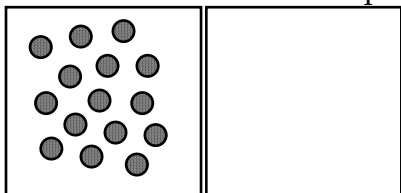# Chemistry – Unit 1 Review

1. What is the difference between mass and volume?

2. If the box at left contains atoms of aluminum in the liquid phase, represent the same atoms in the solid phase in the box at right.
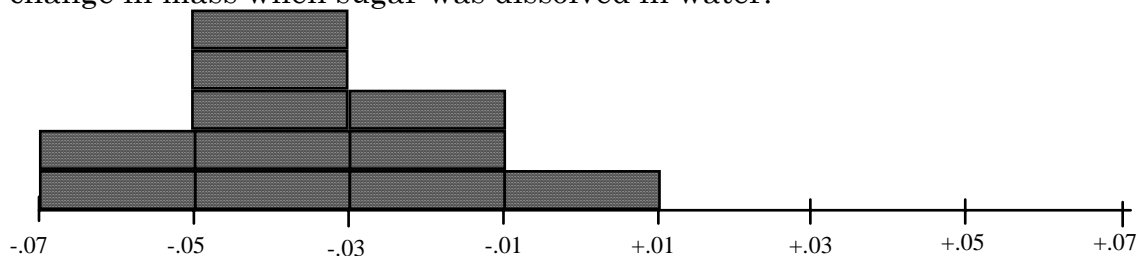

3. How would you represent the atoms of aluminum in the gaseous phase?

4. If the box at left contains atoms of iron in steel wool, represent what the atomic structure of the steel wool after strong heating in the box at right.
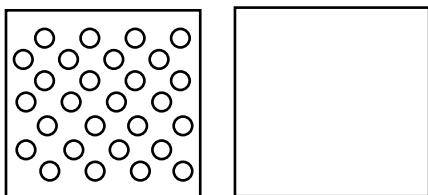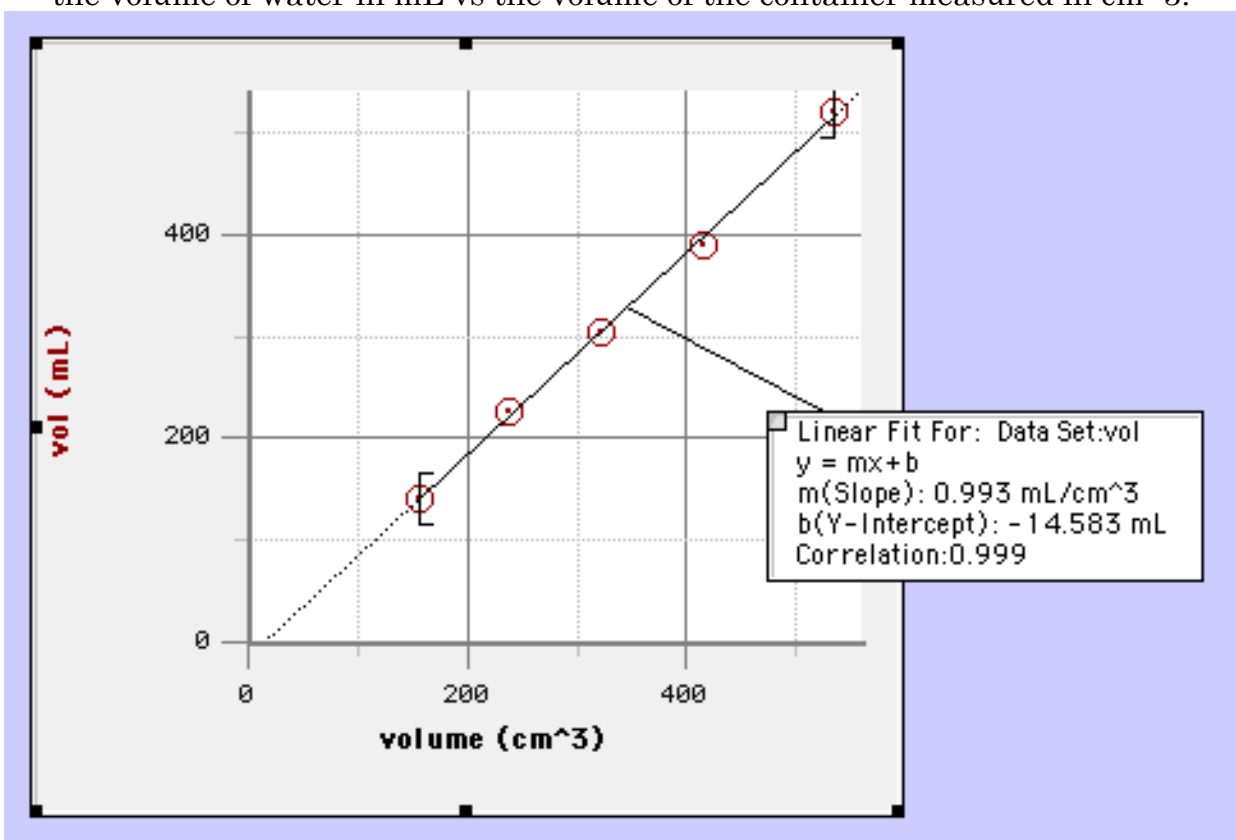

5. The 7th period chemistry class produced the histogram below to represent the change in mass when sugar was dissolved in water.

