Dougherty Valley HS Chemistry - AP
Solutions Study Materials
Quick Checks #1-4

S-68, 69, 70, 71

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

Directions: Try these problems. If you can DO them, check the box (☑).
If you CANNOT do them, write some notes TO YOURSELF about what you need to study to succeed at these problems.

S68 – Quick Check #1

☐ **Formulas**

Quickly write the formulas for the following concentration units:

Molality	Weight Percent	Mole Fraction	Molarity

☐ **Dissecting a Given Concentration**

The concentration of a NaOH solution is 0.25 m. This translates into 0.25 and 1.0.

0.25 = _____ and 1.0 = _____

The concentration of a $HC_2H_3O_2$ solution is 5.00% by weight. This translates into 5.00 and 100.

5.00 = _____ and 100 = _____ and 95.0 = _____

☐ **Change one concentration into another**

Household vinegar is labeled as 5.00% by weight. It has a density of 1.01 g/mL. Fill in the chart.

	mass (grams)	moles (mol)	volume (L)
solute			
solvent			
solution			

Molality	Mole Fraction	Molarity

S69 – Quick Check #2

☐ **Terminology:**

In the first reaction, _____ is getting oxidized. _____ is the oxidizing agent.

In the first reaction, _____ is getting reduced. _____ is the reducing agent.

In the second reaction, _____ is getting oxidized. _____ is the oxidizing agent.

In the second reaction, _____ is getting reduced. _____ is the reducing agent.

☐ **Review of oxidation numbers**

Write the balanced chemical equations for the following. Indicate the oxidation numbers.

$Zn(s) + HCl(aq) =$ _____ + _____

	Reactants	Products
Zn		
H		
Cl		

$Fe(s) + CuSO_4(aq) =$ _____ + _____

	Reactants	Products
Fe		
Cu		
S		
O		

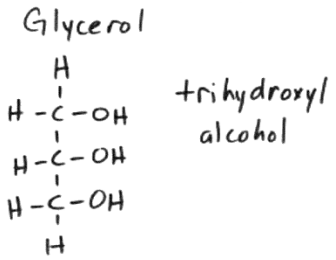
S70 – Quick Check #3

☐ **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 ___ $Ca(NO_3)_2$ ___ KNO_3 ___ KCl

S71 – Quick Check #4

☐ **Raoult's Law** Write the formula for Raoult's Law: $P_{solution} =$

A solution is made by dissolving 164 g of glycerin ($C_3H_8O_3$) in 338 mL of H_2O at 40.0 °C.
The vapor pressure of pure H_2O at 40.0 °C is 54.74 torr.
The density of H_2O at 39.8 °C is 0.992 g/mL. The molar mass of glycerin is 92.11 g/mol.

a) How many moles of glycerin are in this solution? How many moles of water?

c) What is the mole fraction, $\underline{X}$, of solvent in this solution?

d) Calculate the vapor pressure of the solution.