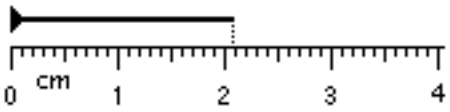
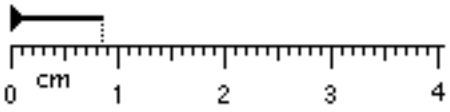
Chem I Name _____

Date _____ Per _____

Worksheet # C2: Measurements (pgs 44-53)

1. What is the best possible measurement of each of the following nails? Be sure to include a last estimated, uncertain best guess. The give the number of significant figures (sig figs) in the measurement.

	measurement	# of sig figs
	a. _____	_____
	b. _____	_____
	c. _____	_____
	d. _____	_____

2. How many significant figures are in each of the following numbers?

a. _____ 34,66.98

b. _____ 208

c. _____ 72,000

d. _____ 72,000.

e. _____ 452.0

f. _____ 0.00654

g. _____ 10,908.000020

h. _____ 0.02300

3. Rules for Adding and Subtracting: The least accurate number you're adding or subtracting determines how accurate your answer can be (no counting numbers of sig figs yet - that's for # 4 below). Solve the following with the correct number of significant figures.

a. _____ 13.2 + 14.57 _____ .0678 + .002 _____ 678 + 1,200

b. _____ 47.2 - 39.844 _____ 2.0 - .995 _____ 45.00 - 3

4. Multiplying and Dividing: Multiply or divide. Then count the number of sig figs in the numbers you multiplied or divided. Your answer can only have as many sig figs as the least number of sig figs that the numbers you multiplied or divided had.

a. _____ 334.8 x 1.23 _____ 5101 x 16.1111 _____ .00022 x 10,100

b. _____ 345 ÷ 0.98 _____ .01589 ÷ 251 _____ 101.4 ÷ .059

5. You and your friends are all pitching in to buy a pizza. You have exactly $5.46. Cindy has $7.52. Bob says he has seven dollars and something cents. The pizza costs $20.50.

a. Can you buy the pizza? _____

b. Frustration due to lack of accuracy has plagued scientists ever since they started making measurements. The rules for significant figures were designed to convey the accuracy of every number that results from a measurement, whether it's a measurement or a calculation made using measurements.
According to the rules of sig figs, how much money does your hungry group have?

_____

c. What do you need to know in order to decide if you can get the pizza or not?

_____

6. In a lab measuring milk using different sizes of graduated cylinders, you obtain the following volumes:

15.2 mL , 3.08 mL, 127 mL and 332.1 mL

Using the rules of sig figs, how much total milk was measured? _____

7. A box was measured with three different rulers. Its length was 64.2 cm, its width was 48 cm, and its height was an impressive 12.385 cm.

Using the rules of sig figs, calculate the volume of the box. _____

8. Are you starting to get the hang of working with significant figures? _____