

Final Exam Magnetism Review

Chapter 36

Equations:

$$F_{\max} = I l B$$

Concepts:

1. Magnetic field lines go from
 - a. Left to right.
 - b. North to south
 - c. South to north
 - d. Right to left

2. The magnetic field around a wire
 - a. Radiates outward.
 - b. Points inward.
 - c. Is circular.
 - d. Does not exist.

3. When using the right hand rule for direction of the magnetic field around a current carrying wire
 - a. Your thumb points in the direction of the field and your fingers curl in the direction of the current.
 - b. Your thumb points in the direction of the current and your fingers curl in the direction of the field.
 - c. You use spirit fingers to find the direction of the field.

4. The magnetic field strength is the greatest ____ a current carrying wire.
 - a. Close to
 - b. Far away from
 - c. 3 m away from
 - d. directly above

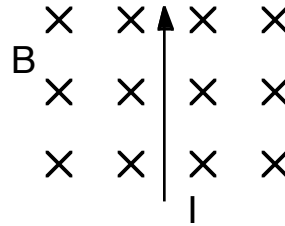
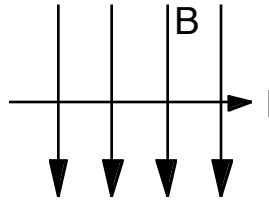
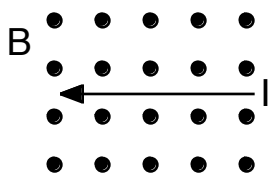
5. What types of fields surround a moving charge?
 - a. Electric
 - b. Magnetic
 - c. Electric and Magnetic
 - d. None of the above

6. A wire carrying 3 A of current to the right is placed in a magnetic field that points toward the left. The force on this wire is
 - a. Up
 - b. Down
 - c. Zero
 - d. Too large to measure

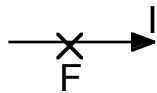
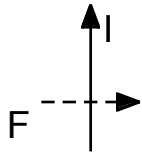
7. The coil of wire in the motor serves as a(n)
 - a. Permanent magnet.
 - b. Electromagnet.
 - c. Commutator.
 - d. None of the above.

8. Determine the direction of the force on the wire.

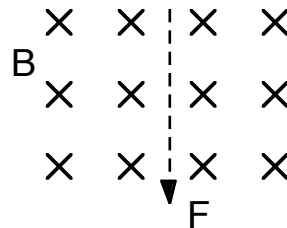
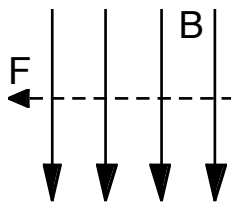
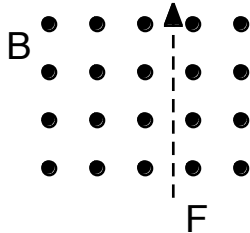
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9. Determine the direction of the magnetic field that causes the force on the wire.



10. Determine the direction of the current given the force and the magnetic field direction shown.



Problems:

1. A 10 cm wire carrying 2 A of current to the right experiences a force of 3 N into the page.
 - a. Sketch the situation.
 - b. What is the strength and direction of the magnetic field?

2. A 0.1 m wire carrying 5 A of current out of the page is placed in a 5 T magnetic field that pointed into the page.
 - a. Sketch the situation.
 - b. What is the magnitude of the force?
 - c. How would you position the wire in order for the wire to experience the most force?
 - d. What would be the maximum force exerted on the wire?