Stoichiometry Practice Problems

1.) How many grams of the silver compound are produced when 200.0 grams of silver nitrate react with 200.0 g of sodium phosphate? If the percent yield is 76.7% what was the actual yield? How much of the excess reagent is left?

2.) When carbon disulfide burns, sulfur dioxide and carbon dioxide are produced
a. What is the percent yield of sulfur dioxide if the burning of 25.0 g of carbon disulfide produces 40.5 g of sulfur dioxide?
b. What is the percent yield of carbon dioxide if 2.5 mol of oxygen react and 32.4 g of carbon dioxide are produced?

3.) When 5.25 moles of hydrogen reacts with excess nitrogen 7.35 moles of product are produced what is the percent yield?

4.) Calculate the number of grams of each reactant formed when 23.7 g of C_3H_8 is combusted.

5.) 4.76 g Al react with copper (II) sulfate the percentage yield is 53.9% what mass of copper is produced?

6.) How many grams of calcium hydroxide are decomposed if 12.5 g of water are produced?

7.) If lead (II) nitrate mixes with 32.5 g of potassium iodide. If the actual yield is 40.1 g of the lead compound what is the percentage yield?

8.) 20.0 g of lithium hydroxide react with an excess of potassium chloride, and I produce 6.0 g of the lithium compound what is my percent yield?

9.) How many grams of product can be produced from 34.0 g of aluminum and 39.0 g of chlorine gas? How many grams of the excess reagent will be left over? What is the actual yield if the percentage yield is 79.5 %?

10.) 54.3 grams of aluminum reacts with 35.6 grams of hydrochloric acid. How many grams of each product is produced? If 3.01 grams of the product containing hydrogen is formed what is the percent yield?

11.) If 51.0 g of calcium hydroxide reacts with 61.0 g of phosphoric acid how many grams of each product will be formed? If the percent yield is 75.1% how many grams of the calcium compound would be produced?

12.) For the unbalanced reaction shown below, if the reaction of 24.7 g of $C_4H_8S_2$ produces a 65.5% yield how many grams of H_2O would be produced?

$C_4H_8S_2 + O_2 \rightarrow CO_2 + H_2O + SO_3$

13.) When 2.0 g of iron (III) oxide reacts with 4.94 g of hydrogen 88.4 grams of iron are produced, what is the percent yield? How much of the other product is formed? How much of the excess reactant remains?

14.) When 21.8 g of iron (IV) sulfide reacts with 59.9 g of O_2 how many grams of each product are produced? If 8.12 g of the iron compound are produced what is the percent yield?

15.) Magnesium is obtained from sea water. Calcium hydroxide is added to sea water to precipitate magnesium hydroxide. The precipitate it filtered and reacted with hydrochloric acid to produce magnesium chloride. The magnesium chloride is electrolyzed to produce magnesium and chloride. If 185.0 g of magnesium are recovered from 1000.0 g of magnesium chloride what is the percent yield?

16.) If 2.50 mol of copper react with 5.50 mole of silver nitrate how many moles in excess remain? How many grams of each product are formed? If the percent yield is 91.5% what was the actual yield?

17.) 71.4 g of ammonia reacts with 174.8 g of phosphoric acid this reaction forms $(NH_4)_3PO_4$ If the percent yield is 42.5% how many grams are produced? How many grams of the excess reactant remain?

18.) If 44.2 g of hydrosulfuric acid reacts with excess sodium chloride and it produces 7.14 g of the acid formed what is the percent yield?

19.) When 0.0165 g of zinc sulfide reacts with oxygen gas to form a 79.3% yield how many grams of the zinc product would be produced? How many grams of the other product could theoretically be produced?

20.) When 47.3 g of $C_6H_{12}O_2$ is combusted with 99.2 g of oxygen how many grams of each product is formed?

21.) When 78.3 g of hydrochloric acid reacts with 73.9g of sodium phosphate how much of each product are formed? If the percent yield of the sodium compound is 56.3% how much was actually produced?

22.) When 68.1 g of iron (III) oxide reacts with 97.4 g of carbon how much of each product is formed?

23.) When 37.1 g of C_3H_6 is combusted it produces a 47.4% yield of water, how many grams of water would be produced?

24.) If 70.7 g of oxygen combusts 49.3 g of $C_4H_{10}O_2$ how much of each product form? If the percent yield of CO_2 is 61.6% how much was actually produced?

25.) 30.3 g of silicon dichromate reacts with 49.3 g of sodium chloride how many grams of each product are produced?