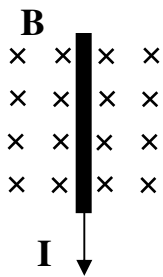


Q1



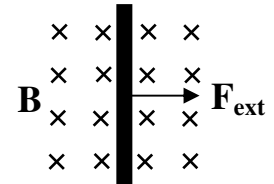
- The wire above has current moving in it to the left.
  - What is the direction of the magnetic field above the wire (out of the page)?
  - What is the direction of B behind the wire (in the page)?
  - What is the direction of B below the wire (toward the bottom of the page)?
- You now know the direction of B below wire 1. Use the magnetic field from wire 1 (fingers) to find the direction wire 2 (thumb).

Q3



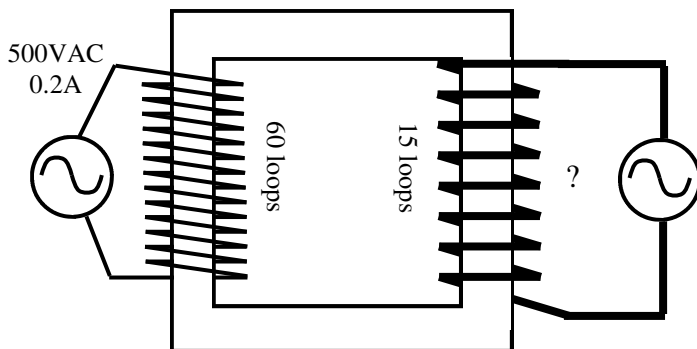
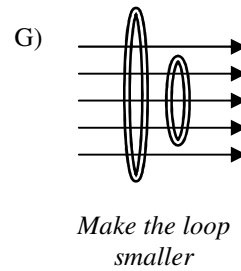
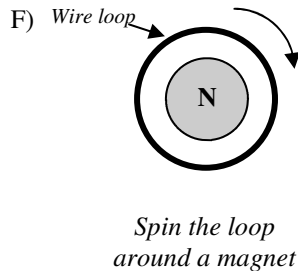
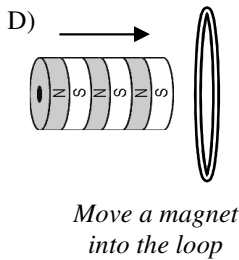
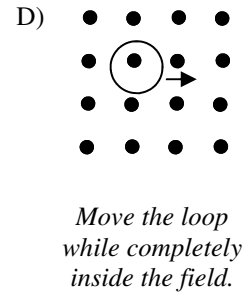
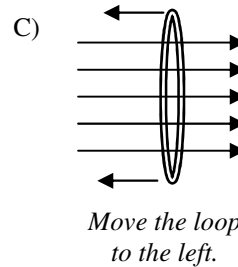
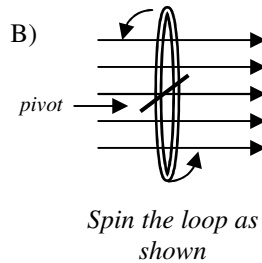
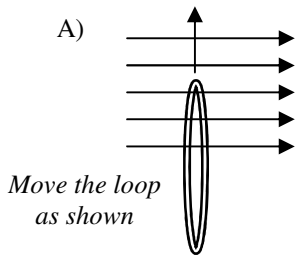
- If a battery is causing I in the wire at the left, find the direction the wire will deflect (move).
- A wire is pulled thru a magnetic field as shown at the right.
  - Is the magnet moving the wire?
  - Find the direction of the force in the wire (this is the direction of the induced current).

Q4



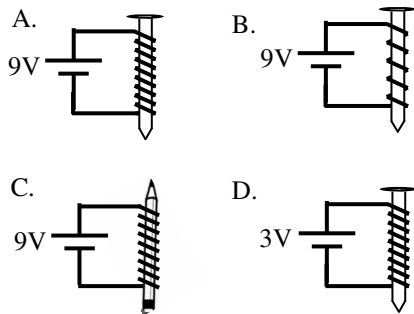
Remember: current will be induced if there is a change of magnetic field in the loop of wire.

- For each of the following instances decide if there will be an induced current.



- Does a transformer use AC (alternating current) or DC (direct current)?
- In the transformer at the left 500V AC is put into the left side.
  - Is this a step up or step down transformer?
  - Calculate the output voltage and current.
- Give two examples of transformers in everyday life.

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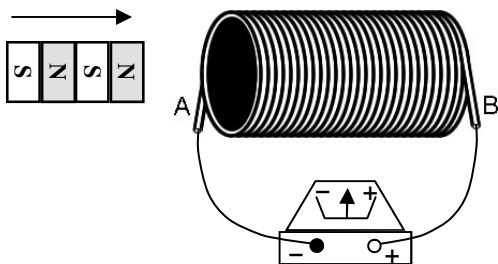
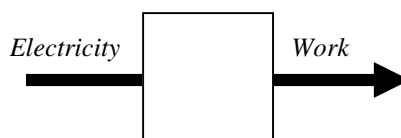
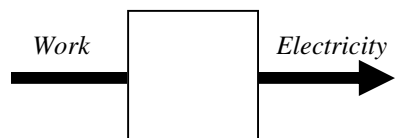


From the "Magnet" notes:

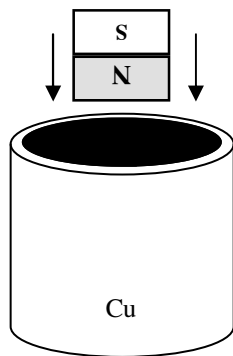
9. Give three ways to increase the strength of an electromagnet.
10. A. Which of the four electromagnets at the right is the strongest?  
B. Why?

11. Motor, Generator, or Both?

- A. \_\_\_\_ Creates electricity.  
B. \_\_\_\_ Has loops of wire in it.  
C. \_\_\_\_ Creates motion.  
D. \_\_\_\_ Is turned by a force.  
E. \_\_\_\_ The diagram below left.  
F. \_\_\_\_ Can make electricity.  
G. \_\_\_\_ Used in a hydroelectric dam.  
H. \_\_\_\_ Used in open or close windows in a car.  
I. \_\_\_\_ Turns when electricity is applied to it.  
J. \_\_\_\_ The diagram below right.



12. A North pole of a group of magnets is moved into a solenoid.
- A. Since the induced current wants to oppose a change of magnetic field, which side of the solenoid will be its North?
- B. Will the induced current cause the galvanometer to read positive or negative?
- C. Will there be induced current if the magnets are sitting motionless in the solenoid?



13. A magnet is dropped into a copper tube.
- A) Is the magnet attracted to the copper tube?  
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 as it moves thru the copper tube?  
E) The induced current wants to oppose the moving magnet, which way is the current flowing in the tube?

14. The diagram at the left shows a loop of wire moving inside a horseshoe magnet. The loop rotates clockwise around the pivot.

- A. Which direction does the magnetic field point?
- B. When does the rotating loop cut more magnetic field lines, when it is horizontal or vertical?
- C. Remembering that the wire is your thumb, which side will the induced current flow: out point T or point S (you can use the right hand rule on either side of the loop)?

