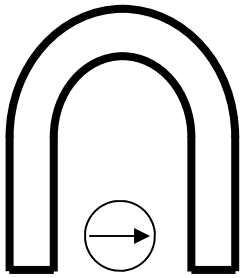
A-day: Due Thurs., May 20
B-day: Due Fri, May 21

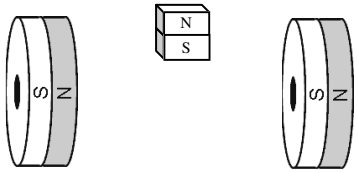
2009-10 Magnetism 3

Name: _____

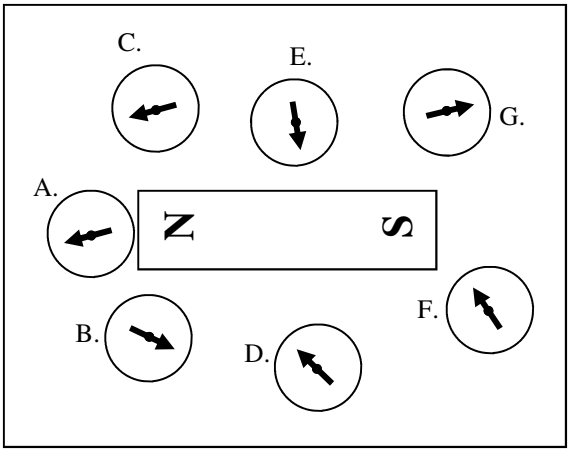
1. Label N and S on the ends of the horseshoe magnet.



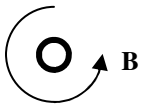
2. A. Draw B between the donut magnets.
   B. What will happen to the small magnet between the magnets?

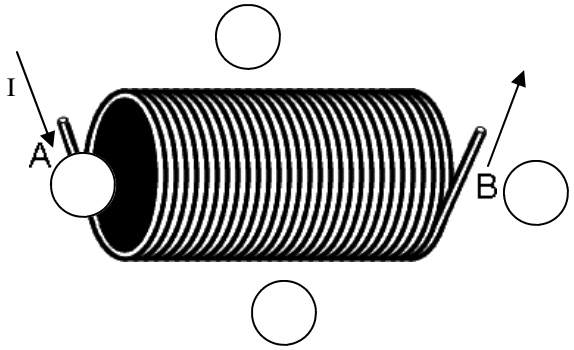


3. Which of the compasses at the right are correct?



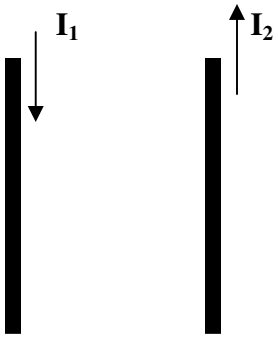
4. The small circle at the left is a wire. If the magnetic field around the wire is moving counterclockwise (CCW), is the current flowing into or out of the page in the wire?





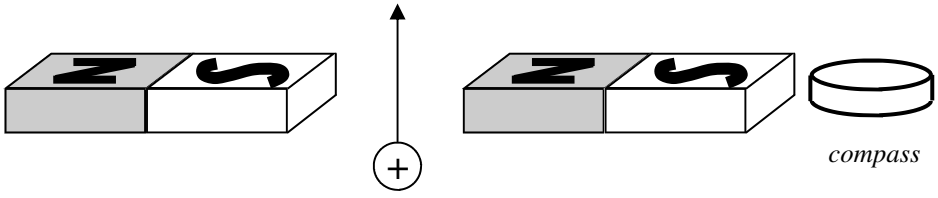
5. Current goes into side A of the solenoid.
   A. Which side of the solenoid is its north pole?
   B. Draw the arrows for the compasses.

