Net Ionic Equations and Precipitation Reactions

Name - _____

1. Use a Table of Solubilities to predict whether or not the following compounds are soluble in water.

Compound	Soluble (yes or no)
CaI_2	
$MgSO_4$	
$AlPO_4$	
$Pb(NO_3)_2$	
Ag_2SO_4	
$Ca(OH)_2$	

2. Write formulas for the following compounds, and using a Table of Solubilities, predict whether or not the compound is soluble in water.

	Formula	**Soluble (y/n)**
a. potassium phosphate		
b. calcium carbonate		
c. Copper (II) bromide		
d. aluminium sulphide		

3. For each of the following reactions, predict the products of the reaction. Be sure to write **balanced equations**.

   Then determine if any of the products forms a precipitate.

   - If no precipitate forms, write **NR** (for "No Reaction").
   - If a precipitate forms, write the **net ionic equation** for the reaction.

   a. $Mg(NO_3)_{2\,(aq)} + 2\ NaOH_{(aq)} \rightarrow$

   b. $CuSO_{4\,(aq)} + FeCl_{3\,(aq)} \rightarrow$

   c. $K_2CO_{3\,(aq)} + Sr(OH)_{2(aq)} \rightarrow$

4. An aqueous solution contains a mixture of Ba^{2+}, Pb^{2+} and Ca^{2+}. Select the **ONE** negative ion listed below which could be used to separate Pb^{2+} from the other two positive ions in the mixture.
   a. NO_3^-
   b. S^{2-}
   c. OH^-
   d. PO_4^{3-}
   e. SO_4^{2-}

5. An aqueous solution containing the following cations:

   Ca^{2+} Ag^+ Cu^{2+} K^+

   In order to separate them, the following solutions are available:

   Na_2S Na_2CO_3 NaBr

   If we wish to separate the cations by causing only one cation to precipitate out of solution as a time:

   - in what order should the solutions Na_2S, Na_2CO_3, and NaBr be added?
   - identify the three precipitates that form after the addition of those solutions.
   - which one cation will remain in solution?