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Name: _____ Date: _____

Types of Chemical Reactions

Describe what takes place in each reaction below. Give as much detail as you can.

1. In a **synthesis reaction,** two elements combine to form a new compound.

$$2\ Na + F_2 \rightarrow 2\ NaF$$

2. In a **decomposition reaction,** one compound breaks apart into two or more parts.

$$Ca(OH)_2 \rightarrow CaO + H_2O$$

3. In a **single replacement reaction,** an element reacts with a compound and one of the elements is replaced.

$$3\ Fe + 4\ H_2O \rightarrow Fe_3O_4 + 4\ H_2$$

4. In a **double replacement reaction,** two compounds react and two of the elements replace each other.

$$FeS + 2\ HCl \rightarrow H_2S + FeCl_2$$

5. In an **acid–base neutralization reaction,** an acid reacts with a base to produce a salt and water. (Write a description for this reaction as an acid–base neutralization and also as a double replacement reaction.)

$$2\ HBr + Ba(OH)_2 \rightarrow BaBr_2 + 2\ H_2O$$

6. In a **combustion reaction,** an organic substance reacts with oxygen, releasing energy and forming carbon dioxide and water.

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