Name _____ Date _____

Honors Physics Electric Circuits WS #1H

Period _____ Mrs. Nadworny

A

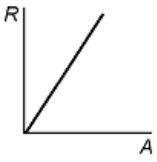
Current and Resistivity

Directions: Read online textbook pages 694 – 699 and p. 701. Solve the following problems using the GUESS method and proper significant figures. Be sure to show ALL work.

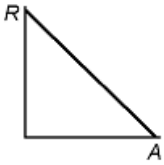
1. A complete circuit is left on for several minutes, causing the connecting copper wire to become hot. As the temperature of the wire increases, the electrical resistance of the wire

   (A) increases (B) decreases (C) remains the same

2. Several pieces of copper wire, all having the same length but different diameters, are kept at room temperature. Which graph best represents the resistance, R, of the wires as a function of their cross-sectional area, A?

   (A) 

   (B) 

   (C) 

   (D) 

3. What is the current in a wire in which 35 kC pass a point every 95 seconds?

4. How many charges flow through a circuit if a 72 A current is allowed to flow for 3.5 minutes?

5. Calculate the resistance of an aluminum wire that is 8.0 meters long with a *diameter* of 1.5 mm at 20^0 C.

6. What is the resistance of a 10.0 meter long tungsten wire, at 20^0 C, having a cross sectional area of 2.0×10^{-6} m^2?

Answers in size order: 0.13, 0.28, 370, 9.4×10^{22}