A magnet is found to attract a steel ball. If the magnet is flipped around the other way,

A) the ball will be repelled from the other side
B) the ball will also be attracted to the other side
C) the ball is neither attracted nor repelled by the other side

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A magnet is found to attract a second similar magnet. If the first magnet is flipped around the other way (left to right),

A) the two magnets will still attract
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Both magnets are free to move and rotate. What will happen?

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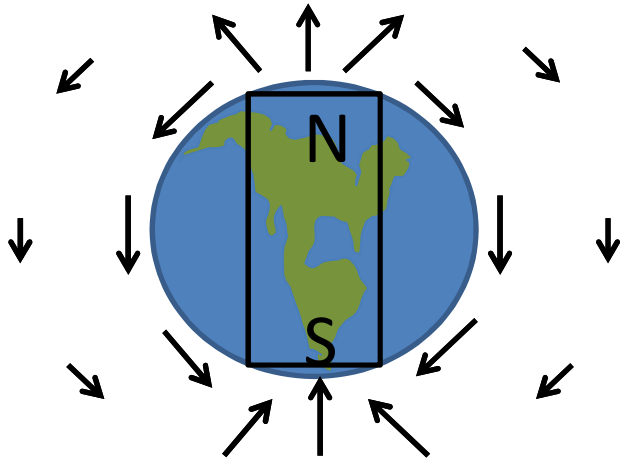
The two dipoles will both rotate clockwise toward the aligned position and move together.

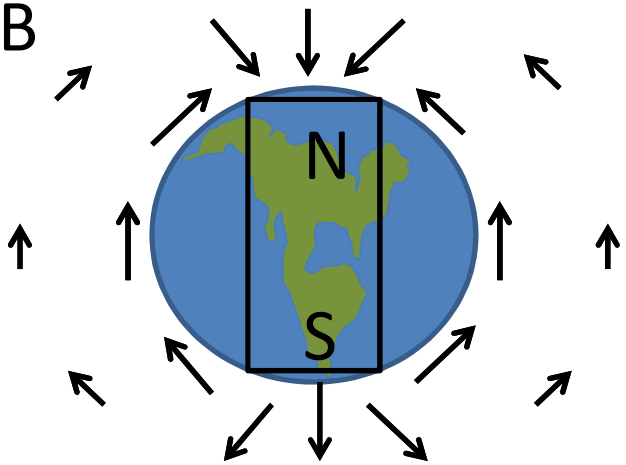
How can we define / determine the strength and direction of a magnetic field?

The Earth has it's own magnetic field, like a giant magnet. Which of the following pictures best represents the orientation of this magnet and the magnetic field of the magnet?

