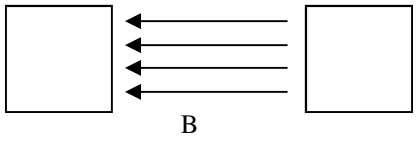
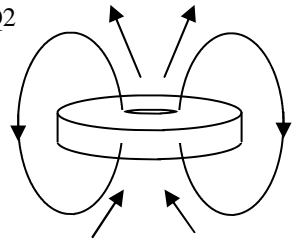
A-day: Due Wed., Apr 25 (Assigned 4/23)
B-day. Due Thurs., Apr 26 (Assigned 4/24)

Magnetism 3

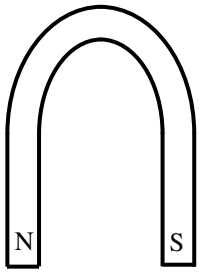
Q1



Q2



Q3



1. Label the magnets as N and S.
2. Label the doughnut magnet's N and S poles.
3. Draw the magnetic field lines between the poles of the horseshoe magnetic.
4. Draw the magnetic field lines between the two magnets at the right.
5. Give the sign conventions for the following (draw the symbols):

   A. Into page _____ C. Up _____ E. Right _____

   B. Left _____ D. Out of Page _____ F. Down _____

Q4

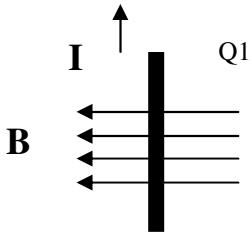
6. The point of a compass is a N or S pole for the compass?
7. The point of a compass will point towards a N or S pole of a magnet?
8. If you put two compasses on top of each other, what happens and why?

Q9

9. If the wire shown has a current running from left to right,
   A) draw B above and below the wire using the symbols from Q5.
   B) which direction is the magnetic field in front of the wire?

10. The thick black line is a wire carrying current up. The arrows show the direction of the magnetic field. Which direction is the force on the wire?

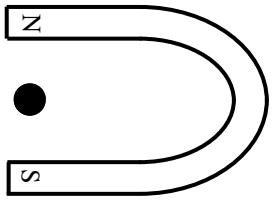
Q10



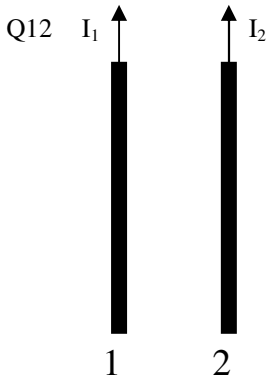
11. A) Which direction are the magnetic field lines going for the horseshoe magnet? (Drawing them might help.)
    B) If the black dot shows a current carrying wire with the current coming out of the page, in which direction will the force be?

12. The two black lines (below left) are current carrying wires. The currents are in the same direction.
    A) Which direction is B (magnetic field) on the right side of wire 1 (into or out of the page)?
    B) Draw B on the right side of wire 1 (*you just found the direction—now draw it*).
    C) Using the B that you just drew and the direction of I in wire 2, which direction will the force on wire 2 be?

Q11

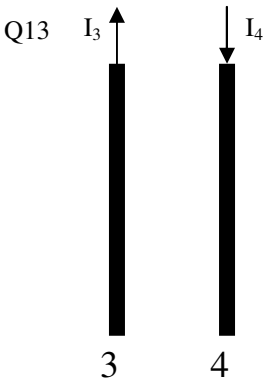


Q12



13. Following the same logic (same steps) as in Q12, find the direction of the force that wire 4 feels from wire 3. *(Do steps A—C above for this problem.)*

Q13

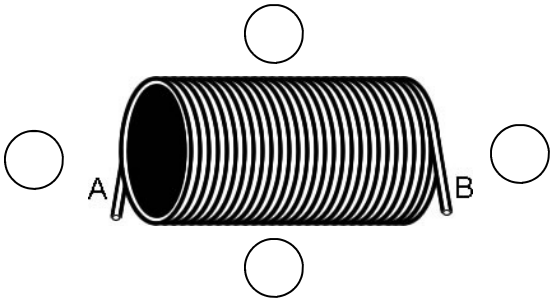


Magnetism 3

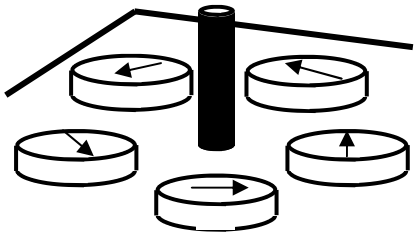
14. A current carrying wire is coming out of the page (toward you), which way is B, clockwise or counterclockwise?
15. A current carrying wire is looped clockwise in the plane of the paper. Is B up or down?

16. A 12 N force is felt by a 2 μC charge going 3 x 10^4 m/s. How big is the magnetic field?

17. The positive side of a battery is put on side B of the solenoid below.
    A) Label the N and S sides of the solenoid.
    B) Fill in the compasses to show which way they will point.

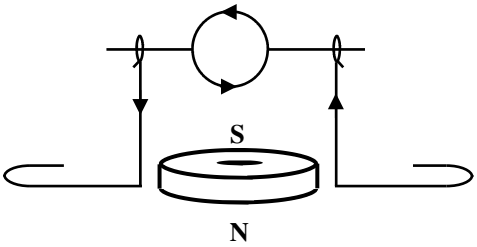


18. For the current carrying wire at the right, which direction is the current in the wire: up or down?



19. The arrows show the direction of positive current.
    A) What is the direction of the magnetic field inside the loop of wire: into or out-of the page?
    B) Using your direction from part A, will the loop of wire turn down towards the magnet or turn up away from the magnet?

Q 19



Final review—use your book or the notes I gave out before.

20. Harmonic Motion review:
    A) The repeated part of the motion we call the _____.
    B) The _____ is how long it takes a cycle to repeat.
    C) The number of cycles each second is called the _____.
    D) The _____ shows the energy with a stronger wave or a wider swing.
    E) Which affects the period of a pendulum: mass; length; amplitude?

21. Light review topics:
    A) The speed of light in a vacuum is: _____.
    B) The speed of radio waves is: _____.
    C) Which has a longer wavelength: radio waves or x-rays?
    D) Which has a higher frequency: visible light or ultraviolet light?
    E) Light bouncing off of a hard boundary is called: _____.
    F) Light changing speed at a clear boundary is called: _____.
    G) Light bending around corners is called: _____.