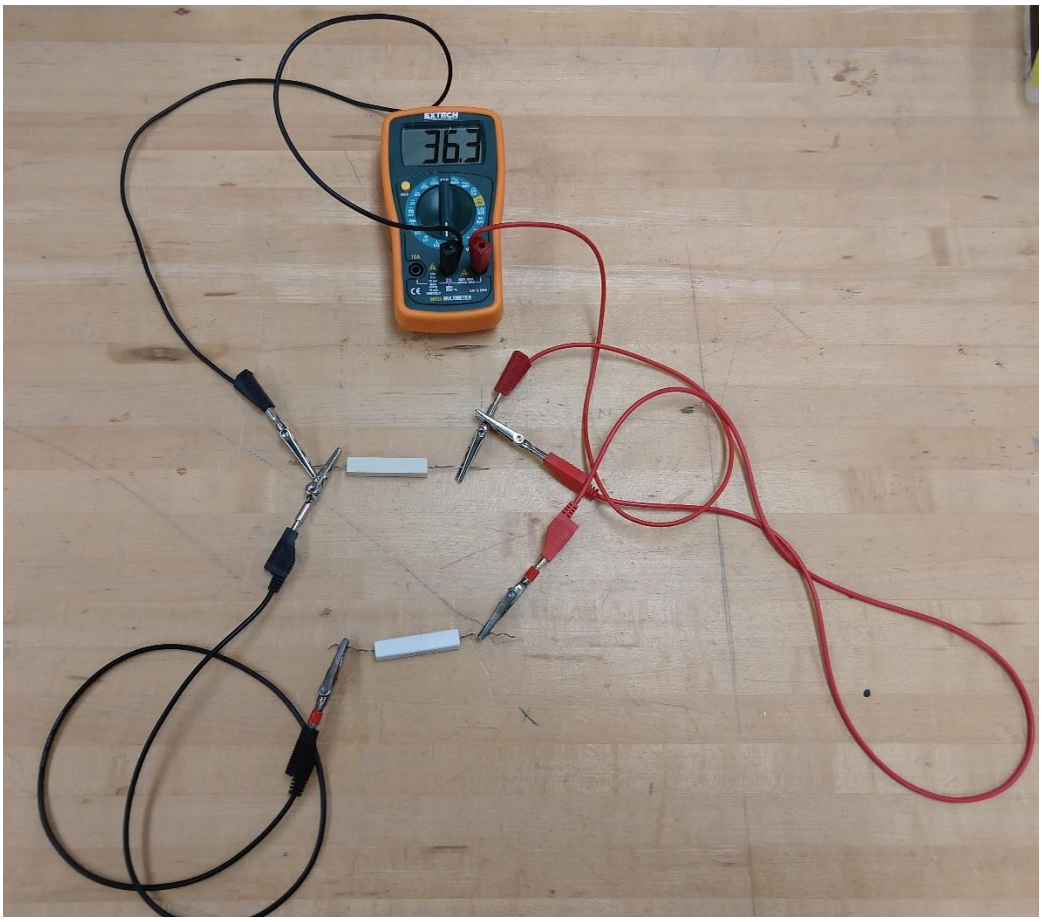

Figure 5. (Part #2, Step 1) Measuring the resistance of two resistors in parallel. The meter is set to measure resistance with the knob and using the COM and Ω terminals. The two resistors are connected at both ends. Note when measuring resistance there is no power supply or battery in the circuit.

