PHYSICS 1121 Uncertainty of Volume Experiment 1 Homework

Name:_____ Lab Instructor:_____

Date:_____ Day of Week:_____ Time:_____

1. A man notices a vacant lot for sale. He uses a yard stick with 1% accuracy and finds the dimensions to be 60' by 150'.

A. What is the smallest lot area determined?

B. What is the largest lot area determined?

C. What is the percent uncertainty in the measured area?

2. An interior decorator installs an aquarium that is 0.5 meters wide, 2 meters deep, and 4 meters long. At 2% uncertainty of linear measure, what is the percent uncertainty in the volume?

3. The light intensity of a lamp varies as the fourth power of the filament temperature. At 3% temperature accuracy, what is the percent uncertainty in light intensity?

4. The most accurate measuring devices described in this experiment are used to measure the dimensions of a parallelepiped. To the accuracy of the appropriate device, the dimensions are found to be 6 mm by 5 cm by 20 cm.

A. What is the percent uncertainty in the area of the 6 mm by 5 cm face?

B. What is the percent uncertainty in the area of the 6 mm by 20 cm face?

C. What is the percent uncertainty in the volume?