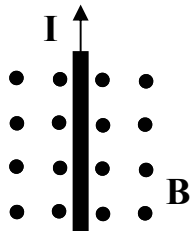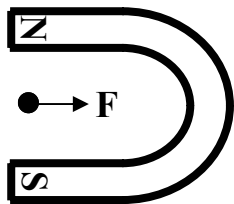# Magnetism In Class Review

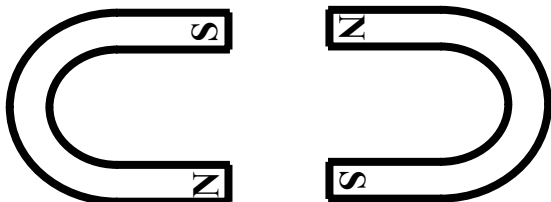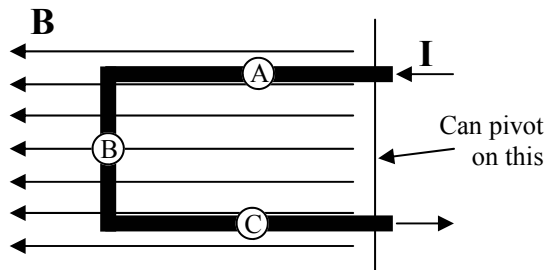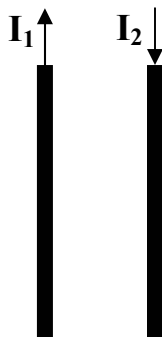1. A. Find the force. B. Find the current's direction. C. Find B's direction.

2. Draw the field lines.

3. Find which way the loop will pivot: into or out of the page?

Can pivot on this

4. Will two wires that have current going opposite directions attract or repel?
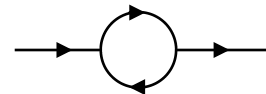
5. Prove it. (Give me your reasoning.)

I_1 I_2

6. Which way will the loop turn and why?

7. This could be an example of simple m_____.
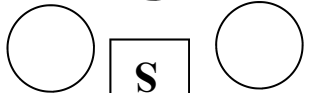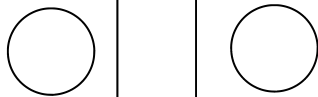
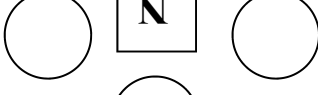8. How could you keep it turning?

9. Draw the magnetic field lines.

10. Draw where the compasses will point.

11. Compasses point along the m_____ f_____ l_____.

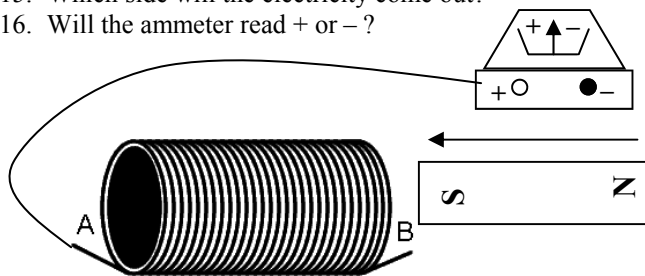12. The compasses are actually t_____ to the answer in Q9.

S

N

14. What is the direction of the induced magnet?
15. Which side will the electricity come out?
16. Will the ammeter read + or − ?

+ −
+ O   ● −

A   B

17. By closing the area of the loop, was the magnetic field increased or decreased?

13. Emf (E) or Voltage (V) or Both (B)?

A) ___ Produced by a battery
B) ___ Produced by a moving magnet.
C) ___ Can cause electricity.
D) ___ Comes from a generator.
E) ___ Can make a motor move.
F) ___ The primary of a transformer uses this.
G) ___ From a transformer secondary.
H) ___ From a solenoid when I move a magnet in.

18. So, to counteract this change the induced magnet will make a magnet field in which direction?

Before B   After B

A   A
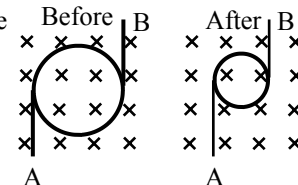
19. So, which direction will the current come out?

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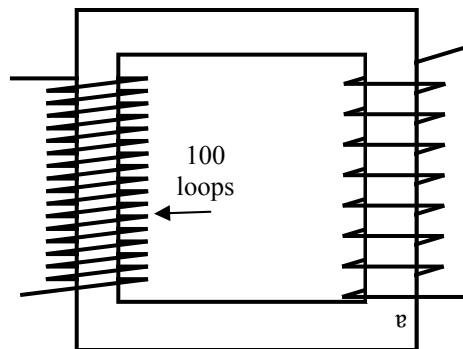
Magnetism In Class Review

20. Using the RHR, find which direction the current will come out before and after.

21. Which one has the greatest emf, when horizontal or vertical?

22. When the horizontal loop moves clockwise
    A) Is the magnetic field increased or decreased in the loop?

    B) What is the direction of the induced magnet to resist this change?

    C) So, using the circular RHR, which way will the current move?

Before

After

A B
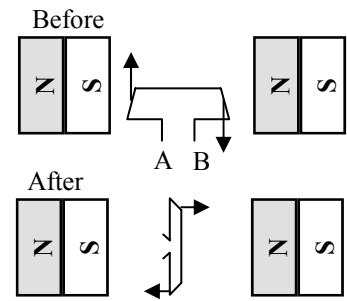
23. An group of coils can lift 15 paperclips. 30 paperclips are 12 grams.
    A) What is the group of coils called (2 possibilities):
    B) How could you get it to lift more paperclips?
    C) Using the numbers above, find the maximum force exerted by the coils.

24. Which of the two loops above would cause a greater emf if the area was decreased (you shrank the loop)?

26. To make it a step-down transformer, put the input voltage on which side?

25. 25 circular loops of wire have a radius of 2 cm. If a magnet is pulled out in 0.25 sec, produces an emf of -170 volts and the coils are oriented at 40°, find the change of magnetic field that caused it.

100 loops

27. To make it a step-up transformer, which side is the primary?

28. How does the magnetic flux compare on

both sides?

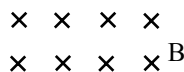29. A 40 N force is felt in a 3 T field on a 3 μc charge. Find the speed of the charge.

30. If the input voltage is 120 V AC and the output voltage is 880 V AC, find the number of loops on the right side.

33. If the output current is 6 amps, find the input current.

31. Draw the path of the charge.
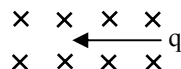
32. Why do you know it will take that path

× × × ×
× ← × × q
× × × ×
× × × ×
× × × × B

34. The two spheres below feel what force?

35. Label m_1, m_2, and r. on the diagram.

36. Calculate r.

37. Calculate F_g.

8 m

10 m

5 m

1000 kg

500 kg