Stoichiometry: Mol conversions Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Worksheet C

1. One of the main components of pearls is calcium carbonate. If pearls are put in a hydrochloric acid solution, the calcium carbonate dissolve and produces calcium chloride, water, and carbon dioxide.
   1. Write out the complete and balanced formula for this reaction.
   2. How many mols of calcium carbonate can be dissolved in 0.0250 mols of hydrochloric acid?
2. A solution of potassium chromate reacts with a solution of lead(II) nitrate to produce a yellow precipitate of lead(II)chromate and a solution of potassium nitrate.
   1. Write out the complete and balanced formula for this reaction including states of matter symbols.
   2. How many grams of lead(II)chromate can be formed from 0.250mol potassium chromate?
3. The exothermic reaction between liquid hydrazine (N2H2) and liquid hydrogen peroxide (H2O2) is used to fuel some rockets. The products of the reaction are nitrogen gas and water vapor.
   1. Write out the complete and balanced formula for this reaction including states of matter symbols.
   2. How many grams of hydrazine are needed to produce 10.0 mol nitrogen gas?
4. During the gold extraction process, the gold ore is treated with a sodium cyanide solution in the presence of oxygen and water.

* 1. Reaction: \_\_\_\_\_Au + \_\_\_\_\_NaCN + \_\_\_\_\_O2 + \_\_\_\_\_H2O 🡪 \_\_\_\_\_NaAu(CN)2 + \_\_\_\_\_NaOH
  2. What mass of gold (Au) can be treated if 25.0 grams of sodium cyanide (NaCN) is used?
  3. If 150.0 grams of gold can be formed into the NaAu(CN)2, what is the mass % of the gold in the compound?

1. One method for producing Nitrogen in the lab is by reacting ammonia with copper(II)oxide
   1. Reaction: \_\_\_\_\_NH3(g) + \_\_\_\_CuO(s) 🡪 \_\_\_\_\_Cu(s) + \_\_\_\_\_H2O(l) + \_\_\_\_\_\_N2(g)
   2. If 40.0 g NH3 is reacted with 80.0 g CuO, what is the limiting reagent in the reaction?
   3. Determine the mass of N2 produced by this reaction.
   4. How much of the excess reagent is not used in the reaction.