## Honors Chemistry Worksheet 1 Mass-Moles-Particles

Molstoiws09.doc

Name	Date	Period
<b>Concept Questions:</b>		
1. One mole is defined as		
2. The mole only applies to chemistry (Circle one) True / Fals	y, in other words you couldn'	't have a mole of cars or a mole of stars
3. The mole is a	unit, whereas grams is a	unit.
4. The coefficients in a balanced cher up ratios (Circle all that apply)  Moles Grams	mical equation can be used w Molecules/Atoms	vith which of the following for setting
5. To convert from grams to moles or	f a substance you must	
6. To convert from moles to grams or	f a substance you must	
7. To convert from moles to molecule	es of a substance you must _	
8. To convert from molecules to aton	ns of a substance you must _	
9. The molar mass of a compound is		
10. The mole has the numerical value	e of	and is known as
Problem Solving: Perform the follow		xample below as a guide:
Example Problem: Convert 20.0g of		
Answer: $20.0$ gHCl $\frac{1molHCl}{36.46g}$ =	.55mol HCl Mol of H	lar mass ICl
Convert to moles:  1 15 5g of H <sub>2</sub> O		mol
1. 15.5g of $H_2O$ $\frac{\text{mol}}{g} =$	2. 125.0g of	$H_2SO_4$ $\frac{mol}{g} =$

3. 16.10g of lithium nitrate

4. 100.0g of dinitrogen tetraoxide

**Convert to grams:** 

- 1. .0024mol NH<sub>3</sub>  $\left[\begin{array}{c} g \\ mol \end{array}\right] =$
- 2.  $6.5 \times 10^{-4} \mod CO \left( \frac{g}{mol} \right) =$

3. 4.0mol carbon tetrachloride

4. 2.5mol nitrogen gas

**Synthesis Questions:** 

- 1. How many grams of HCl contain the same number of units as there are in 60.0g of CaCl<sub>2</sub>?
- 2. How many moles of HCl contain the same number of grams as there are in .45mol of CaCl<sub>2</sub>?
- 3. How many times more particles are there in 10.0g of H<sub>2</sub>O than in 10.0g of CO<sub>2</sub>?
- 4. If you wanted a 2 to 1 ratio of  $H_2O$  molecules to  $CO_2$  molecules and you had 50.0g of  $H_2O$ , how many grams of  $CO_2$  would you need (Hint: It isn't 25!)?
- 5. Which element has a molar mass of 126.9g/mol?
- 6. For which element does 2.5 moles have a mass of 518g?
- 7. You performed an experiment on a diatomic element and found that .25g of the substance contained  $6.58x10^{-3}$  moles. What is the element?