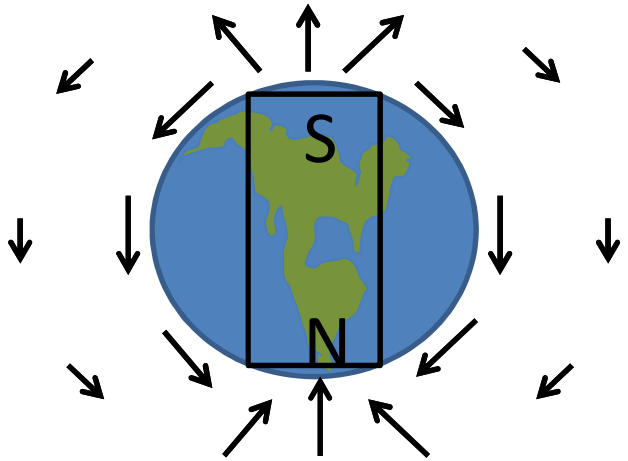
A



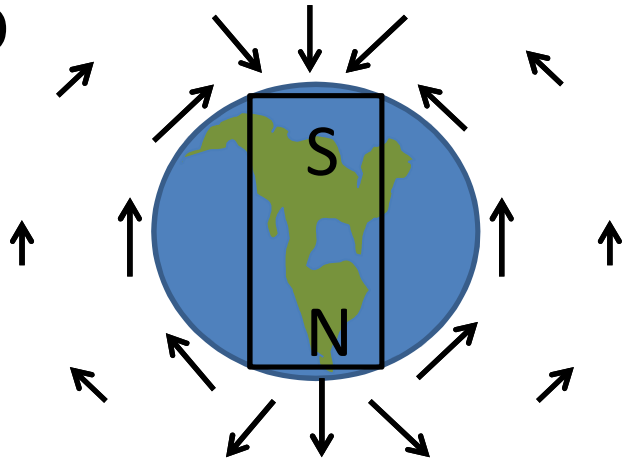
B



C



D



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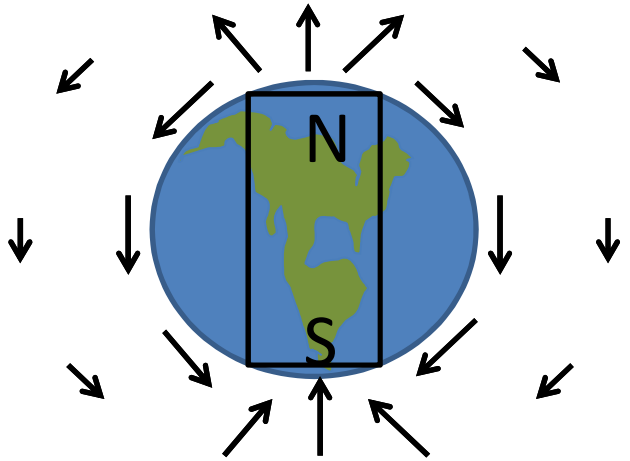
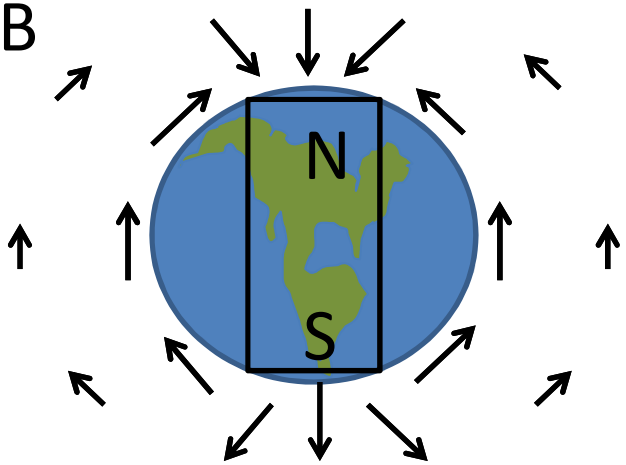
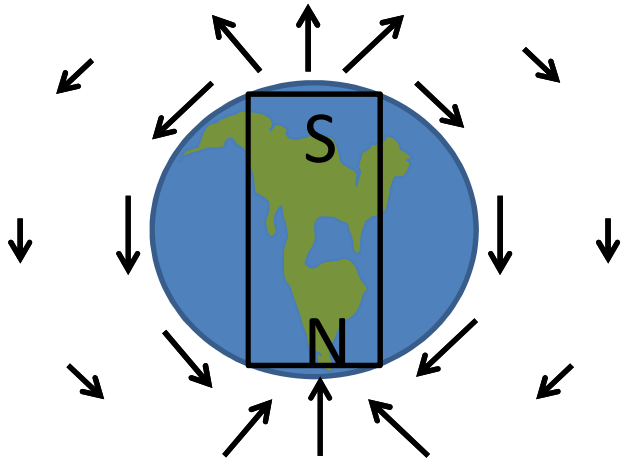


