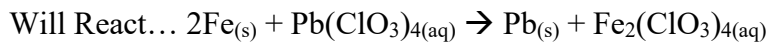
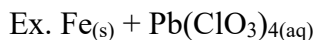


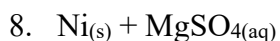
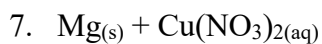
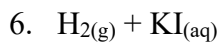
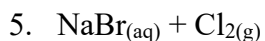
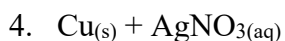
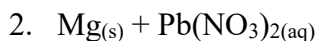
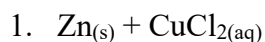
9 Assignment (Single Replacement Rxns)

Activity Series

Use your **Reactivity Chart** to predict if the reaction will produce evidence of a chemical reaction, if it does complete the products and balance the reaction and *write* the equation.



Solid Iron and Aqueous Lead (IV) Chlorate yield solid Lead and Aqueous Iron (II) Chlorate



9-2 Practice Problems

1. Write the formula equation for the following reaction: Ammonia reacts with Hydrogen Chloride to form Ammonium Chloride.
2. When heated, Calcium Carbonate decomposes to form Calcium Oxide and Carbon Dioxide. Write an equation for this reaction.
3. Write the formula equation for the following reaction: Barium Oxide reacts with water to form Barium Hydroxide.
4. Acetaldehyde (CH_3CHO) decomposes to form Methane (CH_4) and Carbon Monoxide. Write an equation for this reaction.
5. Write the formula equation for the following reaction: Zinc reacts with Copper (II) Nitrate to form Zinc Nitrate and Copper.
6. When heated, Calcium Sulfite decomposes to form Calcium Oxide and Sulfur Dioxide. Write an equation for this reaction.
7. Write the formula equation for the following reaction: Iron reacts with Sulfuric Acid to form Iron (II) Sulfate and Hydrogen gas.
8. Azomethane ($\text{C}_2\text{H}_6\text{N}_2$) decomposes to form Ethane (C_2H_6) and Nitrogen gas at 297°C . Write an equation for this reaction.
9. Write out the formula equation for the following reaction: Carbon Monoxide reacts with Chlorine Gas to form Phosgene (COCl_2).
10. Manganese (II) Iodide decomposes when exposed to light to form Manganese and Iodine. Write an equation for this reaction.

9-2 Practice Problems (Continued)

11. Write a balanced chemical equation for the reaction in which Dinitrogen Pentoxide reacts with water to produce Nitric Acid.
12. Magnesium reacts with Titanium (IV) Chloride to produce Magnesium Chloride and Titanium. Write the balanced equation for this reaction.
13. Write a balanced chemical equation for the reaction in which Carbon reacts with Zinc Oxide to produce Zinc and Carbon Dioxide.
14. Bromine reacts with Sodium Iodide to form Sodium Bromide and Iodine. Write the balanced equation for this reaction.
15. Write a balanced chemical equation for the reaction in which phosphorus Trichloride reacts with Chlorine gas to produce Phosphorus Pentachloride.
16. Phosphorus reacts with Bromine to produce Phosphorus Tribromide. Write the balanced equation for this reaction.
17. Calcium Hydride reacts with water to produce Calcium Hydroxide and Hydrogen gas. Write the balanced equation for this reaction.
18. Write a balanced chemical equation for the reaction in which Sulfuric Acid reacts with Potassium Hydroxide to produce Potassium Sulfate and water.
19. Write a balanced chemical equation for the reaction in which Propane (C_3H_8) reacts with Oxygen gas to produce Carbon Dioxide and water.
20. Benzene (C_6H_6) reacts with Oxygen gas to produce Carbon Dioxide and water. Write the balanced equation for this reaction.

9-3 Review and Reinforcement

Classifying chemical Reactions

On the line at the left, write the letter of the type of chemical reaction represented by each equation below.

- | | |
|--|--------------------------------|
| _____ 1. $A + B \rightarrow AB$ | a. decomposition reaction |
| _____ 2. $A + BX \rightarrow AX + B$ | b. synthesis reaction |
| _____ 3. $AX + BY \rightarrow AY + BX$ | c. double-replacement reaction |
| _____ 4. $AB \rightarrow A + B$ | d. single-replacement reaction |

Describe in words each of the following types of reactions.

5. direct combination reaction

6. decomposition reaction

7. single-replacement reaction

8. double-replacement reaction

Decide whether each of the following equations represents a synthesis (synth), decomposition (decomp), single-replacement (sr), or double-replacement (dr) reaction.

Write your answer on the line.

- _____ 9. $CO_2 \rightarrow C + O_2$
- _____ 10. $NaCl + AgNO_3 \rightarrow NaNO_3 + AgCl$
- _____ 11. $S_8 + Cl_2 \rightarrow SCl_2$
- _____ 12. $BaCl_2 + 2NaOH \rightarrow 2NaCl + Ba(OH)_2$
- _____ 13. $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$
- _____ 14. $CH_4 \rightarrow C + 2H_2$
- _____ 15. $Pb(NO_3)_2 + Mg \rightarrow Pb + Mg(NO_3)_2$

9-3 Review and Reinforcement (Continued)

Answer each of the following questions in the space provided.

16. Explain how the activity series of metals is used to determine whether or not a single-replacement reaction will occur.

17. Explain why Hydrogen is listed in the activity series even though Hydrogen is not a metal.

18. Why are combustion reactions considered "exceptions to the rules" of chemical reactions?

Solve each of the following problems as directed.

19. Magnesium metal replaces mercury in a solution of the compound Mercury (II) Nitrate. Write the word equation and the balanced chemical equation. Then identify the type of reaction that has occurred.

20. Liquid Bromine combines with gaseous Nitrogen to produce gaseous Nitrogen Tribromide. Write a balanced chemical equation. Then identify the type of reaction that has occurred.

21. A mixture of Potassium Sulfate and Lead (II) Nitrate react to produce Lead (II) Sulfate and Potassium Nitrate. Write the a balanced chemical equation. Then identify the type of reaction that has occurred.