Worksheet: Reviewing Concepts

CHAPTER 34: ELECTRIC CURRENT

Directions: Answer the following questions based on reading from Chapter 34 (pgs. 680-701) and/or from notes in class.

1. Describe the energy conversions that occur in each of these devices:
   a. Incandescent light bulb-
   b. Clothes dryer-
   c. Digital clock radio

2. What are the Units (name and/or broken-down units) for the following values?
   a. Energy =
   b. Power =
   c. Current =
   d. Resistance =
   e. Electric Potential Difference =

3. How many electrons flow past a point in a wire each second if the wire has a current of 1 A?

3. Describe two ways to increase the current in a circuit.

4. If the voltage across a circuit is kept constant and resistance is doubled, what effect does this have on the circuits current?

5. What is the effect on the current in a circuit if both the voltage and the resistance are doubled? Explain.
6. The current through a light bulb connected across the terminals of a 120-V outlet is 0.50 A. At what rate does the bulb convert electric energy to light? (Remember that \( P = IV \) and from chapter 10, \( P = E/t \) or rewritten solving for \( E \), \( E = Pt \))

7. A car battery causes a current of 2.0 A through a lamp while 12 V is across it. What is the power used by the lamp?

8. An automobile headlight with a resistance of 30 \( \Omega \) is placed across a 12-V battery. What is the current through the circuit?

9. A motor with an operating resistance of 32 \( \Omega \) is connected to a voltage source. The current in the circuit is 3.8 A. What is the voltage of the source?

10. A lamp draws a current of 0.50 A when it is connected to a 120-V source.
   a. What is the resistance of the lamp?
   b. What is the Power consumption of the lamp?