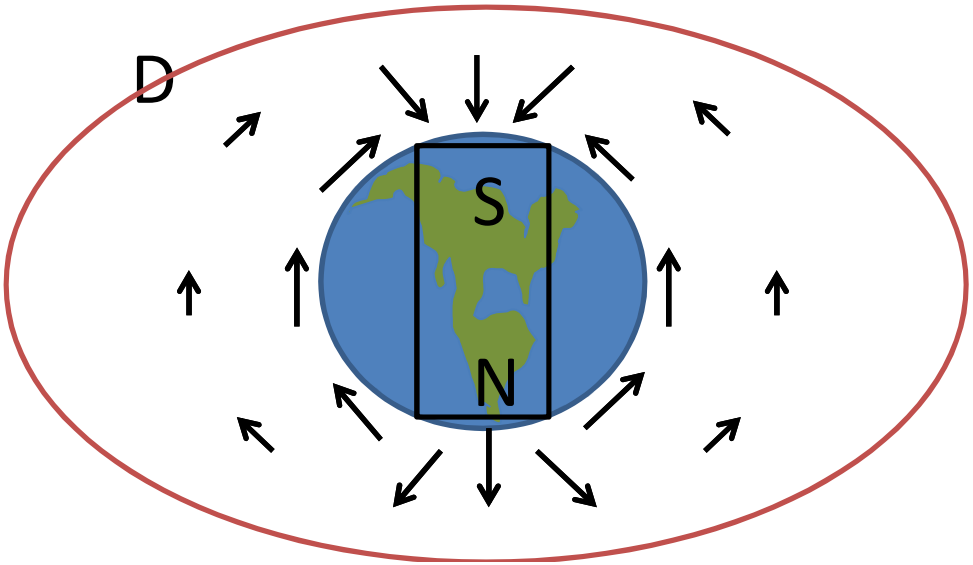
B



C



D



A small magnet B is twice as far from the magnet at the left as the small magnet A. We can say that the torque on B is

A) Twice as much as the torque on A
B) The same as the torque on A
C) Half as much as the torque on A
D) One quarter as much as the torque on A
E) One eight as much as the torque on A

