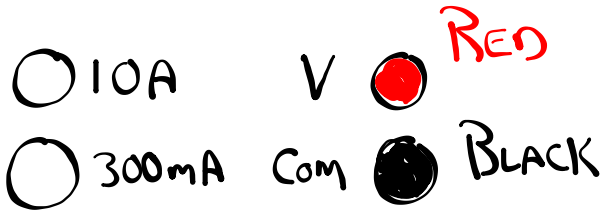
Digital Multimeters (DMM)

We will use them to measure:

1. Resistance
2. Voltage
3. Current
4. To test for continuity (see if a wire is broken).

Measuring Resistance

1) Place Leads:



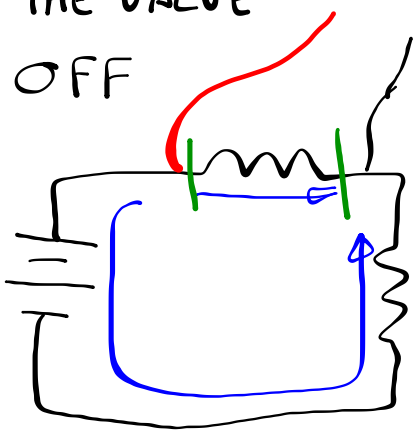
2) Turn the Dial To "Ω"

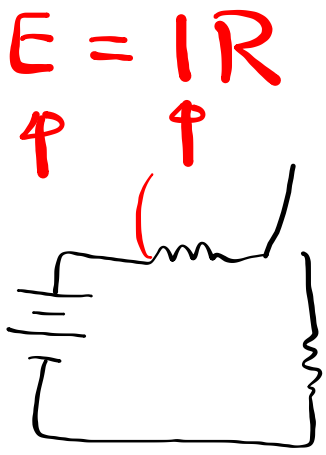
3) Isolate the Component Whose Resistance You Want To Measure (Take it out of the circuit)

4) Touch the Leads To Either End of the Component.

5) Read the Value

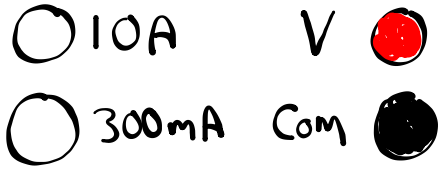
6. Turn Off





Measuring Voltage

1) Place Leads:



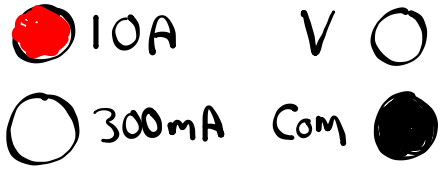
2) Turn Dial To $\overline{\overline{V}}$ (DC)

3) Touch The Leads Between Any Two Places In The Circuit
- Observe Polarity: Black −
  Red + (Red wants to be @ a higher potential)

4) Turn off.

Measuring Current

1) Place Leads:

