

ENGR 120

Homework 1

NOTE: Use engineering format for problems 3 through 5. This is an individual assignment. You must complete the assignment on your own, although you may discuss the problems with other class members (but no copying of work).

1. Send the instructor an email message using your latech email address.
2. Review the “helpdesk schedule” at www.livingwiththelab.com; select “week” on the calendar so you can view the calendar details. Go to Bogard Hall 129 on the correct date for your ENGR 120 section to install Mathcad and SolidWorks. You will need a \$100 money order made out to Louisiana Tech University to install the software (or \$35 for only Mathcad and \$75 for only SolidWorks). You will need both of these software packages in ENGR 120. Please see your instructor if you are unable to meet at the designated time.
3. Estimate the number of copper atoms in an 8 gage (or gauge) wire that is two feet long? Hint: You may need to find the size of the wire on the Internet and look at a periodic table of elements. When looking for gage, you may find that some people spell it as gauge and denote the size as 8 AWG where AWG stands for American Wire Gage. **Answer = $4.33(10)^{23}$ atoms**
4. What is the current through a conductor that carries a charge of 13,129 C (coulombs) across it in 9 minutes? **Answer = 24.3 A**
5. A lamp is plugged into 10 volt DC power source. An ammeter attached to the circuit indicates a current of 2 amps. Using this information, how many ohms of resistance does the lamp provide? **Answer = 5Ω**

NOTE: *If you don't have your Arduino and Boe-Bot parts kit, then make sure you have the items on order with expedited shipping.*