Molecular, complete ionic and net ionic equations worksheet

Write the balanced molecular, complete ionic, and net ionic equations for each of the following reactions. Include all reactants even in aqueous solution. (If no the reaction, write NR.)

1. $2\ NaCl(aq) + Pb(NO_3)_2(aq) \rightarrow PbCl_2(s) + 2\ NaNO_3(aq)$

   $2Na^+(aq) + 2Cl^-(aq) + Pb^{2+}(aq) + 2NO_3^-(aq) \rightarrow PbCl_2(s) + 2Na^+ + 2NO_3^-$

   $Pb^{2+}(aq) + 2Cl^-(aq) \rightarrow PbCl_2(s)$

2. $Na_2CO_3(aq) + KaI(aq) \rightarrow KaI(s) + 2\ NaI(aq)$

   $2Na^+(aq) + CO_3^{2-}(aq) + Ka^+(aq) + I^-(aq) \rightarrow KaI(s) + 2Na^+(aq) + CO_3^{2-}(aq)$

   $Ka^+(aq) + I^-(aq) \rightarrow KaI(s)$

3. $Mg(ClO_4)_2(aq) + 2\ LiOH(aq) \rightarrow Mg(OH)_2(s) + 2\ LiClO_4(aq)$

   $Mg^{2+}(aq) + 2ClO_4^-(aq) + 2Li^+(aq) + 2OH^-(aq) \rightarrow Mg(OH)_2(s) + 2Li^+(aq) + 2ClO_4^-(aq)$

   $2OH^-(aq) + Mg^{2+}(aq) \rightarrow Mg(OH)_2(s)$

4. $BaCl_2(aq) + 2\ CaI(aq) \rightarrow 2\ BaI(aq) + CaCl_2(aq)$

   $Ba^{2+}(aq) + 2Cl^-(aq) + Ca^{2+}(aq) + 2I^-(aq) \rightarrow Ba^{2+}(aq) + 2I^-(aq) + CaCl_2(aq)$

   $2Cl^-(aq) + Ca^{2+}(aq) \rightarrow CaCl_2(aq)$

5. $2\ KMnO_4(aq) + 5\ H_2O_2(aq) \rightarrow 2\ MnO_2(s) + 5\ O_2(g) + 2\ KOH(aq)$

   $2K^+(aq) + 2MnO_4^-(aq) + 5H_2O_2(aq) \rightarrow 2MnO_2(s) + 5O_2(g) + 2K^+(aq) + 2OH^-(aq)$

   $2MnO_4^-(aq) + 5H_2O_2(aq) \rightarrow 2MnO_2(s) + 5O_2(g) + 2OH^-(aq)$

6. $Na_2SO_4(aq) + 2\ KOH(aq) \rightarrow 2\ NaOH(aq) + K_2SO_4(aq)$

   $2Na^+(aq) + SO_4^{2-}(aq) + 2K^+(aq) + 2OH^-(aq) \rightarrow 2Na^+(aq) + 2OH^-(aq) + 2K^+(aq) + SO_4^{2-}(aq)$

   NR

7. $NaCl(aq) + AgNO_3(aq) \rightarrow NaNO_3(aq) + AgCl(s)$

   $Na^+(aq) + Cl^-(aq) + Ag^+(aq) + NO_3^-(aq) \rightarrow Na^+(aq) + NO_3^-(aq) + AgCl(s)$

   $Ag^+(aq) + Cl^-(aq) \rightarrow AgCl(s)$