

Name _____ Classifying and Balancing Equations

- _____1. During a chemical reaction,
a. new elements are produced c. atoms are destroyed
b. atoms are rearranged d. elements are destroyed
- _____2. An equation is balanced by
a. changing subscripts c. erasing elements as necessary
b. adding coefficients d. adding elements as necessary
- _____3. What are the reactants in the following chemical equation:
$$\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$$

a. zinc and copper c. zinc and copper (II) sulfate
b. zinc sulfate and copper d. only zinc
- _____4. What are the products in the above equation?
a. zinc and copper c. zinc and copper (II) sulfate
b. zinc sulfate and copper d. only zinc

For questions 5-12, classify the reaction according to the type it is. Put that answer in the blank. Then add coefficients to balance the reaction when necessary.

- _____5. $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$
- _____6. $\text{H}_2\text{CO}_3 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- _____7. $\text{CaCO}_3 + \text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{CO}_3$
- _____8. $\text{AgNO}_3 + \text{Zn} \rightarrow \text{Zn}(\text{NO}_3)_2 + \text{Ag}$
- _____9. $\text{C}_3\text{H}_8 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- _____10. $\text{C}_2\text{H}_5\text{OH} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$

Write a balanced equation and determine what type of reaction for each of the following reactions.

11. Magnesium chloride is the product of a reaction between magnesium and chlorine.

12. Copper (II) hydroxide and potassium sulfate are produced when potassium hydroxide reacts with copper (II) sulfate.

Precipitation Reactions:

1. Which of the following substances would you expect to be **insoluble** in water?

Barium hydroxide

Silver nitrate

Lithium sulfate

Ammonium nitrate

Silver chloride

Lithium carbonate

Calcium carbonate

Sodium chloride

Barium sulfate

Potassium sulfate

Strontium hydroxide

Ammonium nitrate

Lead (II) chloride

Calcium Phosphate

2. Solutions of lead (II) nitrate and potassium carbonate are mixed.

a. Does a precipitation reaction occur?

b. Write balanced equation representing the reaction.