Chemistry 311/312

Name: Answer Key

Predicting Products & Identifying Reactions

Practice III

Learning Target
Describe the steps of writing and balancing a chemical equation.
Describe the five general types of reactions.

Directions: For each of the following, identify the type of reaction, predict the products, and balance the equation.

1. Synthesis — $Mg + I_2 \rightarrow MgI_2$
2. Double Replacement — $CuCl_2 + H_2S \rightarrow CuS + 2HCl$
3. Double Replacement — $NaOH + HClO_4 \rightarrow NaClO_4 + HOH$
4. Decomposition — $ZnCO_3 + heat \rightarrow Zn + CO_3$
5. Single Replacement — $2H^+ + 4Cl^- + Zn \rightarrow$ ~~$ZnCl_2 + H_2$~~ $ZnCl + H$
6. Single Replacement — $2Na + MgCl_2 \rightarrow Mg + 2NaCl$
7. Double Replacement — $CaCl_2 + K_2CO_3 \rightarrow CaCO_3 + 2KCl$
8. Synthesis — $2K + Cl_2 \rightarrow 2KCl$
9. Double Replacement — $3BaCl_2 + 2K_3PO_4 \rightarrow Ba_3(PO_4)_2 + 6KCl$
10. Double Replacement — $H_2SO_4 + 2KOH \rightarrow K_2SO_4 + 2HOH$
11. Decomposition — $Al_2(CO_3)_3 + heat \rightarrow 2Al + 3CO_3$

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12. Synthesis $4Al + 3O_2 \rightarrow 2Al_2O_3$

13. Double Replacement $Pb(NO_3)_2 + 2KOH \rightarrow 2KNO_3 + PbOH$

14. Double Replacement $H_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2HCl$

15. Single Replacement $Ca + 2AgCl \rightarrow CaCl_2 + 2Ag$

16. Combustion $C_6H_{10}O_3 + 7O_2 \rightarrow 6CO_2 + 5H_2O$

17. Double Replacement $H_3PO_4 + FeBr_3 \rightarrow 3HBr + FePO_4$

18. Synthesis $6Li + N_2 \rightarrow 2Li_3N$

19. Double Replacement $2HCl + Mg(OH)_2 \rightarrow MgCl_2 + 2HOH$

20. Decomposition $Mg(OH)_2 + heat \rightarrow Mg + 2OH$

21. Decomposition $Fe(OH)_3 + heat \rightarrow Fe + 3OH$

22. Combustion $2C_4H_6 + 11O_2 \rightarrow 8CO_2 + 6H_2O$

23. Combustion $C_6H_{12} + 9O_2 \rightarrow 6CO_2 + 6H_2O$

Directions: List the 5 types of chemical reactions. The give a brief description of how you can identify each reaction by only looking at the reactants.

Synthesis = 2 elements

Decomposition = 1 compound

Single Replacement = 1 element + 1 compound

Double Replacement = 2 compounds

Combustion = oxygen + hydrocarbon