Name: Answer Key Date: _____ Period: _____

Predicting Products for Synthesis & Combustion Reactions

Classifying & Balancing Warm-up

For each of the following chemical equations – classify the type of reaction and balance the equation.

SD 1. $Zn + H_2SO_4 \text{ -----> } ZnSO_4 + H_2$

already balanced

D 2. $H_2CO_3 \text{ -----> } CO_2 + H_2O$

already balanced.

DD 3. $CaCO_3 + 2HCl \text{ ------> } CaCl_2 + H_2CO_3$

C 4. $C_2H_5OH + 3O_2 \text{ -----> } 2CO_2 + 3H_2O$

Synthesis Reaction Practice Problems

Think about it... A synthesis reaction looks like:

Predict the product for the following synthesis reactions. Balance the equations.

5. $2Cu\ (I) + S \rightarrow Cu_2S$

6. $2Mg + O_2 \rightarrow 2MgO$

7. $Pb\ (II) + Cl_2 \rightarrow PbCl_2$

8. $Zn + Br_2 \rightarrow ZnBr_2$

9. $3Ca + 2P \rightarrow Ca_3P_2$

Combustion Reaction Practice Problems

Think about it... A combustion reaction looks like:

Predict the products for the following combustion reactions. Balance the equations.

10. $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

11. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

12. $2C_4H_{10} + 13O_2 \rightarrow 8CO_2 + 10H_2O$

13. $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

14. $CH_3COOH + 2O_2 \rightarrow 2CO_2 + 2H_2O$

Mixed Practice

Think about it... what type(s) of reactants should you be looking for if it's a combustion reaction? What about synthesis?

Predict the product(s) for the following reactions. Balance the equations.

15. $2Zn + O_2 \rightarrow 2ZnO$

16. $2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

17. $4Al + 3O_2 \rightarrow 2Al_2O_3$

18. $2Ca + O_2 \rightarrow 2CaO$

19. $2CH_3OH + 3O_2 \rightarrow 2CO_2 + 4H_2O$