Solutions Homework #1 name: _____

Read the BASICS. 15 Minutes a Day for Chem Practice. Then attempt these questions.

1. How much $NaNO_3$ will saturated 250. mL at 20°C? (show work).

2. No compounds on Table G will ever supersaturate their solutions when cooled. If you cooled this 250. mL saturated $NaNO_{3(AQ)}$ from 20°C down to 0°C, how many grams of solute precipitate?

3. Once this solute precipitates out of solution to the bottom of the beaker it forms a dynamic equilibrium. Explain what that means.

4. In solutions, there's an expression, Like Dissolves Like. That being said, how is carbon dioxide put into seltzer and soda? Why is it when you open a soda can the soda starts to get flat right away?

5. Which solution contains more solute? 200 mL $HCl_{(AQ)}$ at 30°C, or 100 mL of $KI_{(AQ)}$ at 20°C? Show some numbers, don't just guess.

Solutions Homework #2 name: _____

1. You mix a 100 mL saturated solution of potassium chloride at 10°C. What is the molarity of this solution?

2. You dissolve 4.47 moles of KCl into 12.00 liters of water. What is the molarity of this solution?

3. You dissolve 7.85 moles of KNO_3 into 21.0 liters of water, what is the molarity of this solution?

4. You put 1.12 grams of perfume into your bathtub to soak in. Your bathtub holds 43.5 gallons of water (water weighs 8.34 pounds per gallon, while each pound has 454 grams). How many parts per million of perfume are in this water?

5. "Normal" saline is $NaCl_{(AQ)}$ solution that you get via an IV line in the hospital if you are dehydrated. There are 9.0 grams NaCl per liter of water, which is the same salt concentration in your body. What's the molarity of this solution?

Solutions Homework #3 name: _____

1. You put 50.0 grams $KClO_3$ into 475 mL of water at 100.0°C. How many more grams will it take to saturate this solution?

2. If you cool a 100 mL saturated $KClO_{3(AQ)}$ from 100°C to 80°C, how many grams of $KClO_{3(S)}$ precipitate out of solution?

3. If you have a stock solution of 2.75 M $Ca(OH)_2$, how do you make a 1.43 M solution of 550 mL? (show FORUMULA + work, draw a picture of a beaker)

4. If you have a stock 3.64 M $Mg(NO_3)_2$, how do you make up a 0.755 M solution of 305 mL? (show FORUMULA + work, draw a picture of the beaker)

Solutions HW #4 name: _____

1. How many parts per million of lead be present in a water tank of 253,800 liters if 1.15 kilograms of lead dissolved into this water?

2. What is the concentration of $O_{2(G)}$ in parts per million, in a solution that contains 0.008 grams of O_2 dissolved into each 1000. grams of $H_2O_{(L)}$? (NYS Regents Jan 2008, #38) You must show work.
   A. 0.8 ppm B. 8 ppm C. 80 ppm D. 800 ppm

3. If a solution has 3.75 PPM arsenic and this solution is a pond with volume of 45,750 Liters, how many grams of arsenic are present in the whole lake?

4. The 3 colligative properties of water include boiling point, freezing point, and the approximate vapor pressures. Fill in this chart with numbers that show you know what you're talking about.

ROUND TEMPERATURES to the NEAREST WHOLE NUMBER

	pure water	2.00 M $NBr_{3(AQ)}$	2.00 M $MgF_{2(AQ)}$
boiling point in Kelvin			
freezing point in Kelvin			
vapor pressure at 25°C in kPa			