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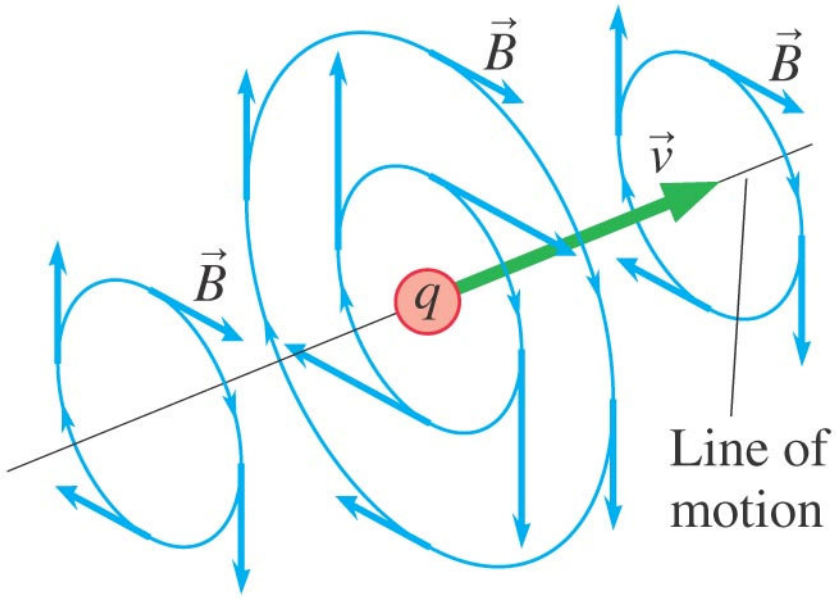
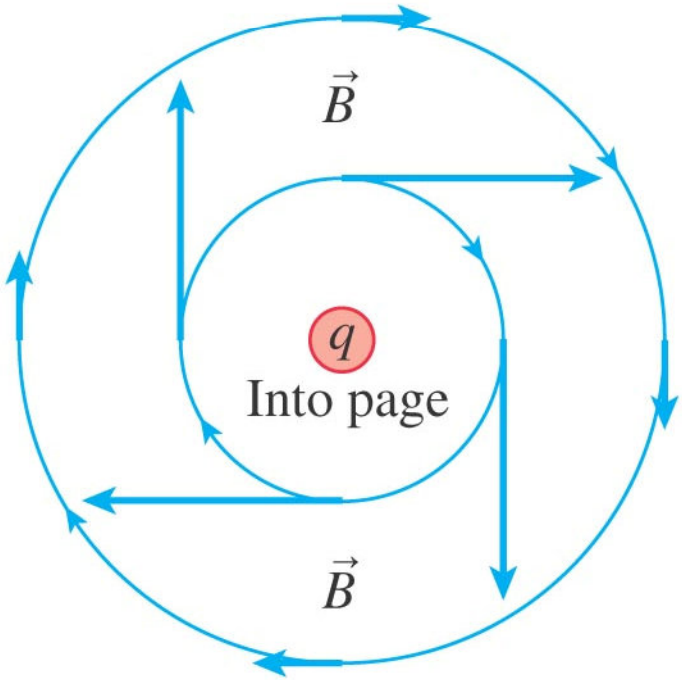
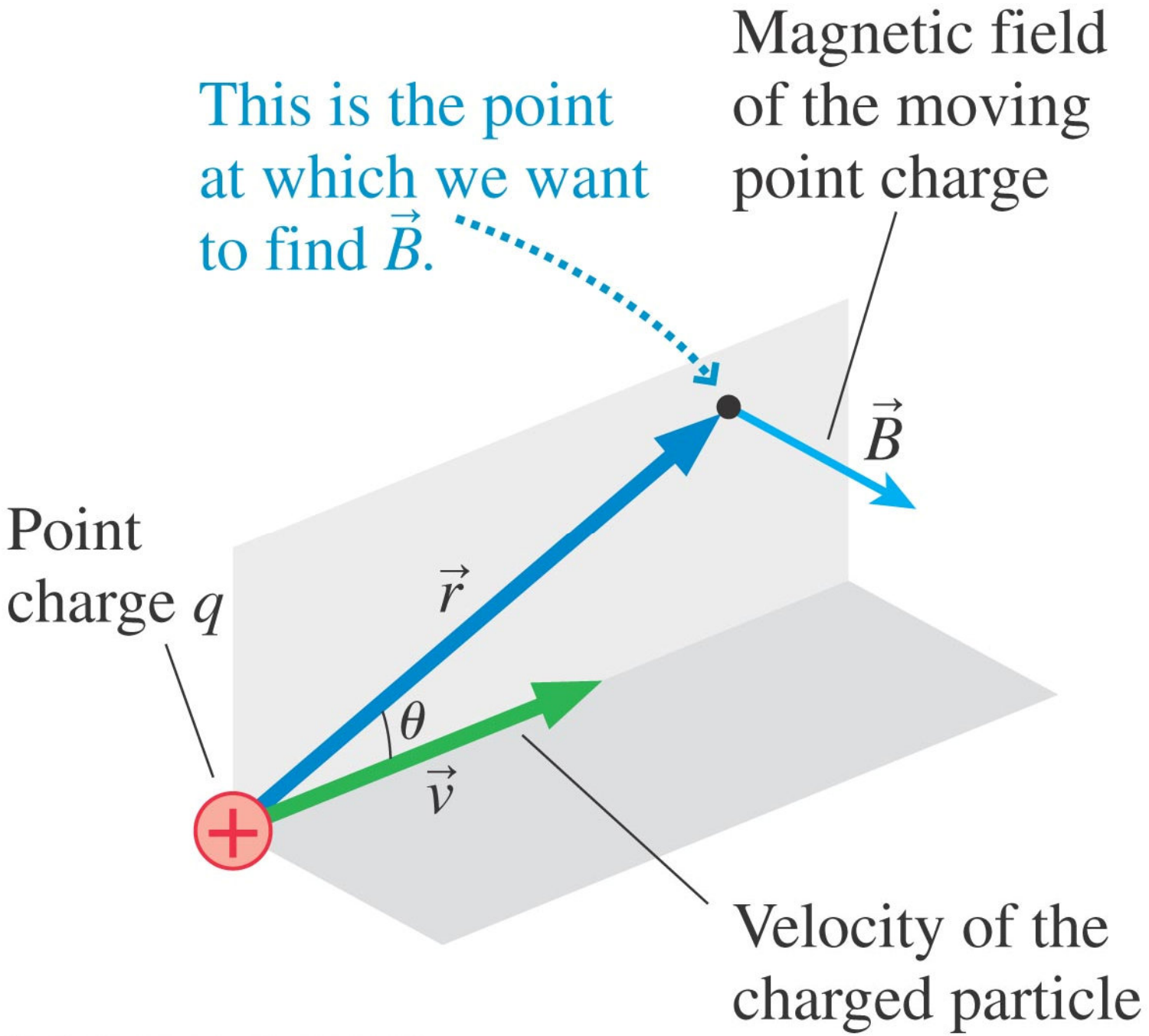
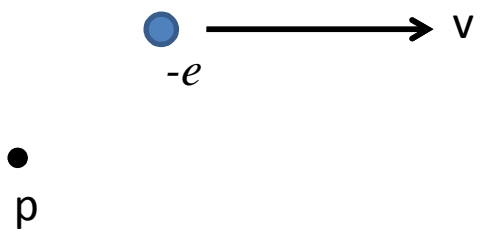






Imagine an electron moving to the right as shown:



The magnetic field at the point p points:

A) Straight into the picture
B) Straight out of the picture
C) Down and to the right
D) Up and to the left
E) None of the above

