

NAME: _____

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ELECTRICITY: PHYSICS QUIZ #1

1. What is the equivalent unit to an amp? What are the other way to write the units? (1 mark)

1 A = 1 _____

What is the equivalent unit to a watt?

1 Watt = 1 _____

2. What is the drift speed of electrons in a wire? (The actual number)

What is the difference between drift speed and the current? (3 marks)

3. A conductor has a current of 2 A, How many electrons flow through the wire in a time of 15 seconds? (2 mark)

4. A lawn mower may use a 20-gauge extension cord that is 35 m long. The cross-sectional area of the 20-gauge wire is $5.2 \times 10^{-7} \text{ m}^2$. The metal used in this wire is silver (look up the number on the table in L2. Determine the resistance.
(2 mark)

5. If a copper wire (resistivity of $1.72 \times 10^{-8} \Omega \cdot m$) is 20m long and has a resistance of 0.15Ω , what is the cross sectional **area** of the wire? (2 mark)

6. Suppose the heating element in a toaster has a resistance of 15.0Ω . If the toaster is plugged into a 120 V outlet, determine the following: (2 marks)

a) The **power** dissipated by the toaster

b) The **current** passing through the toaster.

7. Determine the **voltage** for a 2.0 mA current through 400Ω of resistance. (1 mark)

8. List **and explain** one factor that influence resistance in a wire? Think of the variables in the formula (1 mark)

9. What is the relationship between current and voltage? Current and resistance? (**proportional/inversely proportional etc**) (2 marks)