

2008 Magnetism 6

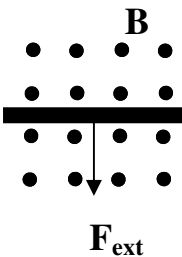
- Two current carrying wires with the currents going the same direction repel or attract each other?
 - Two current carrying wires with the currents going opposite directions repel or attract each other?
- Does a non-moving charge feel a magnetic force?

In ALL cases of the RHR this is the series of events: 1) a magnetic field B is establish (a magnet); 2) a charge is moved (q , I from a battery, a moving wire); 3) the magnetic field turns the moving charge (turns q , moves the wire, causes an induced current).

- Situation A: A wire is pulled into a horseshoe magnet's magnetic field. An induced current is produced in the wire.

 - q is what?
 - What does the magnet move?
 - Is the direction of F_B the direction the wire is pulled or the direction of the induced current?
- Situation B: A wire is placed inside a horseshoe magnet. A current is produced in the wire by a battery. The wire deflects (jumps).

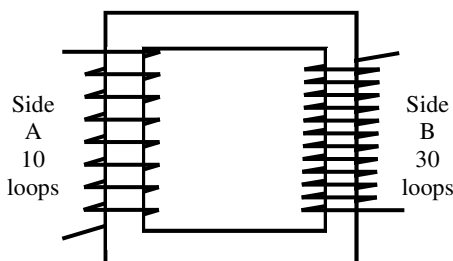
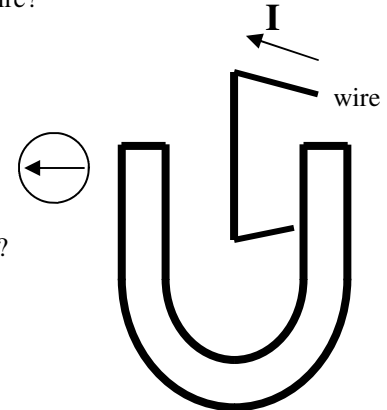
 - q is what?
 - What does the magnet move?
 - Is the direction of F_B the direction the wire is pulled or the direction of the induced current?



- In the example at the left a wire is pulled through a magnetic field. A current is induced in the wire.

 - Which direction is the magnetic field pointing?
 - What part of your hand is the magnetic field for the RHR?
 - Is the moving wire caused by a magnetic force?
 - Which part of your hand is the moving wire?
 - Which direction is the current induced in the wire?

- Compasses always point towards the ____ pole of a magnet.
- Mark the N and S of the horseshoe magnet.
 - Which direction is B inside the magnet?
 - In the middle section of the wire, in which direction is the current flowing?
 - Which direction will the wire deflect?
- When a magnet is pushed into and out of a solenoid repeatedly, is the output current AC (alternating current) or DC (direct current)?
- The device below is called a _____.
- To make it step-up voltage, which side would be the secondary?



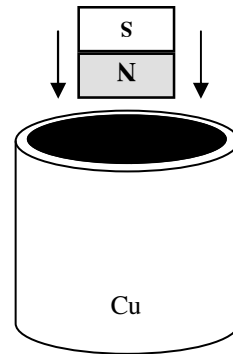
- For the device at the right.

 - ____ Which side has the most loops of wire?
 - ____ Which side has more current in it?
 - ____ Which side has higher voltage?
 - ____ Which side has the most magnetic flux?
 - ____ Which side has DC current flowing thru it?
 - ____ From the transformer I showed in class: which side has thicker wire?
- If 50 volts AC is put onto side A, how much voltage comes out?

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13. Explain completely how a basic motor works?
14. What does a commutator do?
15. How is a commutator necessary for a generator to work properly?

16. 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?



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

17. 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?
18. 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: _____.
19. A black and white object are placed under a heat lamp,
- A. Which one will heat faster?
 - B. Which one will cool faster?
 - C. The method of heating is: conduction; convection; radiation?
20. A. When water evaporates off of your skin, does your hand heat up or cool down?
B. So, evaporation is a c_____ process.
21. When does a sonic boom occur?
22. What is the Doppler effect?