**Honors Final Exam Review**

**Worksheet 13**

**All Stoich, Nothing but Stoich**

1. Calculate the mass of lead carbonate formed in the following reaction if 24 grams of lead nitrate is our starting material (assuming excess of the sodium carbonate). **(19.36 g)**

\_\_\_\_\_Pb(NO3)2 + \_\_\_\_\_Na2CO3 🡪 \_\_\_\_\_PbCO3 + \_\_\_\_\_NaNO3

1. Calculate the volume of a 0.40 M solution of HCl needed to react with 95 grams of iron in this reaction. **(8.48 L)**

**\_\_\_\_\_Fe (s) + \_\_\_\_\_HCl (aq)→ \_\_\_\_\_H2 (g) + \_\_\_\_\_FeCl2 (s)**

1. Calculate the mass of lead oxide needed to react with 75 ml of a 0.45 M solution of HCl. **(2.02 g)**

**\_\_\_\_\_PbO2 (s) + \_\_\_\_\_HCl (aq)→ \_\_\_\_\_H2O (l) +\_\_\_\_\_ PbCl2 (s) + \_\_\_\_\_Cl2 (g)**

1. Calculate the volume at STP, of hydrogen gas produced if 100 ml of 0.5M HCl is used in this reaction. Assume excess Cr. **(0.56 L)**

**\_\_\_\_\_HCl (aq) + \_\_\_\_\_Cr (s) → \_\_\_\_\_CrCl2 (aq) + \_\_\_\_\_H2 (g)**

1. Determine the concentration of a solution of H2SO4, if 99.7 ml of sulfuric acid was used to neutralize 100 ml of a 2 M NaOH solution. **(1.003 M)**

**\_\_\_\_\_H2SO4(aq) + \_\_\_\_\_NaOH(aq)** → **\_\_\_\_\_Na2SO4(aq) + \_\_\_\_\_H2O(l)**

1. Determine the grams of iron chloride needed to produce 55 grams of iron dichromate. **(25.7 g)**

**\_\_\_\_\_FeCl2 + \_\_\_\_\_K2Cr2O7** → **\_\_\_\_\_FeCr2O7 + \_\_\_\_\_KCl**

1. Determine the volume of calcium carbonate needed at 99.5 kPa and 23⁰C, to produce 35 L of CO2 at STP. **(38.6 L)**

\_\_**\_\_\_CaCO3 (s) 🡪\_\_\_\_\_ CaO (s) + \_\_\_\_\_CO2 (g)**

1. Calculate the concentration of a the iron sulfate solution created if 100 ml of a 0.5 M solution of sulfuric acid is combined with an excess of solid iron oxide. Assume no change in volume of the solution. **(0.17 M)**

**\_\_\_\_\_Fe2O3 (s) + \_\_\_\_\_H2SO4 (aq) → \_\_\_\_\_Fe2(SO4)3 (aq) + \_\_\_\_\_H2O (l)**

1. What volume of ammonia gas will be needed at 5.4 atm and 33⁰C to produce 100 grams of ammonium chloride? **(8.7 L)**

**\_\_\_\_\_NH3 (g) + \_\_\_\_\_HCl (g) → \_\_\_\_\_NH4Cl (s)**