Name _____

Percent Yield and Stoichiometry (Limiting Reactants)

Percent Yield:

1) Determine the percent yield for a reaction between 5.23g sodium with excess oxygen if only 6.32g of the product are recovered.
89.6%

2) Determine the percent yield for the reaction if 14.8g of sodium bromide reacts with excess chlorine gas and only 1.38L of bromine gas is collected at STP.
85.7%

3) Determine the percent yield for the reaction if 9.82g of barium chloride reacts with excess sodium sulfate and only 4.68g of the solid product are collected.
42.5%

4) Determine the percent yield for the reaction if 18.5g of SO_3 is produced from the reaction with 10.5g sulfur with excess oxygen.
70.6%

5) Determine the percent yield for the reaction is 1.32g of baking soda (sodium bicarbonate) is reacted with excess acetic acid, and only 328mL of CO_2 gas is released at STP.
93.2%

6) Determine the percent yield if 12.6g of copper (II) carbonate is decomposed into a metal oxide and a gas, and only 6.23g of the solid product is collected.
76.8%

7) How many grams of carbon dioxide gas should you have produced from the burning of butane gas (C_4H_{10}) if you received 1.86L of CO_2 at STP, and the percent yield was determined to be 73.6%?
4.97g CO_2

Limiting Reactants:

8) 6.32g of sodium sulfate is reacted with 12.03g of barium nitrate. How many grams of the precipitate would you expect to collect?
10.4g $BaSO_4$

9) 42.3g of silver chloride is reacted with 5.94g of iron metal. How many grams of iron (III) chloride would be produced?
16.0g $FeCl_3$

10) 3.88L of ammonia gas (NH_3) at STP is reacted with 6.58g of oxygen gas. How many milliliters of condensed water from the gas produced should be collected (the other gas is nitrogen monoxide)?
4.45mL H_2O

11) Determine the percent yield if 45.2L of propane gas (C_3H_8) is combusted with 219L of available oxygen gas and only 121.3L of CO_2 is collected at STP.
92.3%

12) Determine the percent yield for the reaction if 4.68g of ZnS and 2.92g of oxygen gas react and only 2.98g of ZnO is recovered along with an unknown quantity of sulfur dioxide.
76.2%

13) Determine the percent yield if 14.3g of aluminum chloride is reacted with 12.59g of sodium hydroxide and only 7.68g of the solid product is collected.
93.8%