

CHAPTER 7	Identifying Reaction Types Answer Key	BLM 7.0.1A
ANSWER KEY		

1. The five reaction types are decomposition, double replacement, formation, hydrocarbon combustion, and single replacement.
2. An elemental metal reacting with an elemental gas to form a solid compound represents a formation reaction.
3. Single replacement reactions and hydrocarbon combustion reactions have one element and one compound as reactants.
4. Single replacement, hydrocarbon combustion, and decomposition reactions all have at least two products.
5. A decomposition reaction is illustrated by a liquid compound changing into an elemental solid and an elemental gas.
6. Hydrocarbon combustion reactions have the same products most of the time. These products are  $\text{CO}_2(\text{g})$  and  $\text{H}_2\text{O}(\text{g})$ .
7.  $\text{C} + \text{P} + \text{D} \rightarrow \text{CPD}$  illustrates a *formation* reaction.
8. A decomposition reaction can be represented by  $\text{CPD} \rightarrow \text{C} + \text{P} + \text{D}$ .

CHAPTER 7	Identifying Reaction Types Answer Key (continued)	BLM 7.0.1A
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- F (a)  $\text{Ti(s)} + 2\text{Cl}_2\text{(g)} \rightarrow \text{TiCl}_4\text{(l)}$
- SR (b)  $\text{AuCl}_3\text{(aq)} + 3\text{Ag(s)} \rightarrow 3\text{AgCl(s)} + \text{Au(s)}$
- D (c)  $\text{HCOOH(l)} \rightarrow \text{C(s)} + \text{H}_2\text{(g)} + \text{O}_2\text{(g)}$
- F (d)  $8\text{Pb(s)} + \text{S}_8\text{(s)} + 16\text{O}_2\text{(g)} \rightarrow 8\text{PbSO}_4\text{(s)}$
- C (e)  $\text{CH}_3\text{COOH(l)} + 2\text{O}_2\text{(g)} \rightarrow 2\text{CO}_2\text{(g)} + 2\text{H}_2\text{O(g)}$
- DR (f)  $\text{NaCl(aq)} + \text{AgNO}_3\text{(aq)} \rightarrow \text{AgCl(s)} + \text{NaNO}_3\text{(aq)}$
- F (g)  $2\text{C(s)} + 4\text{H}_2\text{(g)} + \text{O}_2\text{(g)} \rightarrow 2\text{CH}_3\text{OH(l)}$
- HB (h)  $\text{C}_3\text{H}_8\text{(g)} + 5\text{O}_2\text{(g)} \rightarrow 3\text{CO}_2\text{(g)} + 4\text{H}_2\text{O(g)}$
- SR (i)  $\text{Br}_2\text{(l)} + 2\text{NaI(aq)} \rightarrow 2\text{NaBr(aq)} + \text{I}_2\text{(s)}$
- F (j)  $2\text{Ca(s)} + 2\text{C(s)} + 3\text{O}_2\text{(g)} \rightarrow 2\text{CaCO}_3\text{(s)}$
- D (k)  $8\text{H}_2\text{SO}_4\text{(l)} \rightarrow 8\text{H}_2\text{(g)} + \text{S}_8\text{(s)} + 16\text{O}_2\text{(g)}$
- DR (l)  $2\text{KI(aq)} + \text{Pb(NO}_3)_2\text{(aq)} \rightarrow \text{PbI}_2\text{(s)} + 2\text{KNO}_3\text{(aq)}$
- SR (m)  $\text{Sn(NO}_3)_2\text{(aq)} + \text{Cd(s)} \rightarrow \text{Sn(s)} + \text{Cd(NO}_3)_2\text{(aq)}$
- C (n)  $2\text{C}_6\text{H}_6\text{(l)} + 15\text{O}_2\text{(g)} \rightarrow 12\text{CO}_2\text{(g)} + 6\text{H}_2\text{O(g)}$
- F (o)  $2\text{Ag(s)} + \text{O}_2\text{(g)} + \text{H}_2\text{(g)} \rightarrow 2\text{AgOH(s)}$
- D (p)  $2\text{HClO}_4\text{(l)} \rightarrow \text{H}_2\text{(g)} + \text{Cl}_2\text{(g)} + \text{O}_2\text{(g)}$
- DR (q)  $\text{H}_3\text{PO}_4\text{(aq)} + 3\text{NaOH(aq)} \rightarrow 3\text{HOH(l)} + \text{Na}_3\text{PO}_4\text{(aq)}$
- SR (r)  $\text{CrCl}_2\text{(aq)} + \text{Mg(s)} \rightarrow \text{MgCl}_2\text{(aq)} + \text{Cr(s)}$
- DR (s)  $\text{Ba(NO}_3)_2\text{(aq)} + 2\text{NaCl(aq)} \rightarrow \text{BaCl}_2\text{(s)} + 2\text{NaNO}_3\text{(aq)}$
- HB (t)  $2\text{C}_8\text{H}_{18}\text{(l)} + 25\text{O}_2\text{(g)} \rightarrow 16\text{CO}_2\text{(g)} + 18\text{H}_2\text{O(g)}$
- SR (u)  $\text{I}_2\text{(s)} + \text{Na}_2\text{Se(aq)} \rightarrow 2\text{NaI(aq)} + \text{Se(s)}$
- F (v)  $8\text{Cu(s)} + \text{S}_8\text{(s)} + 12\text{O}_2\text{(g)} \rightarrow 8\text{CuSO}_3\text{(s)}$
- F (w)  $2\text{Au(s)} + 3\text{Cl}_2\text{(g)} \rightarrow 2\text{AuCl}_3\text{(s)}$
- D (x)  $8\text{CuSO}_4\text{(s)} \rightarrow 8\text{Cu(s)} + \text{S}_8\text{(s)} + 16\text{O}_2\text{(g)}$
- HB (y)  $2\text{C}_2\text{H}_2\text{(g)} + 5\text{O}_2\text{(g)} \rightarrow 4\text{CO}_2\text{(g)} + 2\text{H}_2\text{O(g)}$
- F (z)  $\text{Hg(l)} + \text{O}_2\text{(g)} \rightarrow 2\text{HgO(s)}$

F = formation

SR = single replacement

D = decomposition

HB = hydrocarbon burning

DR = double replacement

C = combustion