**Gas Stoichiometry 1** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hr \_\_\_

1. How many liters of nitrogen, at STP, are required to produce 150L of ammonia?

3H2(g) + N2(g)  2NH3(g)

2. How many liters of hydrogen are needed in the previous problem?

3. What volume of H2, in mL, are produced if 4.00 grams of Zn react with excess HCl at STP?

Zn(s) + 2HCl(aq) H2(g) + ZnCl2(aq)

4. Calculate the volume, in mL, of oxygen produced by the decomposition of 10.0 grams of KClO3 at 25°C and 102 kPa.

2KClO3(s)  2KCl(s) + 3O2(g)

5. How many grams of CuO can be reduced to copper metal with 10.0 L of H2 at 20.0°C and 750 torr?

CuO(s) + H2(g)  Cu(s) + H2O(l)

6. If excess Cl2 reacts with 20.0 grams of KBr, how many mL of Br2 are produced at 25°C and 1.20 atm?

Cl2(g) + 2KBr(aq)  2KCl(aq) + Br2(g)

7. In the reaction between aluminum and oxygen, how many grams of aluminum are required to react with 5.00 L of oxygen at -10°C and 50 kPa?

4Al(s) + 3O2(g)  2Al2O3(s)

8. Calculate the mL of O2 produced at 15° C and 110 kPa by the electrolysis of 5.00 grams of H2O.

2H2O(l) H2(g) + O2(g)

9. If an electric discharge produces 20.0 mL of ozone at STP, how many mL of O2 are required?

3O2 (g)  2O3(g)

10. How many mL of Cl2 at 30°C and 98.0 kPa are required to react with excess H2 in order to produce 0.040 grams of HCl?

Cl2(g)  + H2(g) Cl(g)

11. In the electrolysis of water 0.50 grams of O2 are produced. How many mL of hydrogen are produced at 300°C and 125 kPa?

2H2O(l)  2H2(g) + O2(g)

12. How many L of NO2 are needed to produce 10.0L if N2O4 at 30.0°C and 105 kPa?

2NO2(g) N2O4(g)