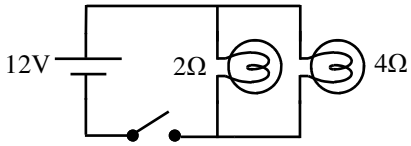
A-day: Due Thurs., 4/5 (Assig: 4/3)
B-day: Due Fri., 4/6 (Assig: 4/4)

Electricity 9

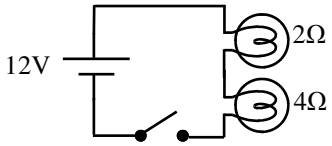
Understanding more about power.

1. Basic power questions:
   A) What is the equation for power?
   B) Which is brighter a 60W or an 100W bulb?
   C) So, brightness is not really about current it is about _____.
   C) What is the equation for power?



2. Using the parallel circuit at the right:
   A) Two objects in parallel have the same _____.
   B) Which one of the two resistors will have the most current?
   C) Which one has the most voltage?
   D) So, which one will use the most power?
   G) Rule: For objects in parallel, they have the same _____. The _____ resistor has the most current, and therefore has the most power and is brighter.

3. Using the series circuit at the right:
   A) Two objects in series have the same _____.
   B) What is the total resistance of the two bulbs?
   C) What is the current flowing thru the circuit?

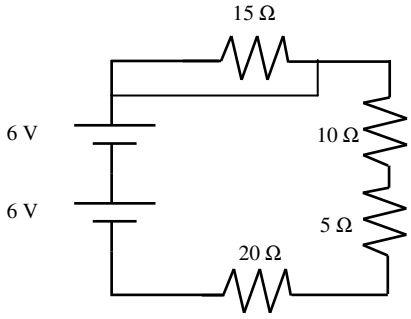


   D) *Using the "Voltage Drops" Notes:* Since you know the current and the resistance for each resistor (bulb), find the voltage used by each.

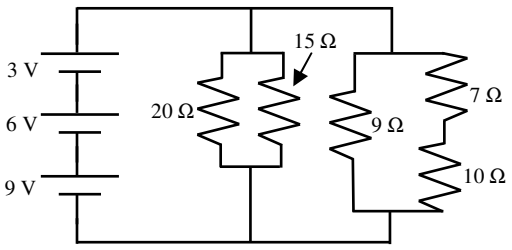
   E) Which one uses the most voltage?
   F) Rules: For objects in series, they have the same _____. The _____ resistor has the most voltage, and therefore has the most power and is brighter.

4. Tell me what will happen in the circuit on the right and why.

5. Find the following for the circuit (without the extra wire)
   A. Total V
   B. Total R
   C. Total I
   D. Total P
   E. Find the voltage used by the 20 Ω resistor.



6. Find the following for the circuit on the right.
   A. Total voltage
   B. Total Resistance (helps to redraw it)
   C. Total Current
   D. Total Power
   E. Find the current going through the 7 and 10 Ω resistors.
   F. Find the voltage used by the 10 Ω resistor.



7. Circle the one with the greatest resistance?
   A) A 25 Ω resistor at 5°C or at 25°C?
   B) A 5 cm wire or a 5 meter wire?
   C) Thick wires or thin wires?
   D) Aluminum wires or Copper wires?

8. Cost of electricity.
   A) Electricity is sold in kWhrs. What is a kilowatt?
   B) Two numbers next to each other means multiplying or dividing?
   C) So, if you have kilowatts and hours, how do you get kWhr?
   D) If your electric company sells electricity at a rate of $.09 per kWhr, how much would it cost to run a 60 W light bulb non-stop for 3 days? (*You can do this. Think through it.)*

9. What is a superconductor?
10. How can superconductors be useful?

11. Is a superconductor a good or bad insulator?
12. What is a capacitor? (*Do you remember the little green thing that I hooked up to the generator—capacitor!)*

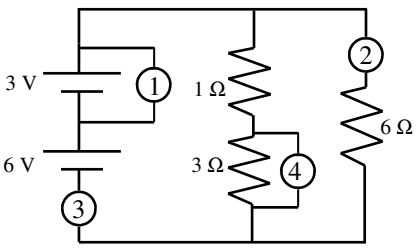
13. Give a use for a capacitor.

14. If I move the plates of a capacitor closer, does the capacitance increase or decrease?
15. (See if you can follow this logic.) If a person is going faster they are traveling more meters every second (m/s). For a better capacitor it can hold more coulombs (charge) for every volt (a Farads is a coulomb/volt). How much charge can a 3 Farad (F) capacitor hold if it is hooked up to a 9 V battery?

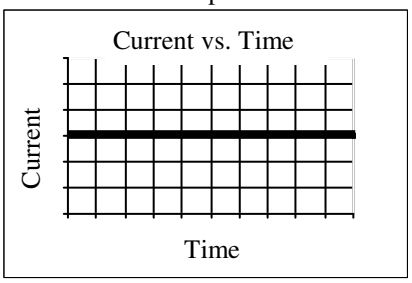
16. AC or DC current?
17. Meters: Ammeter; Voltmeter; Ohmmeter

A. ____ Current that changes polarity.
B. ____ Current that is constant.
C. ____ What comes from a battery.
D. ____ What comes from the power outlet.
E. ____ Graph A
F. ____ Graph B.

   A) Which is measuring current?
   B) Which of the meters is the most delicate?
   C) Which of the meters do you put in parallel?
   D) Which of the meters do you put in series?
   E) Identify the 4 meters in the circuit below as an ammeter or voltmeter.



Graph A



Graph B