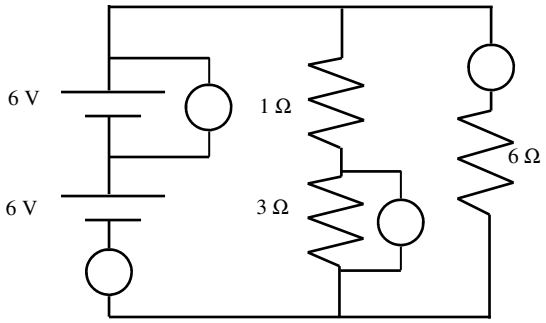
A-day: Due Mon., May 4
B-day: Due Tues., May 5

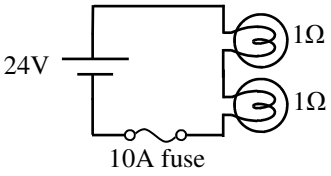
2009 Electricity 10

Name: _____

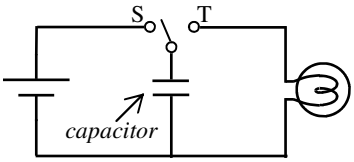


1. *From "Meters" notes*:
   A. Each of the four circles in the circuit at the left are meters. In each of the circles put one of the following: Ammeter (A); Ohmmeter (O); Voltmeter (V).
2. What is the total current in the circuit at the left?
3. Since 1 e = -1.6×10^{-19} C, how much charge does 5.4 electrons have?

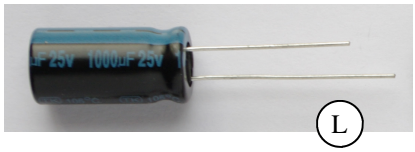
4. Use the circuit at the right to answer the following. (*Notes: "Power and Voltage Drops*").
   A. What is the current flowing in the circuit?
   B. What will happen to the fuse?

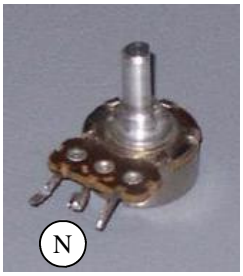


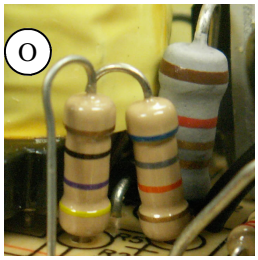
5. A. Can you reset a fuse?
   B. Can you reset a circuit breaker?

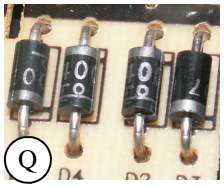


6. The circuit at the left shows a capacitor like the red plastic one you used in the circuit boards. The switch can be switched between point S and point T. The switch is first put to point S. Then the switch is moved to point T. Describe what happens.





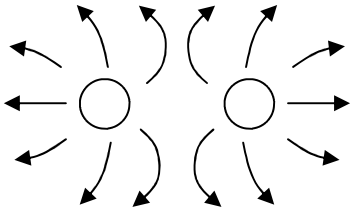


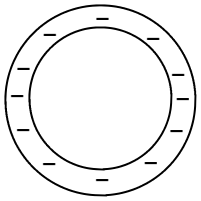


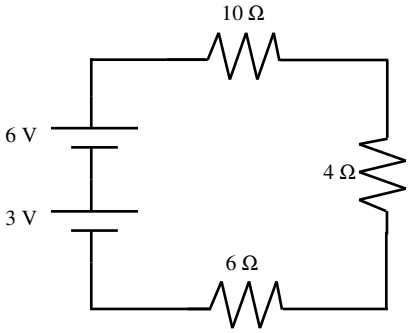
7. Identify the pictures above:
   A. _____Resistor.
   B. _____Diode
   C. _____Fuse
   D. _____Capacitor
   E. _____Variable resistor
   F. _____Light emitting diode.
   G. _____Can protect a circuit from too much current.
   H. _____Only lets the current flow one way.
   I. _____Stores charge temporarily.
   J. _____Used by an oven to change temperature.

8. What are the colored strips for on a resistor?

9. From the Electric field notes OR the Electric field game (link on website):
   A. Identify the charges below.
   B. Draw the electric field of the ring below (inside and out).



