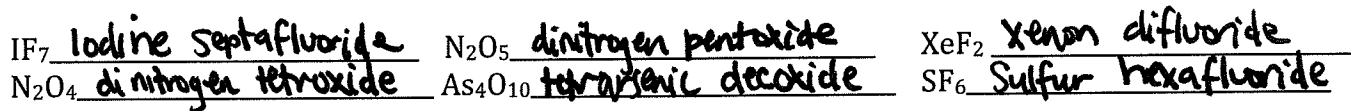
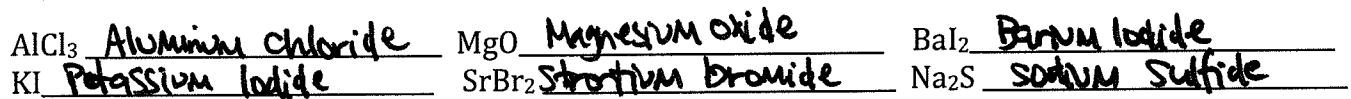


Nomenclature

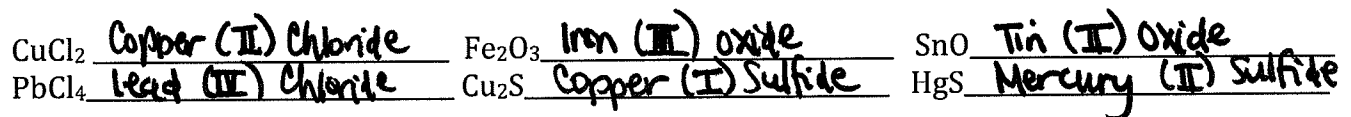
1. Name the following covalent compounds



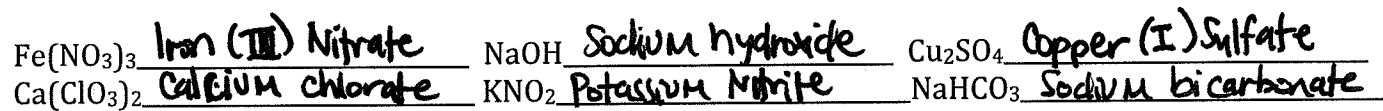
2. Name the following ionic compounds



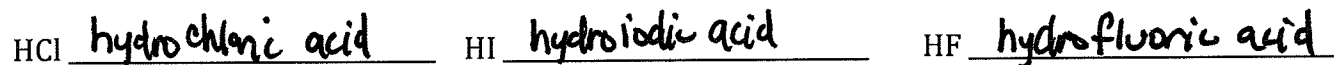
3. Name the following ionic compounds that contain transition metals



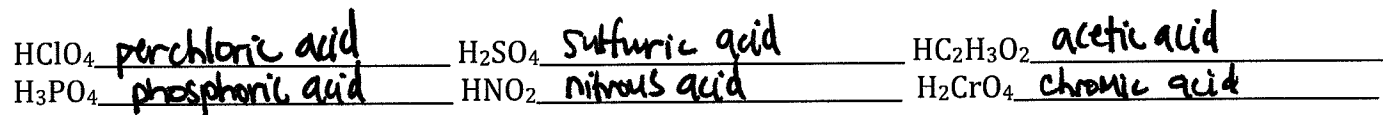
4. Name these ionic compounds that contain polyatomic ions.



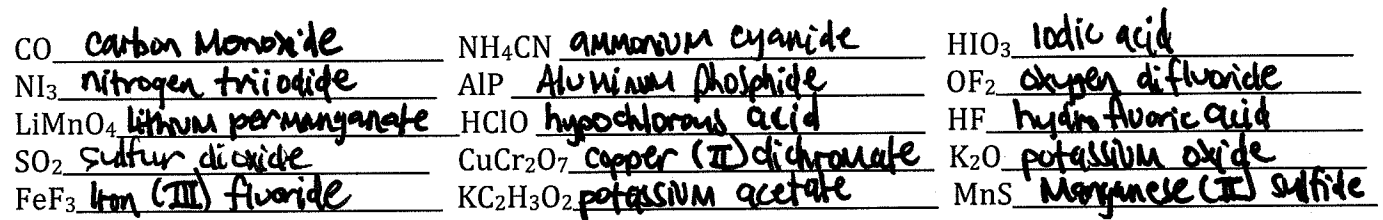
5. Name these binary acids



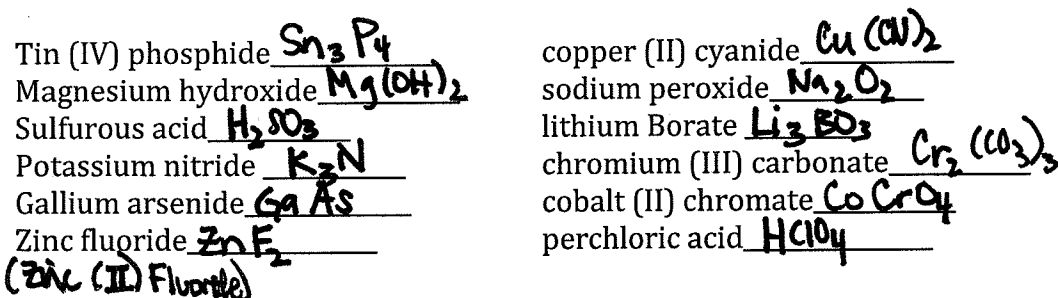
6. Name these acids with polyatomic ions.