6. A. Draw B (the magnetic field) for wire 1 on the right side of wire 1
   B. Draw B for wire 2 on the left side of wire 2.
   C. In between the two wires are the two magnetic fields going the same direction or opposite directions?
   D. Will the wires be attracted or repelled by each other?

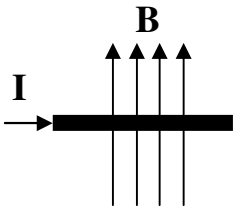


7. Fingers, Thumb, or Palm? (*Using "Magnetic Force" notes for the Right Hand Rule*):
   A. ____ The direction of a moving charge.
   B. ____ The direction of the magnetic force.
   C. ____ The direction of a moving proton.
   D. ____ The direction of the magnetic force.
   E. ____ Direction of the current in a wire.
   F. ____ Direction a wire moves because of a magnetic field.

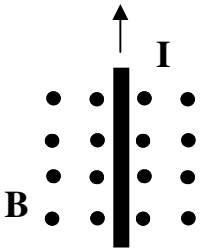
8. A proton is moving between two bar magnets.
   A. Draw the direction of the magnetic field between the magnets (label it "B").
   B. Find the direction of the force.
   C. Fill in the compass.



9. The direction of the magnetic field and current are shown. Which is the direction of the magnetic force on the wire?



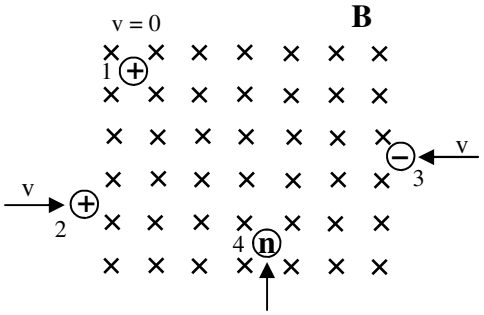
10. Find the direction of the magnetic force on the wire.



11. There are four objects in a magnetic field. The arrows show the direction of their initial velocities when they enter the field. The charge of each object is also given.

A. The proton at the top left (object 1) is at rest, what is the direction of the magnetic force (F_B)?

B. Draw the path that the moving proton (object 2) at the bottom left will follow.



C. Draw the path that the electron (object 3) will follow.

D. What is the direction of the magnetic force on the neutron (object 4) labeled "n"?

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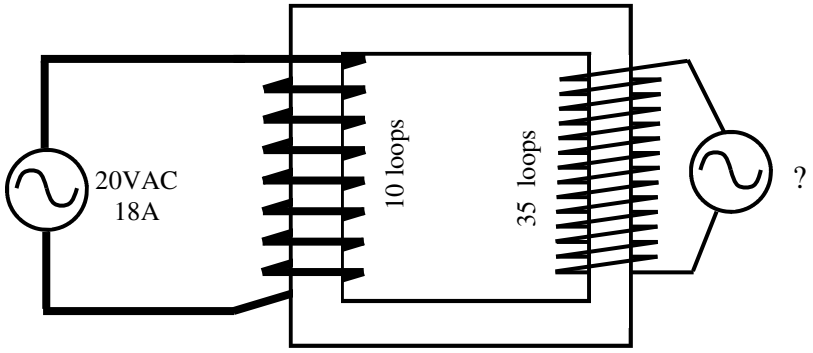
Use the formula on the front to answer the following two questions.

12. Find the variables for the following: 34 m/s is ____; 8 T is ____; 4.5μC is ____; 4 m is ____; 2.5 amps is ____.

13. How much force does a 6 C charge going 256 m/s feel in a 75 T magnetic field?

From the "Transformer" notes:

14. The curvy symbol in the circle stands for an alternating current source (like a battery for AC). Left or Right side of the transformer at the right?
    A._____Has the most current?
    B._____Has the most voltage?
    C._____Has the most coils?
    D._____Has the most power?
    E._____Is the primary?
    F._____Is the secondary?
    G. Calculate the voltage on the right side.



H. Calculate the current on the right side.