**Electricity and Circuit Review Questions Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_**

**Physics B**

1. What causes electrons to flow through a material? What prevents electrons from flowing?
2. What is the definition of current? Explain what an Ampere is.
3. Why is conventional current shown as going from higher voltage to lower voltage?
4. Describe a circuit. (p.630)
5. What are the two ways to connect resistors, switches, batteries, or other circuit elements? Explain specifically how to tell the difference between the two ways on a diagram. (p.639)
6. Why are houses wired in parallel and not series?
7. What is the difference between a fuse and a circuit breaker? What do they have in common? (p.645)
8. Draw a circuit with the following: A 2Ω and an 8Ω resistor in series, connected to a 12-Volt car battery, and a closed switch. Draw a voltmeter across each resistor, and an ammeter next to the battery. The battery should be oriented so the current flows counterclockwise.
9. Calculate the voltage across each resistor, power used by each resistor, and power supplied by the battery.
10. Calculate how much energy the circuit would use in 7 hours. (Remember that a Watt is defined as 1 Joule per second.)

1. Draw a circuit with the following: Three resistors, 2Ω, 8Ω, and 5Ω, connected in parallel, BUT NOT ACTUALLY PARALLEL, and attached to a 12-Volt battery. Draw one switch which turns off everything, and one switch for each resistor which turns off only that resistor. Draw an ammeter next to the battery, and a voltmeter across the resistor furthest from the battery.
   1. Label all four different currents on the circuit. Calculate the power used by each resistor, and the power provided by the battery.
   2. Calculate the equivalent resistance of the circuit. Confirm that it equals V/I through battery.
2. Calculate the equivalent resistance for the following circuit, and the total power used. For more challenge, calculate the power used by each resistor.