7. Name these compounds appropriately.



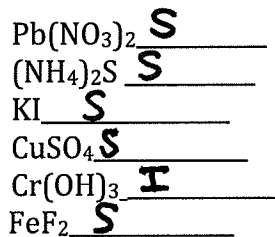
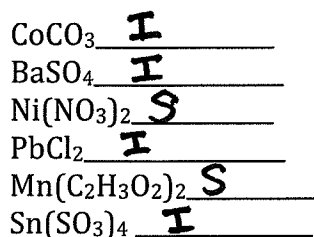
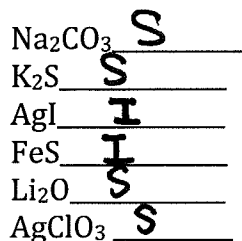
8. Write the formulas for the following compounds.



Solubility rules

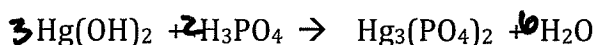
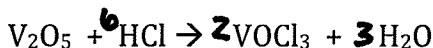
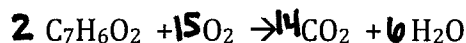
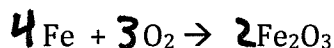
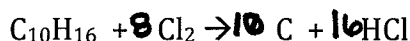
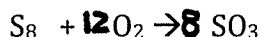
(S) (I)

Review solubility rules and identify each of the following compounds as soluble or insoluble in water.



Balancing Equations

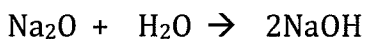
Balance the following equations with the lowest whole number coefficients.



Stoichiometry and Limiting Reactants

Make sure you report answers with the correct number of sig figs. - I did work on some only. you should show all work! :)

1. Given the equation below, what mass of water would be needed to react with 10.0g of sodium oxide?



$$10.0\text{g Na}_2\text{O} \times \frac{1\text{mol Na}_2\text{O}}{61.98\text{g}} \times \frac{1\text{mol H}_2\text{O}}{1\text{mol Na}_2\text{O}} \times \frac{18.02\text{g}}{1\text{mol H}_2\text{O}} = \boxed{2.91\text{g H}_2\text{O}}$$

2. $2\text{NaClO}_3 \rightarrow 2\text{NaCl} + 3\text{O}_2$

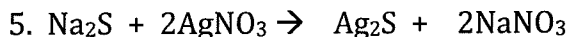
What mass of sodium chloride is formed along with 45.0g of oxygen gas?

$$54.8\text{g NaCl}$$

3. $4\text{NH}_3 + 5\text{O}_2 \rightarrow 4\text{NO} + 6\text{H}_2\text{O}$

What mass of water will be produced when 100.0g of ammonia is reacted with excess oxygen?

$$153.7\text{g H}_2\text{O}$$



a. If the above reaction is carried out with 50.0g of sodium sulfide and 35.0g of silver nitrate, which is the limiting reactant?

c. What mass of silver sulfide would form?

b) $50.0\text{g Na}_2\text{S} \times \frac{1\text{mol Na}_2\text{S}}{78.04\text{g}} \times \frac{1\text{mol Ag}_2\text{S}}{1\text{mol Na}_2\text{S}} = .641\text{mol Ag}_2\text{S}$

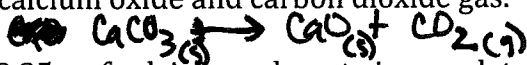
b) $.103\text{g Ag}_2\text{S} \times \frac{247.80\text{g}}{1\text{mol}} = \boxed{25.5\text{g Ag}_2\text{S}}$

$35.0\text{g AgNO}_3 \times \frac{1\text{mol AgNO}_3}{169.87\text{g}} \times \frac{1\text{mol Ag}_2\text{S}}{2\text{mol AgNO}_3} = .103\text{mol Ag}_2\text{S}$

$\therefore \text{AgNO}_3$ is limiting reactant!

6. Calcium carbonate decomposes upon heating, producing calcium oxide and carbon dioxide gas.

a. Write a balanced chemical equation for this reaction.



b. How many grams of calcium oxide will remain after 12.25 g of calcium carbonate is completely decomposed?

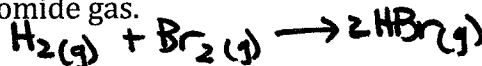
6.870g CaO

c. What volume of carbon dioxide gas is produced from this amount of calcium carbonate at STP? (remember that at STP, 1 mole of gas = 22.4 L of gas)

$12.25\text{g CaCO}_3 \times \frac{1\text{mol CaCO}_3}{100.09\text{g}} \times \frac{1\text{mol CO}_2}{1\text{mol CaCO}_3} \times \frac{22.4\text{L}}{1\text{mol CO}_2} = \boxed{2.744\text{L CO}_2}$

7. Hydrogen gas and bromine gas react to form hydrogen bromide gas.

a. Write a balanced chemical equation for this reaction.



b. How many grams of hydrogen bromide gas can be produced from 3.2 g of hydrogen gas and 9.5 g of bromine gas?

Br_2 is limiting reactant. $\therefore \boxed{9.6\text{g HBr}}$

c. How many grams of which reactant is left unreacted?

d. What volume of HBr, measured at STP, is produced in b)?

c) H_2 is excess reactant.

0.12g H_2 needed to react w/ 9.5g Br_2

$3.2\text{g H}_2 - .12\text{g} = \boxed{3.1\text{g H}_2 \text{ left unreacted}}$

d) $\boxed{2.7\text{L HBr}}$

8. When ammonia gas, oxygen gas and methane gas (CH_4) are combined, the products are hydrogen cyanide gas and water.

a. Write a balanced chemical equation for this reaction.



b. Calculate the mass of each product produced when 225 g of oxygen gas is reacted with an excess of the other two reactants.

c. If the actual yield of the experiment in b) is 105 g of HCN, calculate the percent yield.

b) $127\text{g HCN} \neq 253\text{g H}_2\text{O}$

c) $\frac{105\text{g HCN}}{127\text{g HCN}} \times 100 = \boxed{82.7\%}$