

## A Voyage through Equations

After working on this worksheet, you should be able to do the following:

- 1) Given an equation, you should be able to tell what kind of reaction it is.
- 2) Predict the products of a reaction when given the reactants.

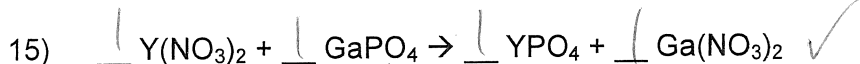
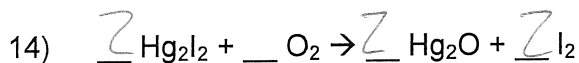
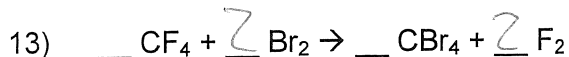
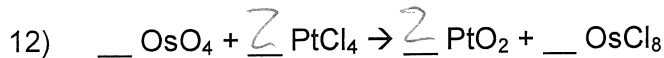
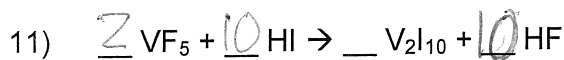
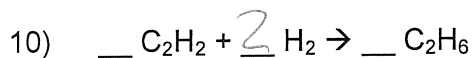
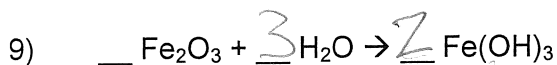
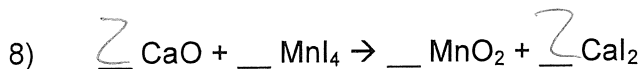
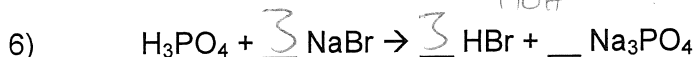
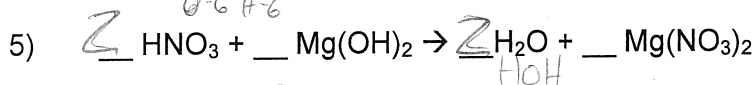
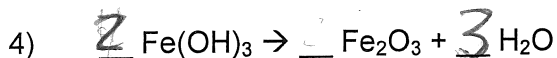
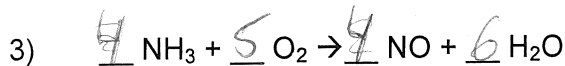
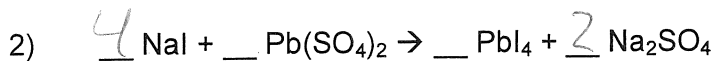
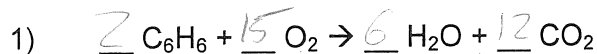
### Section 1: Identify the type of reaction

For the following reactions, indicate whether the following are examples of synthesis, decomposition, combustion, single displacement, double displacement, or acid-base reactions:

- 1)  $\text{Na}_3\text{PO}_4 + 3 \text{KOH} \rightarrow 3 \text{NaOH} + \text{K}_3\text{PO}_4$  DD
- 2)  $\text{MgCl}_2 + \text{Li}_2\text{CO}_3 \rightarrow \text{MgCO}_3 + 2 \text{LiCl}$  DD
- 3)  $\text{C}_6\text{H}_{12} + 9 \text{O}_2 \rightarrow 6 \text{CO}_2 + 6 \text{H}_2\text{O}$  C
- 4)  $\text{Pb} + \text{FeSO}_4 \rightarrow \text{PbSO}_4 + \text{Fe}$  SD
- 5)  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$  D
- 6)  $\text{P}_4 + 3 \text{O}_2 \rightarrow 2 \text{P}_2\text{O}_3$  S
- 7)  $2 \text{RbNO}_3 + \text{BeF}_2 \rightarrow \text{Be}(\text{NO}_3)_2 + 2 \text{RbF}$  DD
- 8)  $2 \text{AgNO}_3 + \text{Cu} \rightarrow \text{Cu}(\text{NO}_3)_2 + 2 \text{Ag}$  SD
- 9)  $\text{C}_3\text{H}_8 + 4 \text{O}_2 \rightarrow 3 \text{CO}_2 + 3 \text{H}_2\text{O}$  C
- 10)  $2 \text{C}_5\text{H}_5 + \text{Fe} \rightarrow \text{Fe}(\text{C}_5\text{H}_5)_2$  S
- 11)  $\text{SeCl}_6 + \text{O}_2 \rightarrow \text{SeO}_2 + 3 \text{Cl}_2$  SD
- 12)  $2 \text{MgI}_2 + \text{Mn}(\text{SO}_3)_2 \rightarrow 2 \text{MgSO}_3 + \text{MnI}_4$  DD
- 13)  $\text{O}_3 \rightarrow \text{O} + \text{O}_2$  D
- 14)  $2 \text{NO}_2 \rightarrow 2 \text{O}_2 + \text{N}_2$  D