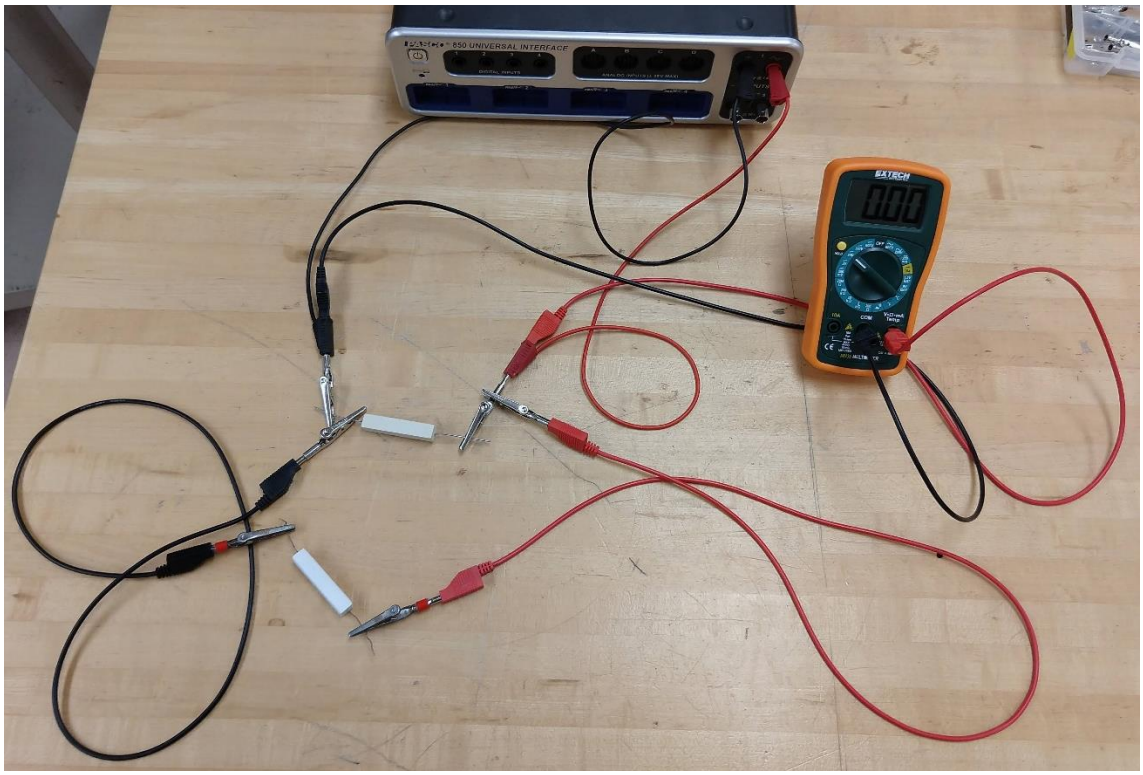

Figure 6. (Part #2, Step 2) Measuring the voltage across a resistor in a parallel circuit. The meter is set to measure voltage with the knob and using the COM and V terminals. The two resistors are connected at both ends, and each end is connected to one side of the power supply. The meter is placed across one of the resistors to measure its voltage.

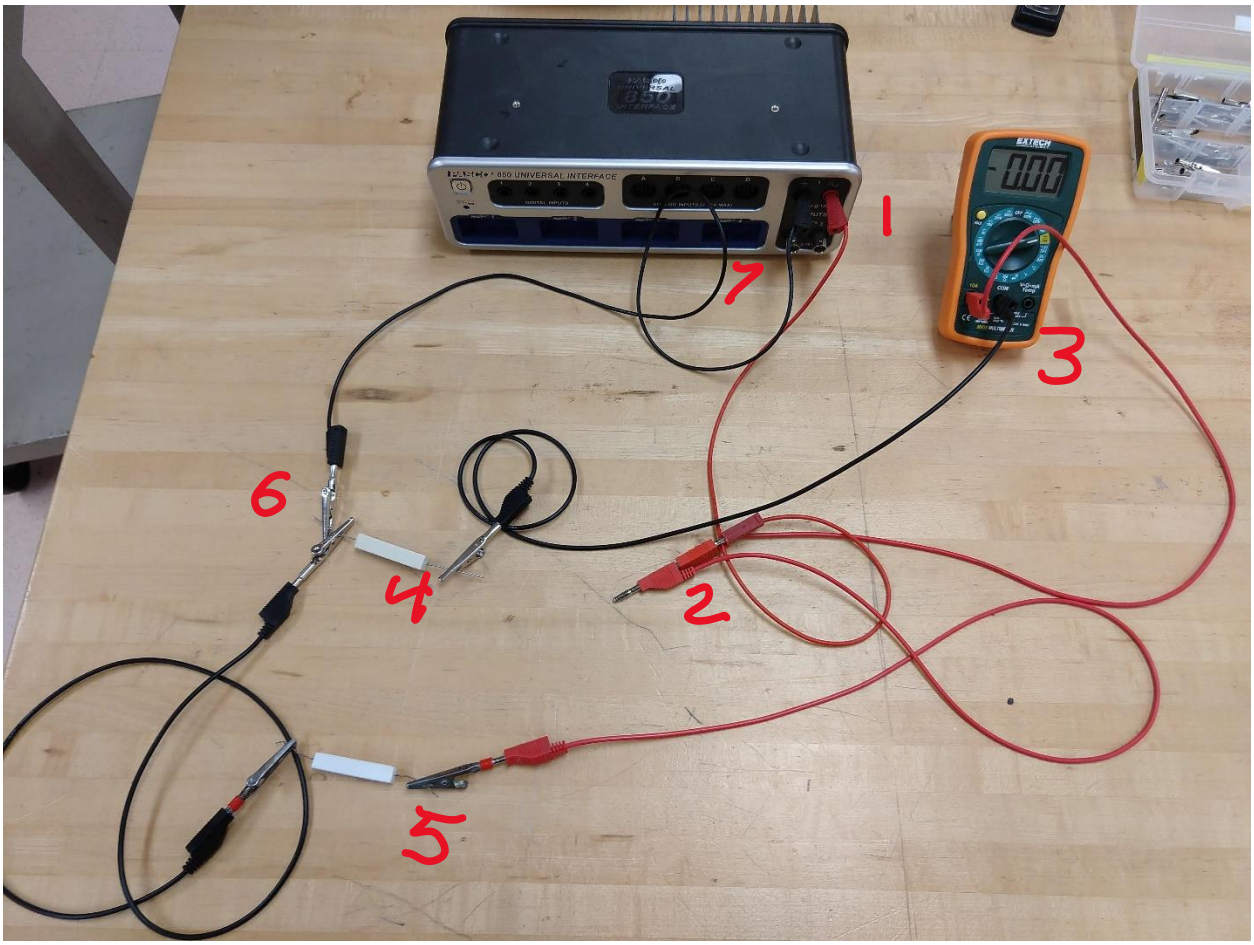

Figure 7. (Part #2, Step 4) Measuring the current of one resistor in a parallel circuit. Following the current path from (1) the power supply, to (2) a split where:

- some of the current goes to (3) the meter and (4) the upper resistor
- the rest of the current goes to (5) the lower resistor

Then at (6) the currents merge to go back to (7) the power supply. The meter is set to measure current in amps using the knob and the COM and A (or 10 A) terminals.