1. Given the equation: $2 C_4H_{10} + 13 O_2 \rightarrow 8 CO_2 + 10 H_2O$, write the following molar ratios for:
    a. C_4H_{10} / O_2
    b. O_2 / CO_2
    c. O_2 / H_2O
    d. C_4H_{10} / CO_2
    e. C_4H_{10} / H_2O

2. Given the following equation: $2 KClO_3 \rightarrow 2 KCl + 3 O_2$
    a. How many moles of O_2 can be produced by letting 12.00 moles of $KClO_3$ react?

3. Given the following equation: $2 K + Cl_2 \rightarrow 2 KCl$
    a. How many grams of KCl is produced from 2.50 g of K and excess Cl_2?

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

4. Given the following equation: $Na_2O + H_2O \rightarrow 2 NaOH$
    a. How many grams of NaOH is produced from 1.20×10^2 grams of Na_2O?

    b. How many grams of Na_2O are required to produce 1.60×10^2 grams of NaOH?

5. Given the following equation: $8 Fe + S_8 \rightarrow 8 FeS$
    a. What mass of iron is needed to react with 16.0 grams of sulfur? (NOTE THAT IT IS S_8)

    b. How many grams of FeS are produced?

6. Given the following equation: $2 NaClO_3 \rightarrow 2 NaCl + 3 O_2$
   a. How many grams of O_2 will be produced if there are 12.00 moles of $NaClO_3$?

   b. How many grams of NaCl are produced when 80.0 grams of O_2 are produced?

7. Given the following equation: $Cu + 2 AgNO_3 \rightarrow Cu(NO_3)_2 + 2 Ag$
   a. How many moles of Cu are needed to react with 3.50 moles of $AgNO_3$?

   b. If 89.5 grams of Ag were produced, how many grams of Cu reacted?

8. Given the equation: $Fe_2O_3 + 3 C \rightarrow 2 Fe + 3 CO$
   a. If 25.0 kg of pure Fe_2O_3 is used, how many kg of iron can be produced?

9. Give the reaction for photosynthesis: $6 CO_2 + 6 H_2O \rightarrow C_6H_{12}O_6 + 6 O_2$
   a. If the average human requires 120.0 grams of glucose, how many grams of CO_2 are needed (called carbon sequestration)?

10. Given the equation: $4 NH_3 + 5 O_2 \rightarrow 4 NO + 6 H_2O$
    a. When 1.20 mole of ammonia reacts, how many total number of moles of <u>product</u> is formed?