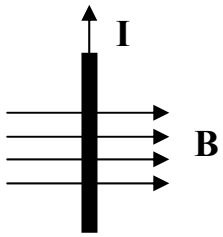
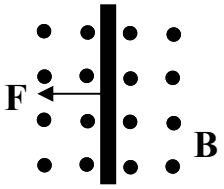
Magnetism Review 2/ Electricity Review

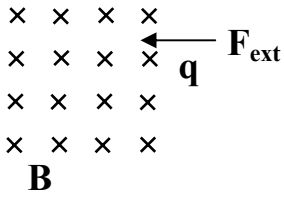
1. A. Find the force.



B. Find the current's direction.

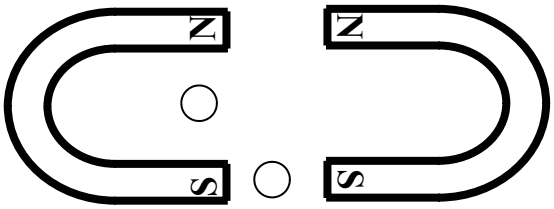


C. If an external force is applied to the charge which way will it move?

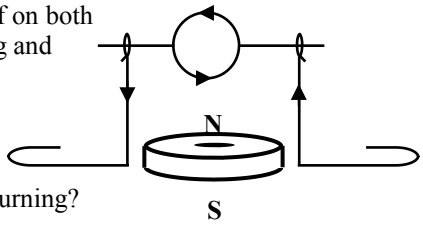


3. Will they attract or repel (prove it)?

2. Draw the field lines. (And fill in the compasses.)

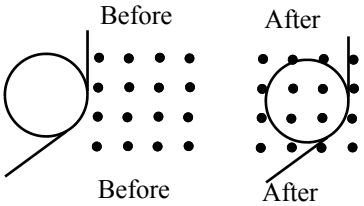


4. Which way will the front of the loop turn?
5. If all the insulation is off on both ends, will it keep turning and why?

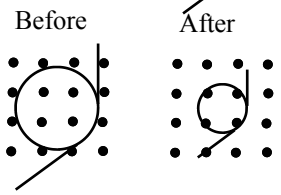


6. How could you keep it turning?

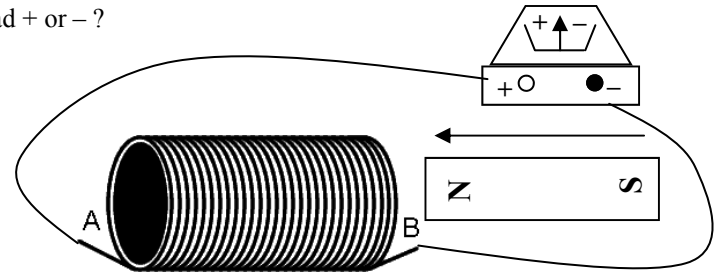
7. Will the current go CW or CCW around the loop?



8. Will the current go CW or CCW around the loop?



9. Will the ammeter read + or – ?



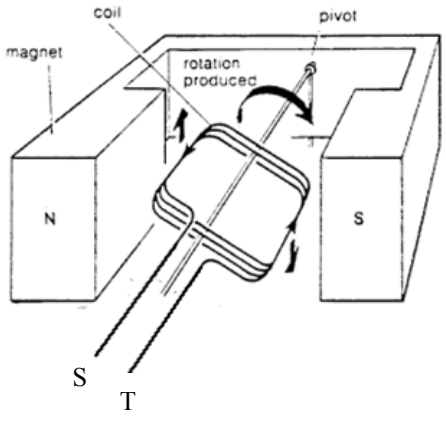
10. Draw a step-up transformer with the primary on the left.

11. The picture shows a square loop turning inside a horseshoe magnet.
A) When will it break more magnetic field lines: when vertical or horizontal?

B) Is the turning coil due to B or an external force?

C) So, is the moving wire I or F for the RHR?

D) On the right side the loop is going down, so which way is the current going, out S or out T?



E) As the loop moves from horizontal to vertical does B increase or decrease inside the loop?

F) So, the loop will o_____ this change and make a B going which way?

G) As a result, when the loop goes vertical, will the current in the wire be going CW or CCW as seen from above the loop?

