**Station Review: Quantities Unit Test**

**Station # 1**

Calculate the molar mass for each of the following compounds.

1. (NH4)2SO4
2. Ca3[Co(CO3)3]2

**Station # 2**

1. Calculate the number of molecules in 8.50 mols of methane.
2. Calculate the mass of 1.50 x 1024 molecules of C7H6O2.

**Station # 3**

Given the following equation: \_\_H2 + \_\_S8 ---> \_\_ H2S

1. Write the following molar ratios: 1. H2 / H2S \_\_\_\_\_\_\_\_\_ 2. H2 / S8 \_\_\_\_\_\_\_
2. Suppose you had 20 moles of H2 on hand and plenty of S8, how many moles of H2S could you make?
3. Suppose you had 20 moles of S8 and enough H2, how many moles of H2S could you make?

**Station # 4**

Given the following equation: \_\_\_KClO3 ---> \_\_\_\_KCl + \_\_\_\_O2

How many **moles of O2** can be produced when 12.00 moles of KClO3 is decomposed?

**Station # 5**

Copper reacts with silver nitrate to precipitate silver and copper (II) nitrate.

1. Write a balanced equation
2. How many **moles of Cu** are needed to react with 3.50 moles of AgNO3?
3. If 89.5 grams of Ag were produced, **how many grams of Cu reacted**?

**Station # 6**

Solid potassium reacts with chlorine gas to give solid potassium chloride

1. How many formula units of potassium chloride are produced from 2.50 g of potassium and excess Cl2.
2. How many atoms are there in the product that is made?

**Station # 7**

1. What is the % by mass of each element in the compound (C5H5)2Fe ?
2. Orlon consists of 67.9% C, 5.7 % H and 26.4 % N by mass. What is the empirical formula of orlon?

**Station # 8**

A compound contains 18.7% lithium, 16.3% carbon, and 65.0% oxygen? If the molar mass of the compound is 73.8 grams/mole, find the molecular formula?

**Station # 9**

If 9.25g of solid Zinc is reacted with 22.6g of hydrochloric acid, zinc chloride and an explosive gas is formed.

1. Write a balanced chemical equation
2. Find the limiting reactant
3. What is the mass of zinc chloride formed?

**Station # 10**

Solid aluminum is burnt in air to form aluminum oxide. Write the balanced chemical reaction.

If 81.0 g of aluminum reacts with excess oxygen and 106 g of Al2O3 actually forms, calculate the percentage yield?

Explain why your yield might be more than or less than 100 %.