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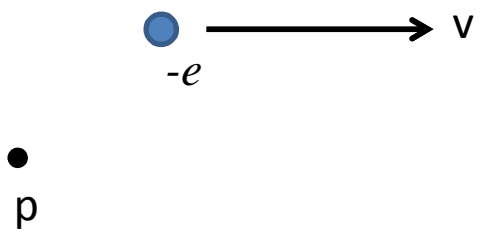

The magnetic field at the point p points:

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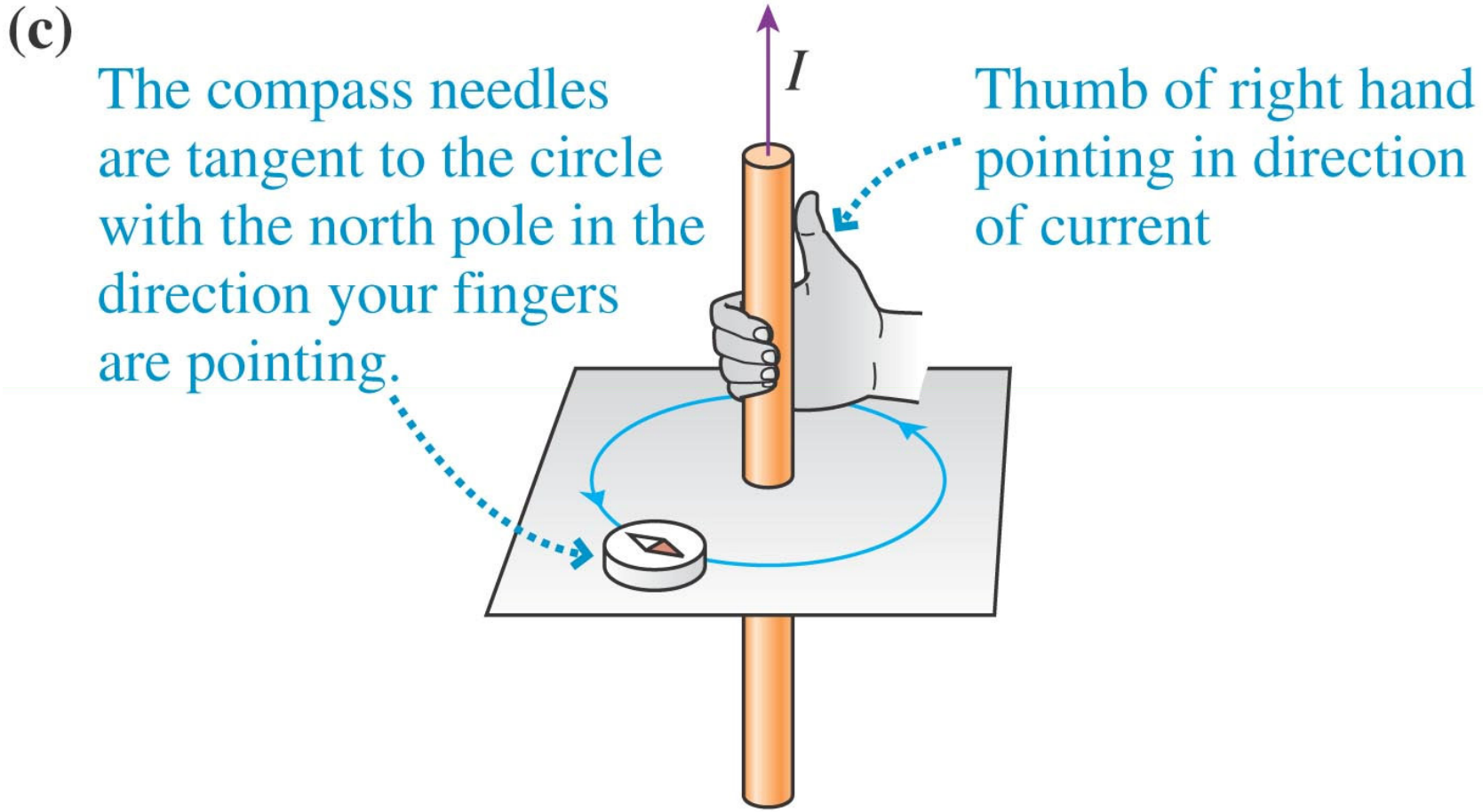
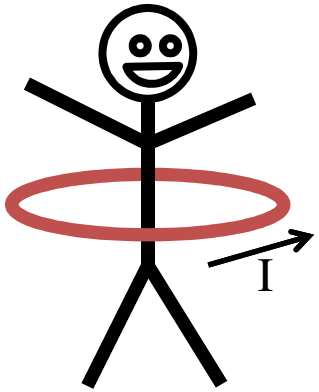
(c)





