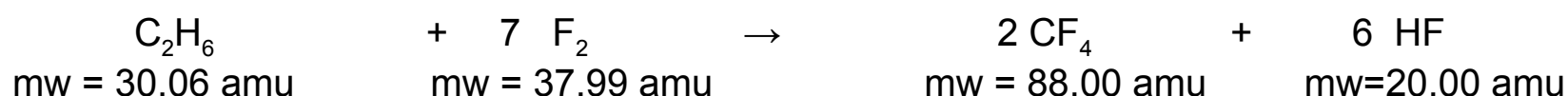


Use Correct Sig Fig and Sci Notation as appropriate

You do not need to print and turn in this sheet. Only your work. **SHOW WORK**

1. Use information in the balanced chemical formula below to answer the next 4 questions

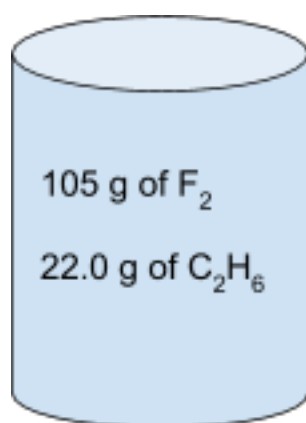
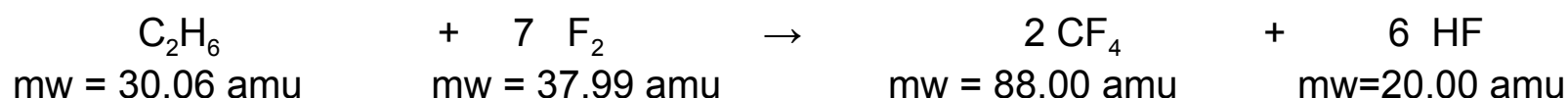


- How many moles of C_2H_6 would be consumed when reacted with 9.24 moles of F_2 ?
- If you consume 7.50 moles of F_2 , how many grams of HF are produced?
- If 10.32 g of HF are generated, what mass of C_2H_6 was utilized as starting material?
- What is the number of *molecules* of F_2 required to completely consume 25.0 g of C_2H_6 ?

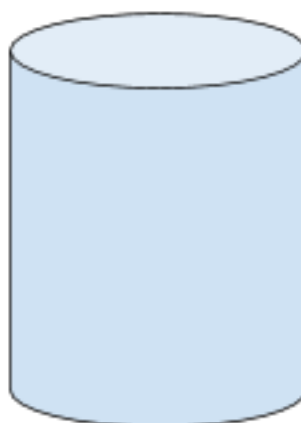
2. If 31.3 g of manganese(II) chloride, 48.3 g of chlorine gas, and 25.7 g of water react to produce manganese(IV) oxide and hydrochloric acid, what is the limiting reactant and what mass of hydrochloric acid is produced? (hint: You will need a balanced equation)

3. Barium chloride and sodium sulfate react to produce sodium chloride and barium sulfate. If 50.00 mL of a 2.55 M solution of barium chloride is used in the reaction, how many grams of sodium sulfate are needed for the reaction to go to completion?

4. Use information in the balanced chemical formula below to answer the next question



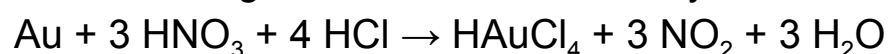
Before



After

Indicate Amounts
of the contents of
reaction container
AFTER the
reaction is
complete.

5. Consider the reaction of gold with nitric acid and hydrochloric acid.



- Determine the limiting reactant in a mixture containing 125 g of each reactant and calculate the maximum mass (in grams) of HAuCl_4 that can be produced in the reaction.
- how many moles of each product are formed
- how many moles of each excess reagent are left over?

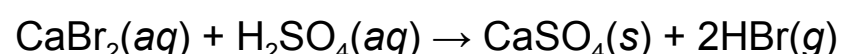
Use Correct Sig Fig and Sci Notation as appropriate

You do not need to print and turn in this sheet. Only your work. **SHOW WORK**

6. A student was titrating 25.00 mL of a monoprotic basic solution with a monoprotic acidic (ie 1:1 reaction) solution that was 0.281 M. The student ran out of the acidic solution after having added 32.46 mL, so she borrowed a solution that was labeled as 0.317 M. An additional 11.5 mL of the second solution was needed to complete the titration. What was the concentration of the basic solution?

7. Barium chloride and sodium sulfate react to produce sodium chloride and barium sulfate. If 100.0 mL of a 3.00 M solution of barium chloride is used in the reaction, how many mL of a 0.500 M solution of sodium sulfate are needed for the reaction to go to completion?

8. Use information in the balanced chemical formula below to answer the next 4 questions



a) How many moles of CaBr_2 would be consumed when reacted with 53.0 mL of a 2.00 M H_2SO_4 solution?

b) If you consume 15.00 mL of Calcium Bromide, and produce 0.023 moles of HBr, what was the original concentration (Molarity) of the calcium bromide?

c) If 10.32 g of HBr are generated, what volume of 0.100 M H_2SO_4 is needed to produce this much HBr?

d) A 532 mL solution of 0.133 M CaBr_2 is mixed with 603 mL of 0.111 M H_2SO_4 . What mass of HBr could be produced under these conditions?

9. Write the molecular and ionic equation for each of the following:

a) $\text{Pb}(\text{NO}_3)_2$ and NH_4Cl are mixed

b) lithium hydroxide and Iron (III) chloride

c) Sodium Carbonate and Calcium Chloride

10. **CHECK** Pick one of the calculations based problems and use the answer you generated to calculate the starting condition. Clearly label which problem you will be using.

