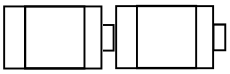
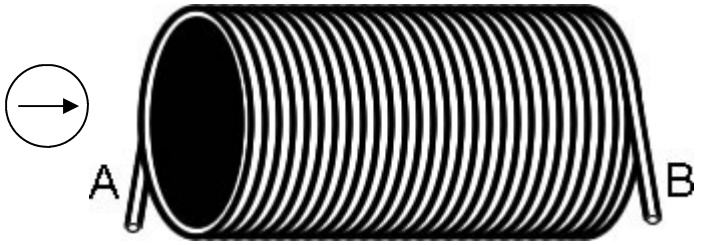
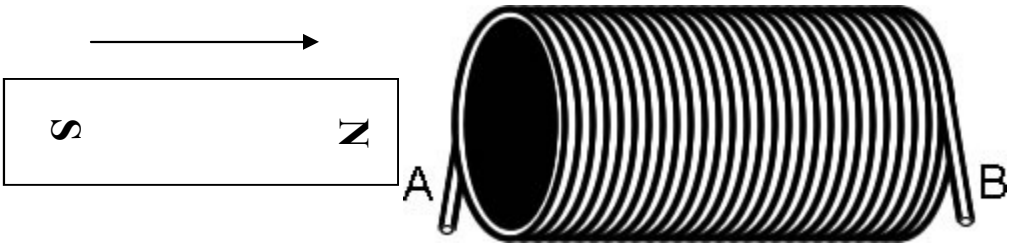
Due Fri 4/27



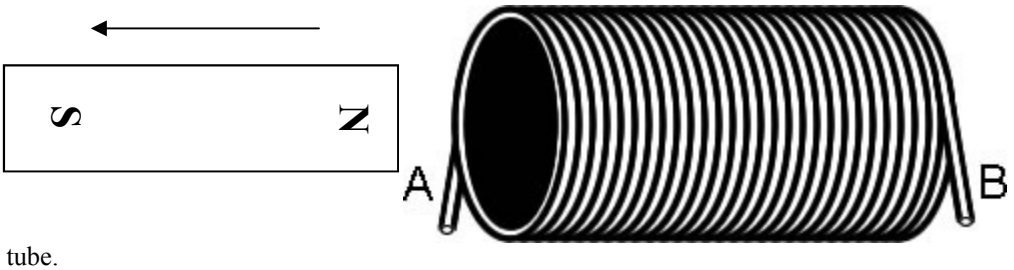
1) Remembering that the pointed side of a battery is the positive terminal, hook up the batteries to the solenoid so that the compass will point as shown.



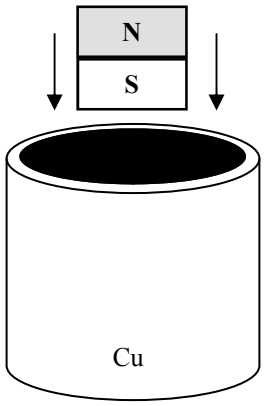
2) A bar magnet is moved into the 2nd solenoid.
   A) Since a north is being pushed into the solenoid, what magnet will the solenoid create?
   B) Using what you just found, from which end of the solenoid will the positive current come out?



3) When the bar magnet is pulled out of the solenoid, from which end will the positive current come out?

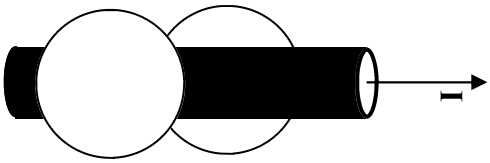


4) A magnet is dropped into a copper tube.
   A) Is the magnet attracted to the copper?
   B) What force pulls down on the magnet?
   C) What is the acceleration due to gravity?
   D) Does the magnet drop faster or slower than the acceleration of gravity?
   E) Why?

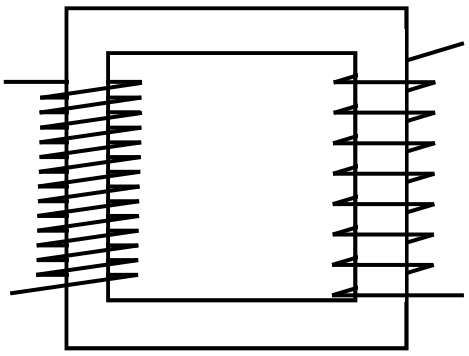


5) If 35 loop, 3cm radius solenoid has an induced emf of -16 volts, find the change of magnet field if a magnet is moved in 0.5 seconds.

6) Draw the needles on the two compasses above and below the current carrying wire. (Positive current.)



7) If I put 24 volts of battery current to the transformer on the right, what voltage would I get out on the left?



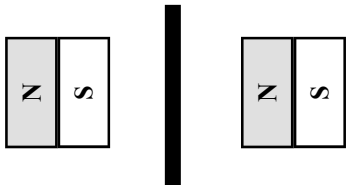
8) Which side will have the least voltage?
9) If I want to make it a step-up transformer, on which side would I put the input voltage?
10) The side on which I put in voltage is the _____.
11) The side on which I get out the changed voltage is called the _____.
12) If I want to make a step-down transformer, which side would be the secondary?
13) The square is made of what?
14) If I put 120 VAC on a transformer with 20 loops on the first side and there are 110 loops on the other side, how much voltage will come out?

15) Will there be more or less current in the secondary?
16) Does there have to be a core for a transformer to work?

17) Explain.

18) When we use the right hand rule, the F of the palm is due to what?

19) In the following diagram, which way will the induced current move, if the wire is pushed into the page?



20) Which direction will the current be in the loop? (BIG HINT: use the same process as for the single wire above, for one side of the loop and it becomes easy. OR you can use Lenz's Law. You get the same answer.)