Chemistry I Name _____

Date _____ Per _____

Worksheet # C40: Dissociation and The Three Kinds of Equations

Directions: Read pages 425 - 426 of Modern Chemistry, (our text) to answer questions 1 and 2 below:

1. What is dissociation? _____

_____

2. Complete the following dissociations. Be sure to include all the charges, (s)'s and (aq)'s. The "Practice" problems at the bottom of page 426 may help you.

a. $NaCl(s) \xrightarrow{H_2O}$ _____

b. _____ $\xrightarrow{H_2O} Ca^{+2}(aq) + 2Cl^{-}(aq)$

c. $Al(NO_3)_3(s) \xrightarrow{H_2O}$ _____

d. _____ $\xrightarrow{H_2O} 3Na^{+1}(aq) + PO_4^{-3}(aq)$

e. $Ca(C_2H_3O_2)_2(s) \xrightarrow{H_2O}$ _____

f. _____ $\xrightarrow{H_2O} 2Al^{+3}(aq) + 3SO_4^{-2}(aq)$

Now read pages 154 - 155 of Chemistry (the AP Chem text) to answer the rest of the questions.

3. A **molecular equation** shows the _____ and _____ of a reaction, but does not give a very _____ _____ of what _____ _____ in a solution.

4. The **complete ionic equation** better represents the actual _____ of the _____ and _____. In a complete ionic equation, all substances that are _____ _____ are represented as _____.

a. What's a strong electrolyte? (it's on the left hand side of the page) _____

_____

_____

5. The complete ionic equation reveals that only _____ of the _____

participate in the _____.

a. What do you call the ions that do not directly participate in the reaction?

_____

6. The **net ionic equation** includes _____

_____

a. Should spectator ions be included in the net ionic equation? _____

7. Balance each of the following molecular equations. Then write out the complete ionic equation (cie) and the net ionic equation (nie) for each. Use Sample Exercise 4.9 as a guide if you need help.

Ex: ___$Pb(NO_3)_4(aq)$ + _4_ $HCl(aq)$ ---> _4_$HNO_3(aq)$ + ___ $PbCl_4(s)$

cie: $Pb^{+4}(aq) + 4NO_3^{-1}(aq) + 4H^+(aq) + 4Cl^{-1}(aq) \rightarrow 4H^+(aq) + 4NO_3^{-1}(aq) + PbCl_4(s)$

nie: $Pb^{+4}(aq) + 4Cl^{-1}(aq) \rightarrow PbCl_4(s)$

a. __ $Na_2SO_4(aq)$ + __ $Pb(NO_3)_2(aq)$ ---> __ $PbSO_4(s)$ + __$NaNO_3(aq)$

cie:_____

nie:_____

b. ___$AgNO_3(aq)$ + ___ $CaCl_2(aq)$ ----> ___ $AgCl(s)$ + ___ $Ca(NO_3)_2(aq)$

cie:_____

nie:_____

c. ___ $KOH(aq)$ + ___ $ZnCl_2(aq)$ ----> ___ $Zn(OH)_2(s)$ + ___ $KCl(aq)$

cie:_____

nie:_____

d. ___$AgNO_3(aq)$ + ___ $Fe(s)$ ----> ___ $Fe(NO_3)_2(aq)$ + ___ $Ag(s)$

cie:_____

nie:_____

The goal will be to be able to look at an equation and just write out the net ionic equation, but that takes a little practice.
Are these making any sense to you yet? _____