Chemistry Chapter 10-12 Review Worksheet Answer Key (except multiple choice)

Section 10.1- The Mole: A Measurement of Matter

1. a. 208.2 g/mol b. 352.0 g/mol c. 158.0 g/mol d. 310.2 g/mol
2. 5.85 mol H_2O 3. 3.6 X 10^{23} atoms 4. 32.0 g

Section 10.2- Mole-Mass and Mole-Volume Relationships

1. a. 1.8 x 10^3 g b. 3.20 x 10^{-2} g c. 0.480 g d. 1.43 x 10^2 g
2. 1.87 X 10^2 g
3. a. 4.9 X 10^{-3} mol b. 9.10 X 10^{-2} mol c. 1.98 X 10^{-5} mol d. 1.98 X 10^{-5} mol
4. 15.1 g
5. 59.6 L CH_4

Section 10.3- Percent Composition and Chemical Formulas

1. Percent C = (5.34 g C /52.84 g) x 100 = 10.1% C
   Percent H = (0.42 g H/52.48 g) x 100 = 0.79%
   Percent Cl = (47.08 g Cl/52.84 g) x 100= 89.1% Cl
2. Mass of Cl= 18.35– 5.74 g = 12.61 g Cl
   % Sn = (5.74 g Sn/18.35 g compound) x 100 = 31.3% Sn
3. Percent C= (48.0 g C/158.1 g $Ca(C_2H_3O_2)$) x 100 = 30.4% C
   0.304 x 65.3 = 19.8 g C
4. 13.2 g

Section 11.1- Describing Chemical Reactions

1. Fe(s) + S(s) → FeS(s)
2. $MgCO_3(s) \rightarrow MgO(s) + CO2(g)$
3. silver + sulfur → silver sulfide
   Silver metal and sulfur react to produce solid silver sulfide. There are 2 silver atoms and 1sulfur atom on each side of the equation, and the coefficients are in their lowest possible ratio. Thus, the equation is balanced correctly.
4. $2AgNO_3(aq) + Cu(s) \rightarrow 2Ag(s) + Cu(NO_3)_2(aq)$

Section 11.2- Types of chemical Reactions

1. $2Al(s) + 3F_2(g) \rightarrow 2AlF_3(s)$
2. $Ca(s) + 2HCl(aq) \rightarrow H_2(g) + CaCl_2(aq)$
3. $C_3H_8(g) + 5O_2(g) \rightarrow 3CO_2(g) + 4H_2O(g)$
4. $FeCl_3(aq) + 3NaOH(aq) \rightarrow Fe(OH)_3(s) + 3NaCl(aq)$
5. combination reaction: 1 single-replacement reaction: 2
   double-replacement reaction: 4 combustion reaction: 3
6. a. no reaction
   b. $Ca(s) + Mg(NO_3)_2(aq) \rightarrow Ca(NO_3)_2(aq) + Mg(s)$

Section 12.1 - The Arithmetic of Equations

1. 10A + 2C + Ci → $A_{10}C_2Ci$
   25 $A_{10}C_2Ci$ x 10A/ $A_{10}C_2Ci$ = 250 apples