They concluded that the mass decreases slightly when sugar dissolves. Provide a better explanation.

6. The 8th period chemistry class produced the following graph when they plotted the volume of water in mL vs the volume of the container measured in cm^3.

Linear Fit For: Data Set:vol
y = mx+b
m(Slope): 0.993 mL/cm^3
b(Y-Intercept): -14.583 mL
Correlation:0.999

a.   What does the slope tell you?

b.   How could you account for the fact that they obtained a negative y-intercept?

c.   Show, using the 5% rule, whether this intercept is negligible or must be explained.

7. The 9th Hr chemistry class produced the following graph when they were measuring the mass and volume of a set of objects in the lab.

Linear Fit For: Data Set:mass
y = mx+b
m(Slope): 0.932 g/cm^3
b(Y-Intercept): -0.520 g
Correlation:0.999
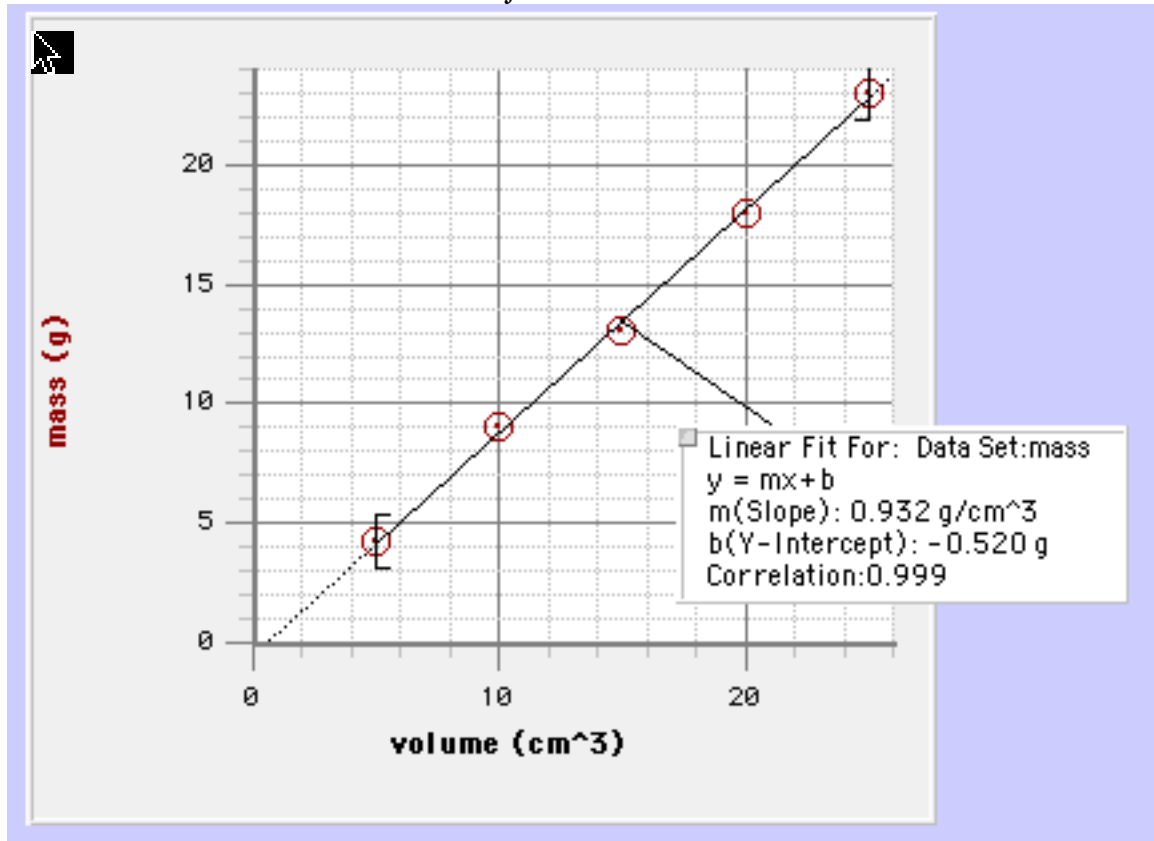
a. Write the equation for the line.

b. What information is given by the slope of the graph?

c. Is the y-intercept negligible? Why or why not?

d. What would you predict would happen if you were to put one of the objects in water? Explain.

e. What would you expect to be the mass of a 45 cm^3 piece of the same substance

Density Problems

8. Mercury has a density of 13.6g/mL. What is the volume occupied by 112.0 grams of mercury?

9. A cube of gold-colored metal with a volume of 54 cm^3 has a mass of 980 g. The density of gold is 19.3 g/cm^3. Is this sample of metal pure gold? Why or why not?

10. The Morgan silver dollar has a mass of 26.73 g. By law the coin must contain 90% silver and the rest copper. **a)** When the coin was minted in the late 1800s, silver was worth $1.18 per troy ounce (31.1 g). At this price, what is the value of the silver in the silver dollar? **b)** Today silver sells for $6.73 per troy ounce. How many Morgan silver dollars are required to obtain $25.00 worth of pure silver? (10 pts)