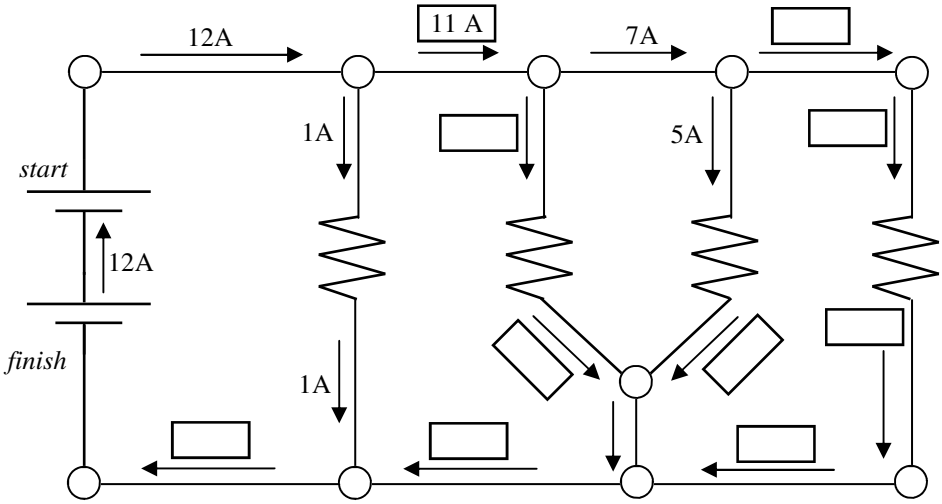
A-day: Due Mon., Apr 20
B-day: Due Tues., Apr 21

2009 Electricity 7

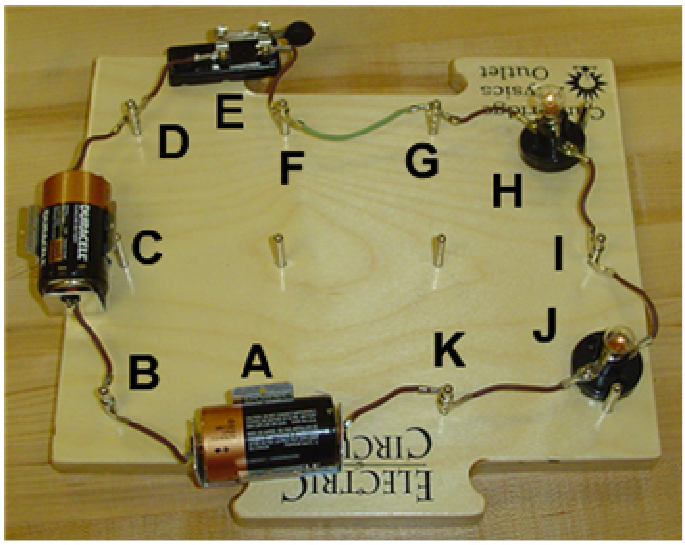
Name: _____

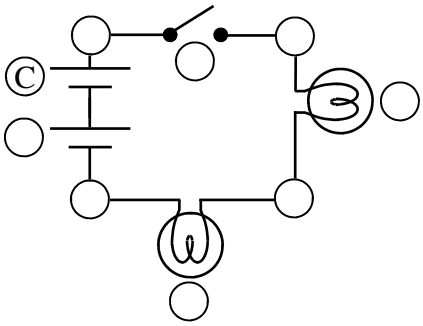


1. The circuit at the right will help you understand current. Start at the top of the batteries (at "start").

   A. In each of the circles, put one of the following:
   S (split) - one wire splits into 2.
   J (join) - two wire combine
   T (turn) - wire only turns.

   B. In each of the boxes, fill in the current for that part of the circuit. (*Hint: this is just addition and subtraction.)*





2. For each of the circles on the circuit diagram above, put the corresponding letter from the picture at the left. One of them is already done for you.

3. After working the circuit at the right, answer the following questions.

   A. Just by looking, which resistor uses the least amount of voltage?

   B. What is the total current?

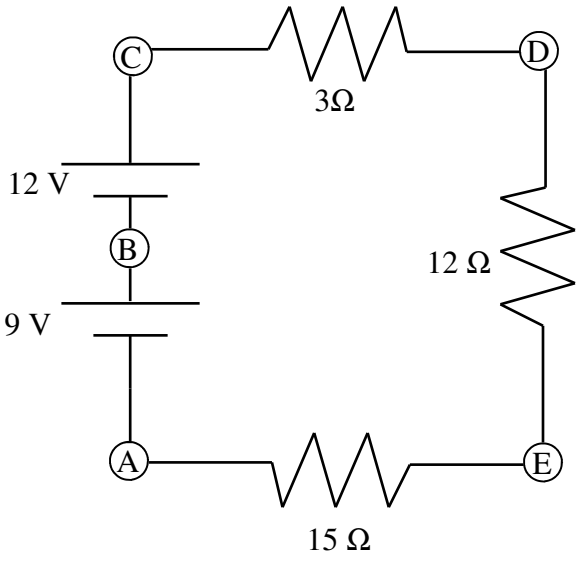
   C. How much voltage is used by the 12Ω resistor?

