**Name: _____ Period: _____**

# Chapter 20 Review (50 points)

**Fill in the Blank (20pts)**

1. Unit of voltage (full term): _____
2. Unit of current (full term): _____
3. Unit of resistance (full term): _____
4. Does the current increase or decrease after increasing resistance? _____
5. Does current increase or decrease after increasing voltage? _____
6. Is a circuit open or closed when the light bulb is on and glowing? _____
7. This is a term that is a measure of electric potential energy. _____
8. Are metals conductors or insulators? _____
9. Will an insulator increase or decrease current? _____
10. Silicon is an example of a what? _____
11. Do opposite charges repel or attract? _____
12. True or False. Current travels from positive to negative. _____
13. The device used as a variable resistor in the labs we did in class: _____
14. When you run your head with a balloon, what is transferred to the balloon?_____
15. This determines how much current flows for a given voltage (vocab) _____
16. If the current is 10A and the voltage is 20V. what is the resistance? _____
17. If current is 20A and the resistance is 3Ω, what is the voltage? _____
18. If the resistance is 4Ω and the voltage is 80V, what is the current? _____
19. In our water analogy, a pump was analogous to what in a circuit? _____
20. When measuring current with a multimeter, what does AC stand for? _____

**21. Draw the electrical symbol for each of the following devices: (5 points)**

| Battery | Resistor | Switch Open | Switch Closed | Wire |
|---|---|---|---|---|
| | | | | |

22. **Draw a CLOSED electric circuit below with all five essential parts as shown in the previous question. If the light bulb is on, draw light rays coming out of it (5pts):**

**Indicate whether the following are inversely or directly proportional (6 points):**

23. Voltage and current _____
24. Current and resistance _____
25. Resistance and Voltage _____

26. **In the space below draw the Ohm's Law "mathematical relationship triangle," along with the three separate mathematical relationships that is contained within it (4 points)**

**Use the Ohm's Law to calculate the following values. Don't let the wording confuse you, it's just as simple as you think! For each question I will give one point for the right answer, and one point for showing your work. (10 points)**

27. Find the current through a 12-ohm resistive circuit when 24 volts is applied.

28. Find the resistance of a circuit that draws 0.06 amperes with 12 volts applied.

29. Find the applied voltage of a circuit that draws 0.2 amperes through a 4800-ohm resistance.

30. Find the applied voltage of a telephone circuit that draws 0.017amperes through a resistance of 15,000Ω.

31. A 20-volt relay has a coil resistance of 200 ohms. How much current does it draw