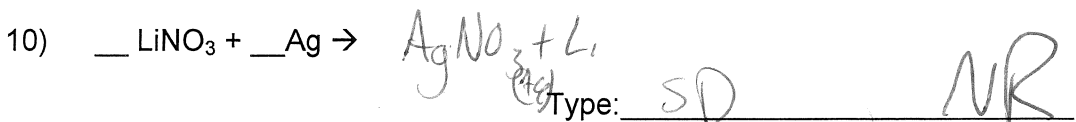
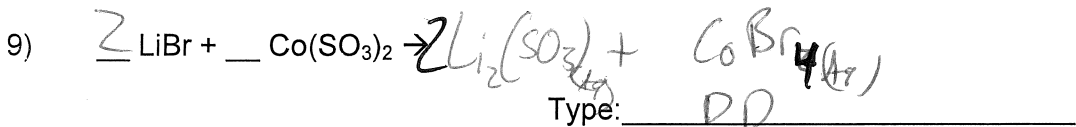
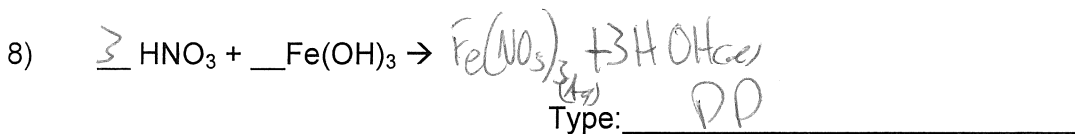
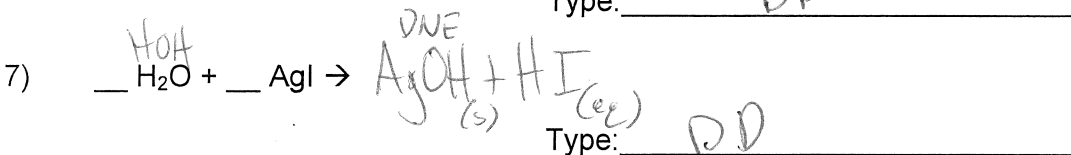
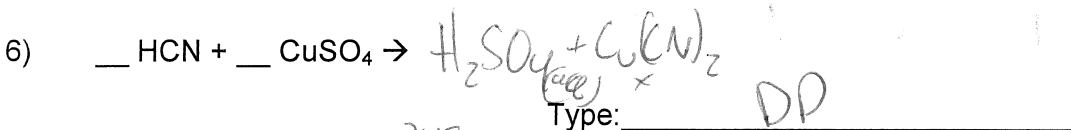
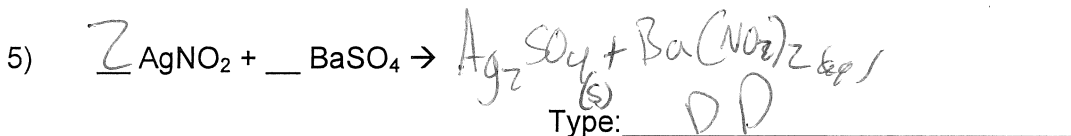
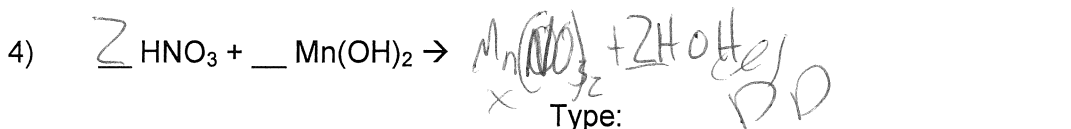
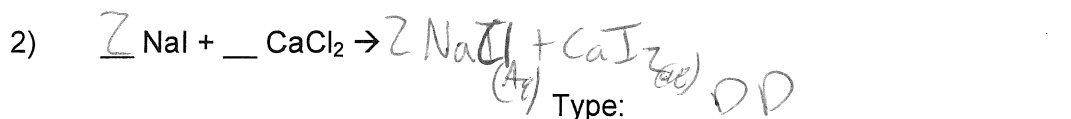
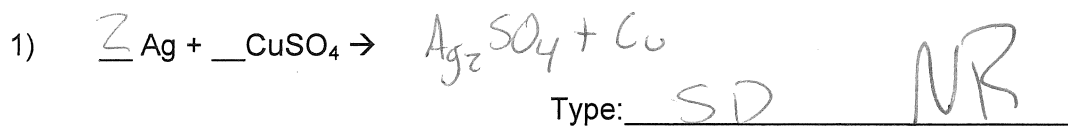
## Section 2: Practicing equation balancing

Before you can write a balanced equation for a problem which asks you to predict the products of a reaction, you need to know how to balance an equation. Because some of you may not fully remember how to balance an equation, here are some practice problems: 624



### Section 3: Predicting the products of chemical reactions

Predict the products of the following reactions:



2  $ZNO_2$

product  
one  
is  $H_2O$