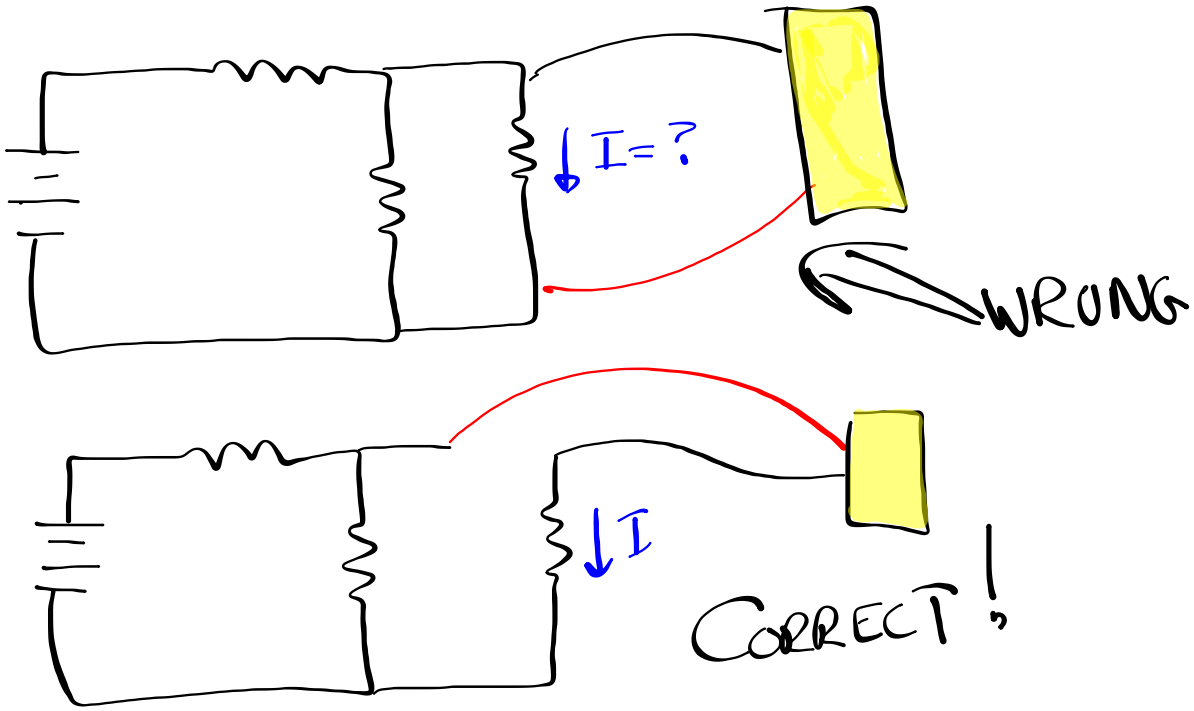


Always use the 10A fuse 1st & if the current is small enough, then you can switch to the 300 mA fuse.

2) Turn dial to $\overline{\overline{A}}$ (DC)

3) Insert the DMM, using the leads, into the circuit, observing polarity.

4) Turn off.



CHECKING CONTINUITY

1) PLACE LEADS: ○ 10A V (red)
○ 300mA COM (black)

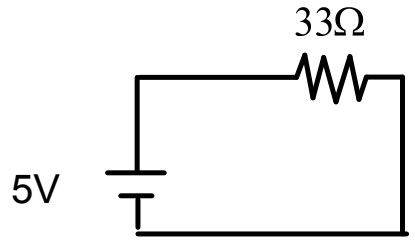
2) TURN DIAL TO 

3) TOUCH THE LEADS TO EITHER END OF THE WIRE/COMPONENT YOU ARE TESTING

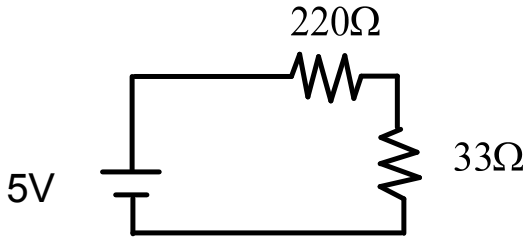
- IF YOU HEAR A SOUND, CONTINUITY IS GOOD (THERE IS A GOOD ELECTRICAL PATH)

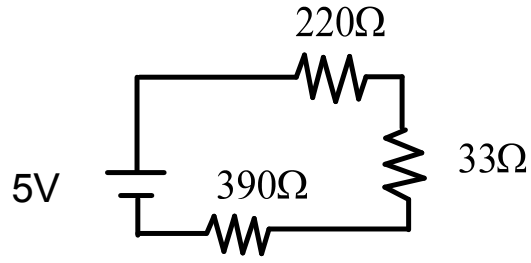
A Circuit Activity

1. Create the circuit shown below. With your power supplies set to five volts, use the DMM to measure the voltage across, the current through, and the resistance of, each component of the circuit. Record these values next to your component in a neat fashion. INCLUDE UNITS. (Hint: what do you need to do with the DMM to measure current? Which setting do you put it in first?)



2. Repeat Step #1 for the next two circuits.





3. What patterns or trends do you notice in your quantities as you move from the first circuit to the second to the third?

4. Rearrange your resistors so that they aren't just connected in series. Draw a schematic of your circuit, and repeat Step #1.