**Dougherty Valley HS AP Chemistry**

**S-70**

**Solutions**

**Quick Check #3**

**Name: Date: Period: Seat #:**

* **Concentration:**   
  Concentrated sulfuric acid contains very little water, only 5.0% by mass. It has a density of 1.84 g/mL. What is the molarity of this acid?
* **Particles:** When 1 mole of each of the following solutes dissolves in water, how many moles of particles are in the solution? Note: this value is called the van’t Hoff factor, *i*.

|  |  |
| --- | --- |
| \_\_\_ NaCl \_\_\_ glycerol  \_\_\_ sugar \_\_\_ Ca(NO3)2  \_\_\_ KNO3 \_\_\_ KCl |  |

* **Henry’s Law:** Sg = kH Pg - **SKIP**

Sg means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pg means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
kH is a constant. For oxygen gas in water (at 25°C) it is 1.66 x 10-6 M/torr.

Calculate the solubility of oxygen in water at 25°C when the total external pressure is 1 atm and the mole fraction of oxygen in the air is 0.20.

Problem broken down into steps…

* **Concentration:**   
  Concentrated sulfuric acid contains very little water, only 5.0% by mass. It has a density of 1.84 g/mL. What is the molarity of this acid?

a) What is the formula for sulfuric acid? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) What is the molar mass for sulfuric acid? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) 5.0% by mass gives you three useful values: Fill in the units for each.

5.0 100 95

d) Write the formula for molarity?

e) Calculate the moles of solute. Show your set-up.

f) Calculate the volume (in Liters) of the solution. Show your set-up.

g) Calculate the molarity of the solution.