Stoichiometry Worksheet

[From: http://www.bishops.k12.nf.ca/science/chem/2202/worksheets/mass_mole/Stoichiometry%20Worksheet.htm]

1. Silver sulfide (Ag_2S) is the common tarnish on silver objects. What weight of silver sulfide can be made from 1.23 mg of hydrogen sulfide (H_2S) obtained from a rotten egg? The reaction of formation of silver sulfide is given below:

   $Ag(s) + H_2S(g) + O_2(g) \rightarrow Ag_2S(s) + H_2O(l)$ ***(Equation must first be balanced.)***

2. A somewhat antiquated method for preparing chlorine gas involves heating hydrochloric acid with pyrolusite (manganese dioxide), a common manganese ore. (Reaction given below.) How many kg of HCl react with 5.69 kg of manganese dioxide?

   $HCl(aq) + MnO_2(s) \rightarrow H_2O(l) + MnCl_2(aq) + Cl_2(g)$ ***(Equation must first be balanced.)***

3. Given the following equation: $2\ KClO_3 \text{ ---> } 2\ KCl + 3\ O_2$

   How many moles of O_2 can be produced by letting 12.00 moles of $KClO_3$ react?

4. Given the following equation: $2\ K + Cl_2 \text{ ---> } 2\ KCl$

   How many grams of KCl is produced from 2.50 g of K and excess Cl_2. From 1.00 g of Cl_2 and excess K?

5. Given the following equation: $Na_2O + H_2O \text{ ---> } 2\ NaOH$

   How many grams of NaOH is produced from 1.20×10^2 grams of Na_2O? How many grams of Na_2O are required to produce 1.60×10^2 grams of NaOH?

6. Given the following equation: $8\ Fe + S_8 \text{ ---> } 8\ FeS$

   What mass of iron is needed to react with 16.0 grams of sulfur? How many grams of FeS are produced?

7. Given the following equation: $2\ NaClO_3 \text{ ---> } 2\ NaCl + 3\ O_2$

   12.00 moles of $NaClO_3$ will produce how many grams of O_2? How many grams of NaCl are produced when 80.0 grams of O_2 are produced?

8. Given the following equation: $Cu + 2\ AgNO_3 \text{ ---> } Cu(NO_3)_2 + 2\ Ag$

   How many moles of Cu are needed to react with 3.50 moles of $AgNO_3$? If 89.5 grams of Ag were produced, how many grams of Cu reacted?