PreAP: Due Mon., May 8 (Assigned Wed., May 3)
Reg. Due Tues., May 9 (Assigned Thurs., May 4)

Magnetism 6

Q 1

Q2

Q3

1. A. Which direction is B above the wire?
   B. Which direction is B in front of the wire?
   C. Which direction is B behind the wire?
   D. Which direction is B below the wire?
   E. Draw B above and below the wire.

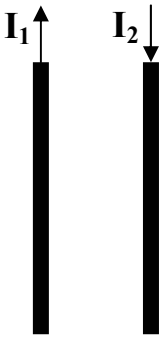
Q4

2. A. Draw B around the two wires.
   B. Will the two wires be attracted or repelled?

3. A. Draw B around the two wires.
   B. Will the two wires be attracted or repelled?

4. Find the magnetic field that caused the force on the wire.

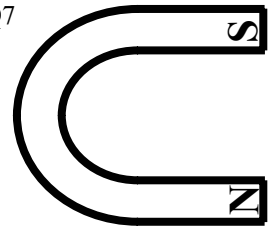
Q5,6



5. (*This is the correct logic to find the force on a wire.*)
   A. Find and draw B created by I_1 on I_2. (Find B created by wire 1 on the right side of wire 1.)
   B. Using the B you just found and I_2, find F on wire 2.

6. Follow the previous steps to find the force from wire 2 on wire 1.

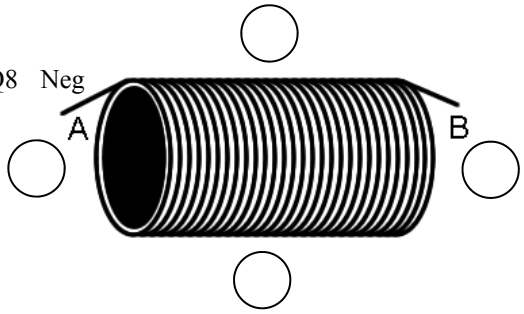
Q7



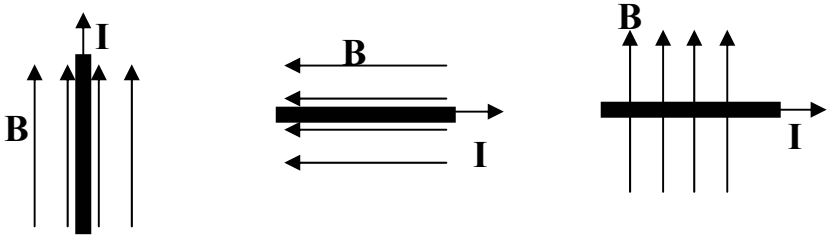
7. Draw a compass between the two poles of the horseshoe magnet.

8. A. What do we call the coils with electricity on it?
   B. Which color wire do we use for positive?
   C. The ***negative*** terminal of a battery is put on wire A. Label the north and south pole that is created on the coils.
   D. Put the arrows on the four shown compasses.
   E. The compasses point the direction of the magnetic _____ _____.

Q8 Neg

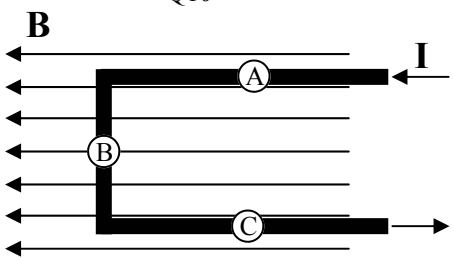


9. Find the force for the three situations shown.

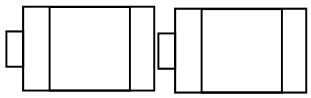


10. A wire passes through a B, making two turns.
    A. Find the force on segment A.
    B. Find the force on segment B.
    C. Find the force on segment C.
    D. If the wire were able to pivot, which direction would it move?

Q10

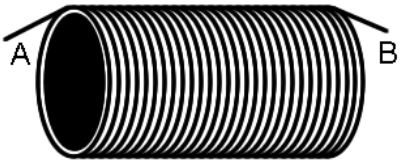


Magnetism 6



Q11

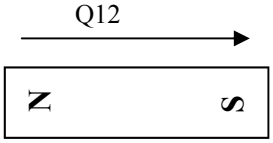
11. Connect the batteries so that the north pole is to the left of the coils.

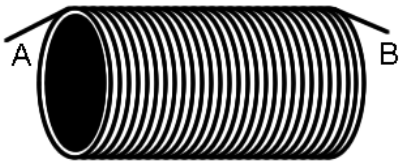


12. The bar magnet is moved into the coils (known as a _____).
    A. Above the coils draw the induced magnet that is caused by the moving magnet.
    B. Using the induced magnet as a guide, from which side will the electricity come out?

13. If the coils on the left feel an induced voltage of – 16 volts, has 35 loops that have a radius of 3 cm, and the magnet is moved in in 0.5 seconds:
    A. Find the area of each loop (being sure area is in meters squared).

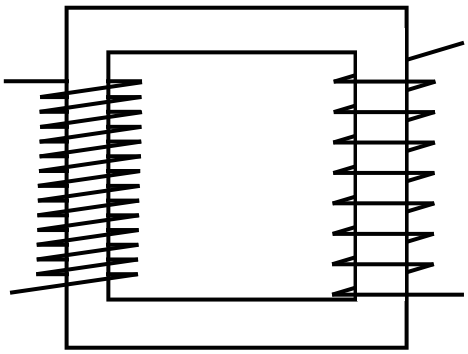
Q12





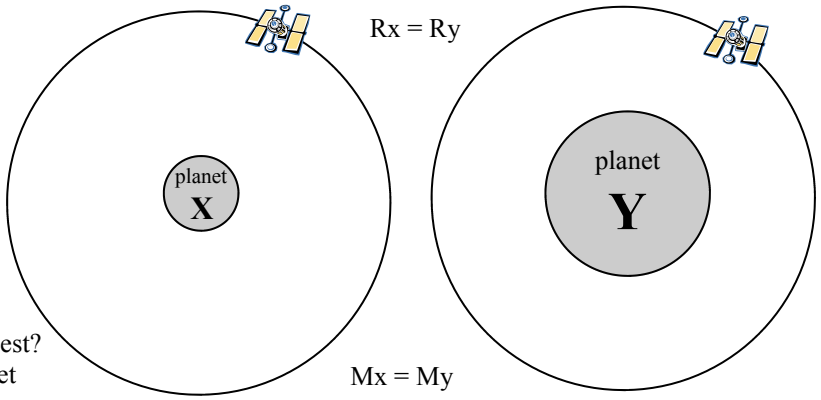
    B. Find the change of B that caused the emf.

14. The device on the right is called a _____.
15. If I put 24 volts of DC current to the transformer, what voltage would I get out?
16. Which side has the most loops?
17. Which side will have the least voltage?
18. If I want to make it a step-up transformer, on which side would I put the input voltage?
19. The side on which I put in voltage is the _____.
20. The side on which I get out the changed voltage is called the _____.
21. If I want to make a step-down transformer, which side would be the secondary?
22. The square is made of what?
23. 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?



24. What will be the output current?

25. Write the force of gravity equation:



26. For planet X: draw m_1, m_2, and r.
27. For planet Y do the same.
28. How does the gravity compare?
29. If the satellites send identical probes down to the planet surfaces, which probe will be the heaviest?
30. If planet Y has a faster spinning core, which planet has a greater magnetic field?
31. So, how does the above magnetic field change the force of gravity on its satellite?