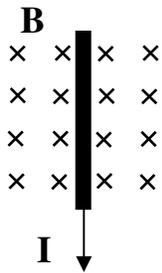


Q1



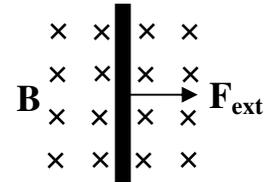
- The wire above has current moving in it to the left.
  - What is the direction of the magnetic field above the wire (out of the page) ?
  - What is the direction of B behind the wire (in the page)?
  - What is the direction of B below the wire (toward the bottom of the page)?
- You now know the direction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

Q3



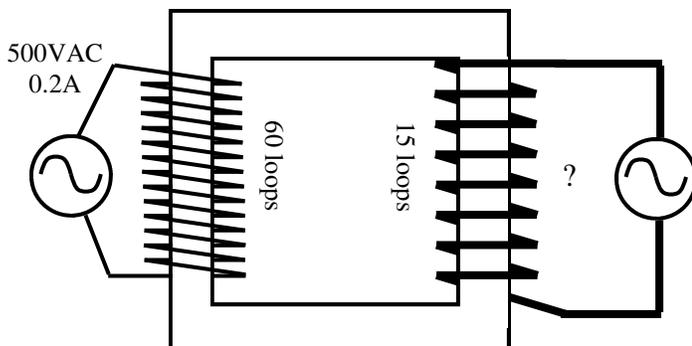
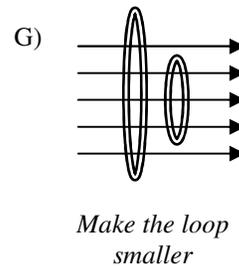
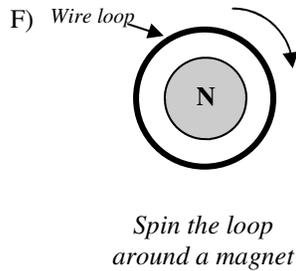
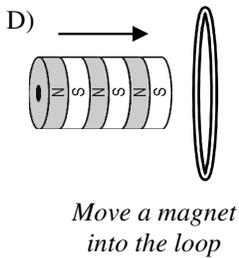
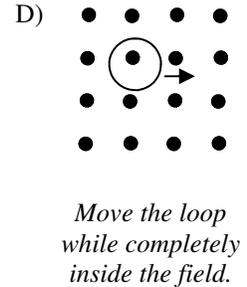
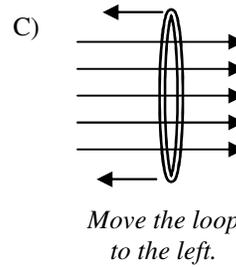
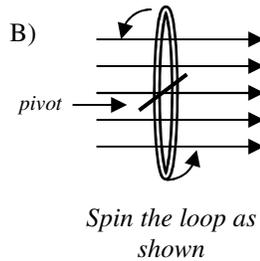
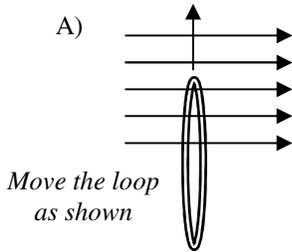
- If a battery is causing I in the wire at the left, find the direction the wire will deflect (move).
- A wire is pulled thru a magnetic field as shown at the right.
  - Is the magnet moving the wire?
  - Find the direction of the force in the wire (this is the direction of the induced current).

Q4



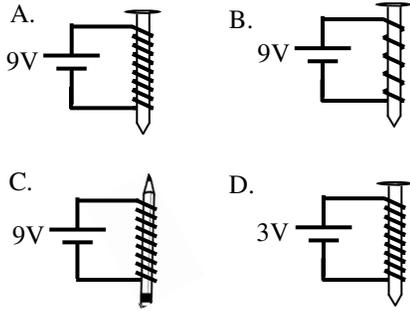
Remember: current will be induced if there is a change of magnetic field in the loop of wire.

- 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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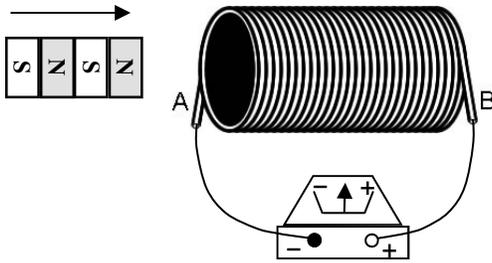
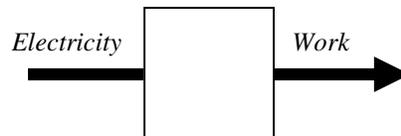


From the "Magnet" notes:

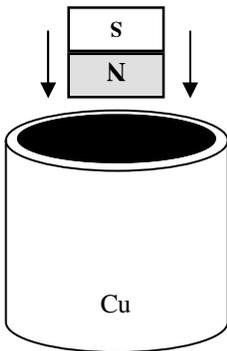
9. Give three ways to increase the strength of an electromagnet.
10. A. Which of the four electromagnets at the right is the strongest?  
B. Why?

11. Motor, Generator, or Both?

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

