

Exercise 8.2a

Types of Chemical Reactions – Answers

Name: _____

Date: _____ Per: _____

DIRECTIONS: Balance the following equations. Write the sum of the coefficients and type of reaction to the right.

	Sum of Coefficients	Type of Reaction
1. $4\text{Ag} + 2\text{H}_2\text{S} + 1\text{O}_2 \rightarrow 2\text{Ag}_2\text{S} + 2\text{H}_2\text{O}$	11	single replacement/synthesis
2. $2\text{HBr} + 1\text{Mg} \rightarrow 1\text{H}_2 + 1\text{MgBr}_2$	5	Single Replacement
3. $1\text{C}_6\text{H}_{10}\text{O}_5 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 5\text{H}_2\text{O}$	18	Combustion
4. $4\text{C}_3\text{H}_5(\text{NO}_3)_3 \rightarrow 6\text{N}_2 + 1\text{O}_2 + 12\text{CO}_2 + 10\text{H}_2\text{O}$	33	Decomposition
5. $1\text{ZnBr}_2 + 2\text{AgNO}_3 \rightarrow 1\text{Zn}(\text{NO}_3)_2 + 2\text{AgBr}$	6	Double Replacement
6. $1\text{H}_2\text{CO}_3 \rightarrow 1\text{H}_2\text{O} + 1\text{CO}_2$	3	Decomposition
7. $1\text{NH}_3 + 1\text{HCl} \rightarrow 1\text{NH}_4\text{Cl}$	3	Synthesis
8. $2\text{H}_2 + 1\text{O}_2 \rightarrow 2\text{H}_2\text{O}$	5	Combustion/Synthesis

DIRECTIONS: Write the formulas for each, balance the equation and indicate the type of reaction.

9. methane + oxygen → carbon dioxide + water
 $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$ Type: Combustion
10. phosphorus pentachloride → phosphorus trichloride + chlorine
 $\text{PCl}_5 \rightarrow \text{PCl}_3 + \text{Cl}_2$ Type: Decomposition
11. cadmium oxide + carbon dioxide → cadmium carbonate
 $\text{CdO} + \text{CO}_2 \rightarrow \text{CdCO}_3$ Type: Synthesis
12. lead (II) chloride + lithium sulfate → lead (II) sulfate + lithium chloride
 $\text{PbCl}_2 + \text{Li}_2\text{SO}_4 \rightarrow \text{PbSO}_4 + 2\text{LiCl}$ Type: Double Replacement
13. aluminum + iron (III) oxide → iron + aluminum oxide
 $2\text{Al} + \text{Fe}_2\text{O}_3 \rightarrow 2\text{Fe} + \text{Al}_2\text{O}_3$ Type: Single Replacement

DIRECTIONS: Predict the products of each reaction and balance the equation.

14. Double replacement: $\text{BaCl}_2 + 2\text{KIO}_3 \rightarrow \text{Ba}(\text{IO}_3)_2 + 2\text{KCl}$
15. Decomposition: $\text{Pb}(\text{OH})_2 \rightarrow \text{PbO} + \text{H}_2\text{O}$
16. Synthesis: $\text{CaO} + \text{SiO}_2 \rightarrow \text{CaSiO}_3$
17. Single Replacement: $\text{Cl}_2 + 2\text{KBr} \rightarrow 2\text{KCl} + \text{Br}_2$
18. Combustion: $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$

DIRECTIONS: Write the formulas for each of the following, complete and balance the equation, and indicate the type of reaction for the following.

19. zinc + silver sulfate → silver + zinc sulfate
 $\text{Zn} + \text{Ag}_2\text{SO}_4 \rightarrow 2\text{Ag} + \text{ZnSO}_4$ Single Replacement
20. potassium chloride + aluminum oxide → potassium oxide + aluminum chloride
 $6\text{KCl} + \text{Al}_2\text{O}_3 \rightarrow 3\text{K}_2\text{O} + 2\text{AlCl}_3$ Double Replacement