

Types of Chemical Reactions

1. A decomposition reaction starts with one reactant and ends up with two or more products. Which of the following reactions are decomposition reactions? Circle the letters.

 - a. $\text{NaCl} \rightarrow \text{Na} + \text{Cl}_2$
 - b. $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$
 - c. $\text{H}_2\text{O} \rightarrow \text{H}_2 + \text{O}_2$
 - d. $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
 - e. $\text{NaOH} + \text{HCl} \rightarrow \text{HOH} + \text{NaCl}$
2. A synthesis reaction starts with two reactants and ends up with one product. Which of the following reactions are synthesis reactions? Circle the letters.

 - a. $\text{NaCl} \rightarrow \text{Na} + \text{Cl}_2$
 - b. $\text{Na} + \text{HCl} \rightarrow \text{H}_2 + \text{NaCl}$
 - c. $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
 - d. $\text{NaOH} + \text{HCl} \rightarrow \text{HOH} + \text{NaCl}$
 - e. $\text{K} + \text{Cl}_2 \rightarrow \text{KCl}$
3. A single replacement reaction starts with two reactants and ends up with two products. The uncombined element takes the place of the combined element in the compound. Which of the following reactions are single replacement reactions? Circle the letters.

 - a. $\text{NaCl} \rightarrow \text{Na} + \text{Cl}_2$
 - b. $\text{NaOH} + \text{HCl} \rightarrow \text{HOH} + \text{NaCl}$
 - c. $\text{K} + \text{AgCl} \rightarrow \text{Ag} + \text{KCl}$
 - d. $\text{Ca} + \text{S} \rightarrow \text{CaS}$
 - e. $\text{Na} + \text{HCl} \rightarrow \text{H}_2 + \text{NaCl}$
4. A double replacement reaction starts with two reactants and ends up with two products. In this case both reactants are compounds and both products are compounds. They simply change partners. Which of the following reactions are double replacement reactions? Circle the letters.

 - a. $\text{NaCl} \rightarrow \text{Na} + \text{Cl}_2$
 - b. $\text{NaOH} + \text{HCl} \rightarrow \text{HOH} + \text{NaCl}$
 - c. $\text{Na} + \text{HCl} \rightarrow \text{H}_2 + \text{NaCl}$
 - d. $\text{KOH} + \text{HNO}_3 \rightarrow \text{HOH} + \text{KNO}_3$
 - e. $\text{Ca} + \text{S} \rightarrow \text{CaS}$