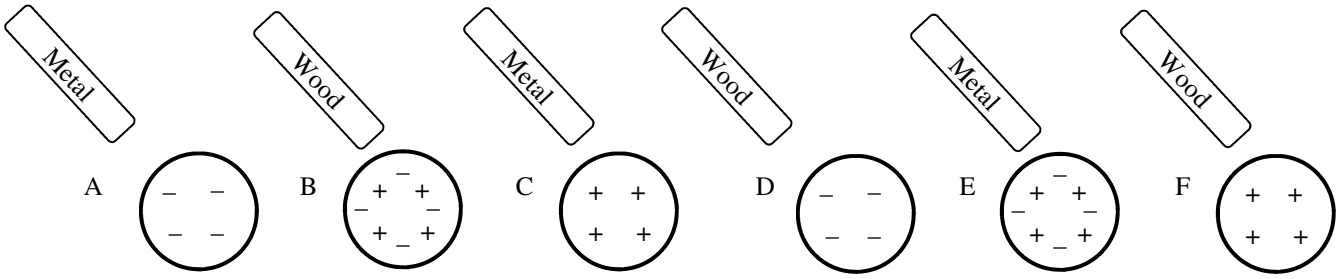




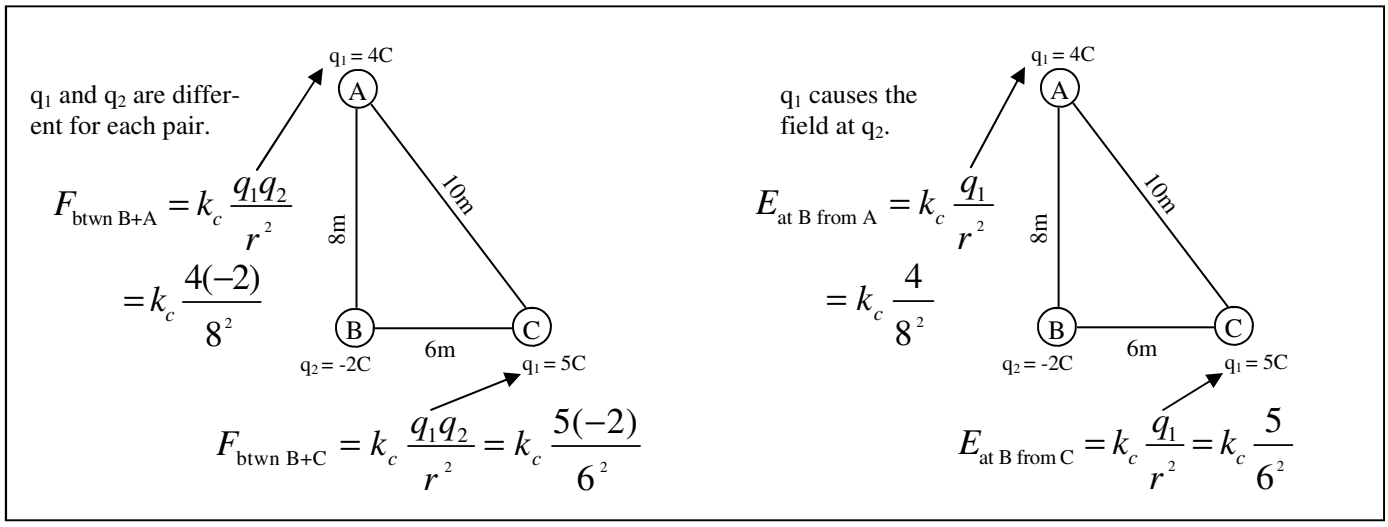
10. Use the circuit at the left to answer the following.
    A. What is the total current?
    B. How much voltage is used by the 4Ω resistor?

    C. How much power is used by the 6 Ω resistor?

    The 10Ω resistor is then replaced by a wire.
    D. How does the current in the 6Ω change?



11. The long objects above depict metal or wooden rods. The circular objects show positive, negative, or neutral objects.
    A. What moves: electrons or protons?
    B. On which object will charges be able to flow: the metal or wood object above?
    C. For each example above, show electrons moving away or toward the object.
    If no electrons move, leave the bar alone.



12. After studying the diagrams above, answer the following questions:
    A. If you were trying to find the electric field from A at C,
    i. What is q_1? ii. What is q_2? iii. How would E change if charge C were decreased?

    B. Calculate the electric field at A due to C.

    C. Calculate the force between A and C.