   D. How much power is used by the 15Ω resistor?

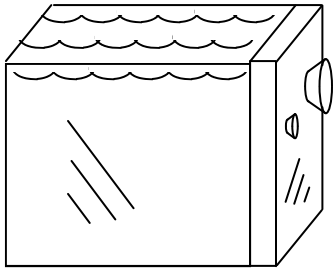
   E. What is the voltage difference between point C and point E?

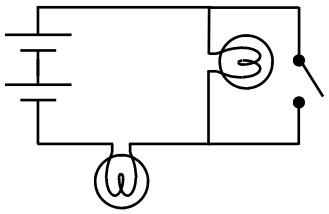
   F. What would happen if you increased the 12Ω resistor? |

   G. What is the current if the 15Ω resistor is short-circuited?

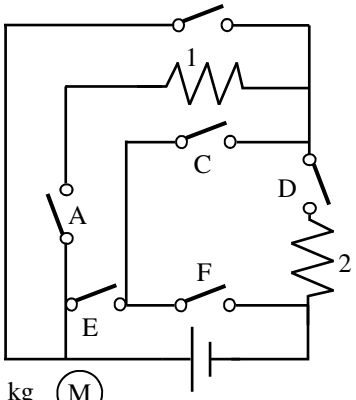


4. Imagine a large tank of water. In one side of the tank are two holes with plugs in them: a large hole and a small hole.
   A. When removed, which hole will have more resistance?
   B. Which hole will the have more water flow thru it?
   C. Water, like electricity, always takes the path of:

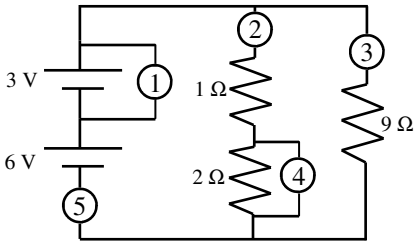




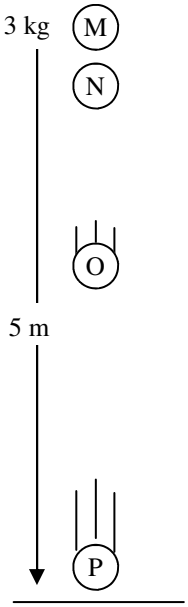
5. From the Lab (*see the diagram at the left*) -
   A. When the switch is open (as shown), which path is less resistance: the light bulb or the switch?
   B. When the switch is closed, which path is less resistance: the light bulb or the switch?
   C. When the switch is closed, will bulb 1 get brighter or dimmer?
   D. Why?
   E. What happens if you put a wire across the terminals of a battery (between the positive and negative ends of a battery)?
   F. How could this be dangerous?



6. In the diagram at the left you will need to decide which switches to close to allow different situations. Start at the + side of the battery (the big side).
   Which resistor or resistors allows:
   A) only resistor 1 to have current in it?
   B) only resistor 2 to have current thru it?
   C) to by-pass both resistors?
   D) for electricity to go thru both resistors?



7. (From the "Meters" notes) Identify the meters in the diagram at the right.
   A. Meter 1: B. Meter 2:
   C. Meter 3: D. Meter 4:
   E. Meter 5:



8. A ball is dropped from 5 m in the air. It is at rest to begin with.
   A. Calculate its initial energy.

   B. How much work was done on the ball to lift it to its initial point?
   C. What kind of energy is it losing as it falls?
   D. What kind of energy is it gaining as it falls?
   E. What is the initial speed of the ball?
   F. What is the weight of the ball?
   G. What is the acceleration of the ball as it falls?
   H. Each second, does the amount of distance it falls increase, decrease or remain constant?
   I. What is the displacement of the object (what is its vertical change of position)?
   J. How fast is it going just before it hits the ground? (*You can do this two ways.*)

9. A ball is rolling thru a tube, as shown. Just as the ball is exiting the tube,
   A. Toward which point does the object's velocity point?
   B. Toward which point does the force on the object point?
   C. Toward which point does the object's acceleration point?
   D. Toward which point does the ball move after it leaves the tube?
   E. What do we call the force that moves an object around a circle?

   F. What provides this circular force in this case?