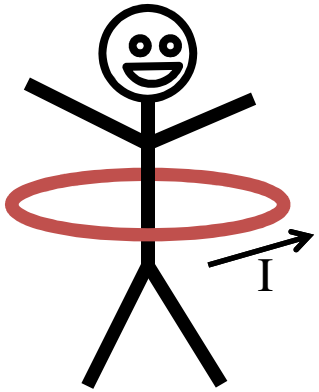
Hula-Harry's hula hoop has a superconducting wire inside carrying a constant current as shown. We can say that the magnetic field in the middle of the hoop:

A) Points upwards

B) Points downward

C) Is zero, since the magnetic field from current on opposite sides of the hoop cancel.

Extra: What is the answer if we ask about the field at a point to the right of the hoop? What about the field at the top of Hula-Harry's head?



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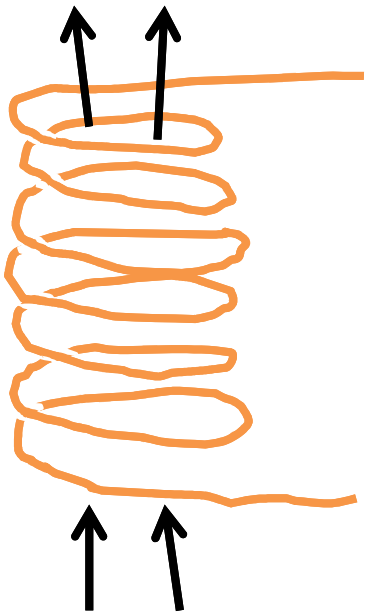
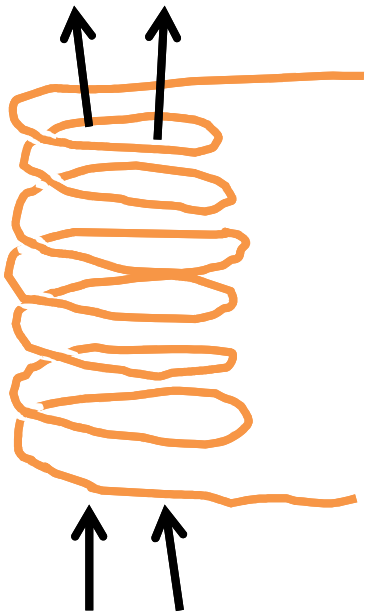


The magnetic field in a coil of wire is shown. Which direction is the current flowing?

A) From top to bottom.

B) From bottom to top.

C) Neither of these would produce a field as shown.



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The magnet on the left is fixed, while the magnet on the right is free to move and rotate. What will happen?

The magnet on the left is fixed, while the magnet on the right is free to move and rotate. What will happen?

The magnet will start to rotate counterclockwise. It will then be attracted to the other magnet. The behavior is exactly like for two electric dipoles.

Which of the following pictures shows the correct magnetic fields cause by a magnet?

A) 

B) 

C) 

D) 

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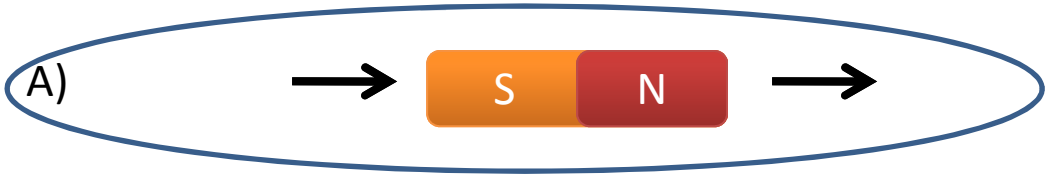
A) 

To find the direction at some location, think of which way a small test magnet would align at that location. The direction of the magnetic field is which way the North end points.

B) 

C) 

D) 

A charged plastic rod is moved nearby a magnet that is free to rotate. What will happen?

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Nothing, if the magnet is perfectly vertical: the two sides of a magnet don't have any net charge. If the charged rod is brought closer to one end or the other, it will attract that end due to the usual electrical polarization effects (charged objects attracting neutral).