Chemistry 161a - Fall 2018

Chapter 1 Discussion

Without calculating each expression, determine the correct number of significant figures each answer should be reported to. Discuss the number of significant figures with your teammates.

- a) $6.42 \times 10^4 + 2.5 \times 10^3 =$
- b) $(2.00 \times 10^5)/(4.0 \times 10^3) =$
- c) $\frac{9.284-4.81}{12\times1.13}$ =

Would your answer for part c above change if you rounded off after each step?

Convert 1.0 square inches to square centimeters.

How many milliliters are in a cubic meter? How many cubic meters are in a liter?

<u>Test-like question</u>: You are a chemist who is charged with running a machine that puts a 20.00 μ m thick coating on note cards that are 3×5 inches. In order to put the coating on 500 of these cards, what is the minimum volume of coating you need (in mL)?

<u>Another</u>: Which of the following is a homogeneous mixture?

- (a) a wedding ring
- (b) sweat
- (c) Nile River water
- (d) human blood
- (e) compressed air in a scuba tank

If you have extra time:

The speed of light is 299,792,458 m/s.

a. Express the speed of light in miles per hour.

b. A light-year is the distance that light travels in a year. Calculate this distance in miles, showing your use of dimensional analysis. Express your answer in scientific notation and with the correct number of significant figures.

c. Express the speed of light in feet per nanosecond. Use this value to calculate how long it takes light to travel from the overhead lights to your eyes.