Worksheet #5: Double-Replacement Reactions

In these reactions, all you do is look at the names of the reactants, and "switch partners". Just be sure that the new pairs come out with the positive ion named first, and paired with a negative ion.

1. aluminum iodide + mercury(II) chloride →

2. silver nitrate + potassium phosphate →

3. copper(II) bromide + aluminum chloride →

4. calcium acetate + sodium carbonate →

5. ammonium chloride + mercury(I) acetate →

6. calcium nitrate + hydrochloric acid →

7. iron(II) sulfide + hydrochloric acid →

8. copper(II) hydroxide + acetic acid →

9. calcium hydroxide + phosphoric acid →

10. calcium bromide + potassium hydroxide →

Examine the products of the reactions on this page, and determine in each whether a gas, water, or a precipitate is formed. Use the solubility table in Appendix A of your textbook to determine the solubilities of the reaction products. If there is no gas, water, or precipitate produced, put an "X" through the yield sign, because no reaction occurs.

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1. aluminum iodide + mercury(II) chloride → aluminum chloride + mercury(II) iodide

   $2AlI_3 + 3HgCl_2 \rightarrow 2AlCl_3 + 3HgI_2(ppt)$

2. silver nitrate + potassium phosphate → silver phosphate + potassium nitrate

   $3AgNO_3 + K_3PO_4 \rightarrow Ag_3PO_4(ppt) + 3KNO_3$

3. copper(II) bromide + aluminum chloride → copper(II) chloride + aluminum bromide

   $3CuBr_2 + 2AlCl_3 \not\rightarrow 3CuCl_2 + 2AlBr_3$

4. calcium acetate + sodium carbonate → calcium carbonate + sodium acetate

   $Ca(C_2H_3O_2)_2 + Na_2CO_3 \rightarrow CaCO_3(ppt) + 2NaC_2H_3O_2$

5. ammonium chloride + mercury(I) acetate → ammonium acetate + mercury(I) chloride

   $2NH_4Cl + Hg_2(C_2H_3O_2)_2 \rightarrow 2NH_4\ C_2H_3O_2 + Hg_2Cl_2(ppt)$

6. calcium nitrate + hydrochloric acid → calcium chloride + nitric acid

   $Ca(NO_3)_2 + 2HCl \not\rightarrow CaCl_2 + 2HNO_3$

7. iron(II) sulfide + hydrochloric acid → iron(II) chloride + hydrogen sulfide (g)

   $FeS + 2HCl \rightarrow FeCl_2 + H_2S$

8. copper(II) hydroxide + acetic acid → copper(II) acetate + water

   $Cu(OH)_2 + 2HC_2H_3O_2 \rightarrow Cu(C_2H_3O_2)_2 + 2H_2O$

9. calcium hydroxide + phosphoric acid → calcium phosphate + water

   $3Ca(OH)_2 + 2H_3PO_4 \rightarrow Ca_3(PO_4)_2 + 6H_2O$

10. calcium bromide + potassium hydroxide → calcium hydroxide + potassium bromide

    $CaBr_2 + 2KOH \not\rightarrow Ca(OH)_2 + 2KBr$

Examine the products of the reactions on this page, and determine in each whether a gas, water, or a precipitate is formed. Use the solubility table in Appendix A of your textbook to determine the solubilities of the reaction products. If there is no gas, water, or precipitate produced, put an "X" through the yield sign, because no reaction occurs.