Name _____

Class _____ Date _____

Chemical Reactions

A. Conservation of Mass and Atoms

The total number of atoms of each kind must remain the same in a chemical reaction. How many atoms of each kind should be present among the product molecules and formula units in reactions involving the following reactants?

1. $Fe(NO_3)_3 + 3LiOH$

Number of Fe atoms _____
Number of N atoms _____
Number of O atoms _____
Number of Li atoms _____
Number of H atoms _____

2. $Zn + Ag_2SO_4$

Number of Zn atoms _____
Number of Ag atoms _____
Number of S atoms _____
Number of O atoms _____

3. $2SO_2 + O_2$

Number of S atoms _____
Number of O atoms _____

4. $C_2H_4 + 3O_2$

Number of C atoms _____
Number of H atoms _____
Number of O atoms _____

5. $2NH_4NO_3 + H_2S$

Number of N atoms _____
Number of H atoms _____
Number of O atoms _____
Number of S atoms _____

6. $2K + 2H_2O$

Number of K atoms _____
Number of H atoms _____
Number of O atoms _____

7. $2F_2 + CO_2$

Number of F atoms _____
Number of C atoms _____
Number of O atoms _____

Chapter 7 Worksheet #1

Balancing Chemical Equations

Balance the equations below:

1) ____ N_2 + ____ H_2 → ____ NH_3

2) ____ $KClO_3$ → ____ KCl + ____ O_2

3) ____ NaCl + ____ F_2 → ____ NaF + ____ Cl_2

4) ____ H_2 + ____ O_2 → ____ H_2O

5) ____ $Pb(OH)_2$ + ____ HCl → ____ H_2O + ____ $PbCl_2$

6) ____ $AlBr_3$ + ____ K_2SO_4 → ____ KBr + ____ $Al_2(SO_4)_3$

7) ____ CH_4 + ____ O_2 → ____ CO_2 + ____ H_2O

8) ____ C_3H_8 + ____ O_2 → ____ CO_2 + ____ H_2O

9) ____ C_8H_{18} + ____ O_2 → ____ CO_2 + ____ H_2O

10) ____ $FeCl_3$ + ____ NaOH → ____ $Fe(OH)_3$ + ____NaCl

11) ____ P + ____O_2 → ____P_2O_5

12) ____ Na + ____ H_2O → ____ NaOH + ____H_2

13) ____ Ag_2O → ____ Ag + ____O_2

14) ____ S_8 + ____O_2 → ____ SO_3

15) ____ CO_2 + ____ H_2O → ____ $C_6H_{12}O_6$ + ____O_2

16) ____ K + ____ $MgBr_2$ → ____ KBr + ____ Mg

17) ____ HCl + ____ $CaCO_3$ → ____ $CaCl_2$ + ____H_2O + ____ CO_2

18) ____ HNO_3 + ____ $NaHCO_3$ → ____ $NaNO_3$ + ____ H_2O + ____ CO_2

19) ____ H_2O + ____ O_2 → ____ H_2O_2

20) ____ NaBr + ____ CaF_2 → ____ NaF + ____ $CaBr_2$

21) ____ H_2SO_4 + ____ $NaNO_2$ → ____ HNO_2 + ____ Na_2SO_4

Word Equations

Write the word equations below as chemical equations and balance:

1) Zinc and lead (II) nitrate react to form zinc nitrate and lead.

2) Aluminum bromide and chlorine gas react to form aluminum chloride and bromine gas.

3) Sodium phosphate and calcium chloride react to form calcium phosphate and sodium chloride.

4) Potassium metal and chlorine gas combine to form potassium chloride.

5) Aluminum and hydrochloric acid react to form aluminum chloride and hydrogen gas.

6) Calcium hydroxide and phosphoric acid react to form calcium phosphate and water.

7) Copper and sulfuric acid react to form copper (II) sulfate and water and sulfur dioxide.

8) Hydrogen gas and nitrogen monoxide react to form water and nitrogen gas.