Magnetism In Class Review 2/ Electricity Review

12. Voltage (V), Current (I), or Resistance (R)?
    - A) _____ Adding batteries increases this.
    - B) _____ Adding longer wires increases this.
    - C) _____ Decreasing resistance increases this.
    - D) _____ If current decreases, what decreased?
    - E) _____ This has to be zero at the negative side of the batteries.
    - F) _____ This has to be the same on both sides of a junction (where wires come together or split apart).
    - G) _____ Can still be moving though voltage is zero in that part of the circuit.
    - H) ____ How much charge is moving per second.
    - I) ____ Increases with temperature.
    - J) ____ Like gravity pulling water down.
    - K) ____ How much water flows in a pipe.
    - L) ____ How small or tight a pipe is.
    - M) ____ Separating a positive and negative charge causes this.
    - N) ____ The actual electrons moving is this.

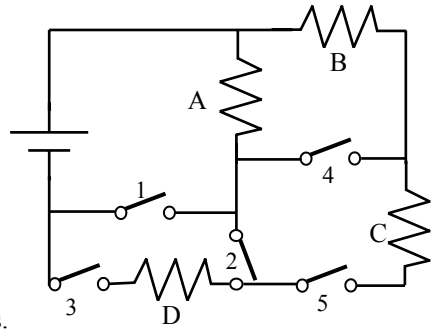
13. What is electricity actually?

14. Voltage _____, current _____, and resistance _____.

15. If a negative object touches ground, will electrons go to or from ground?

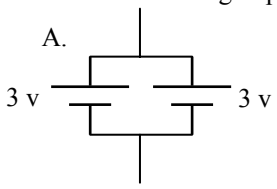
16. If a positive object touches ground, will electrons go to or from ground?

17. Figure out which switches must be on for each of the following resistors or pair of resistors to be on. Keep in mind that it might not be possible.
    - A) For only A and D to be on.
    - B) For only A to be on.
    - C) For only B to be on.
    - D) For only A and B to be on.
    - E) For only B and C to be on.
    - F) For only A, B, and C to be on.



18. Are the following in parallel or series and calculate the desired quantities.

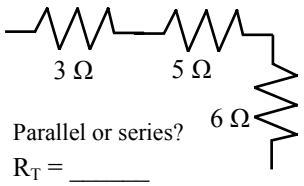
A.



Parallel or series?

V_{total} = _____

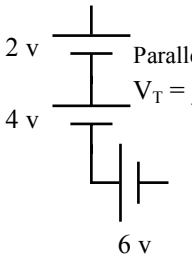
B.



Parallel or series?

R_T = _____

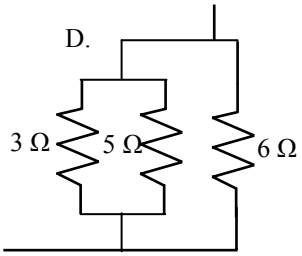
C.



Parallel or series?

V_T = _____

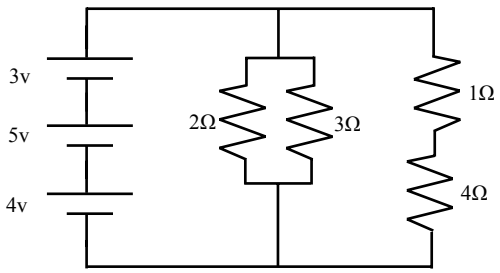
D.



Parallel or series?

R_T = _____

19. For the diagram at the right answer the following (imagine the resistors are light bulbs).
    - A) The 2 Ω and 3 Ω resistors have the same:
    - B) The 1 Ω and 4 Ω resistors have the same:
    - C) The three batteries have the same:
    - D) The voltage at the bottom of the third battery must equal:
    - E) The voltage at the top of the three batteries =
    - F) Which is brighter: the 2 Ω or 3 Ω light bulb?
    - G) Why?
    - H) Which is brighter: the 1 Ω or 4 Ω light bulb?
    - I) Why?
    - J) The voltage difference across a wire always equals:
    - K) Current thru the 2Ω = _____ L) Current thru the 4 Ω = _____
    - M) Find the total resistance and current of the circuit.



20. If the top of object B is negative and object A is put on top of it,
    - A) will the bottom of object A be positive or negative?
    - B) So, where will the electrons on object A go?
    - C) If you touch object A with your finger, what will go up your finger?
    - D) Afterward what charge will object A be?