

# 8A Chemical Reactions

## Extra Practice Problems

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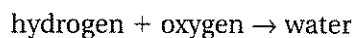
### Skeleton Equations

Skeleton equations tell chemists what the reactants and products of a reaction are, but they do not show the relative amounts of the reactants and products. Nevertheless they are an important first step in learning how to write complete chemical equations. Using written descriptions of chemical reactions, you will write skeleton equations. In addition, from skeleton equations, you will write descriptions of chemical reactions.

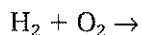
#### Example A

Write the skeleton equation for the reaction between hydrogen and oxygen that produces water.

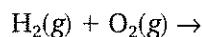
**Solution** The “word equation” for this reaction is as follows.



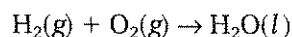
The first thing we must remember is that both hydrogen and oxygen are diatomic gases. The formulas for these two reactants are  $\text{H}_2$  and  $\text{O}_2$ , respectively. We place the reactants on the left side of the arrow, separated by a “+” sign to show that they are being added together to react. The arrow indicates that a new product forms in the reaction.



Since we know that both hydrogen and oxygen are gases, this information can also be included in the equation.



Now we add the formula for water to the right side of the equation to show that water is the product.



This is the finished skeleton equation, since it contains formulas for each of the reactants and products involved in the reaction.

#### You Try It

1. Write the skeleton equation for the reaction that produces iron(II) sulfide from iron and sulfur.

7.2

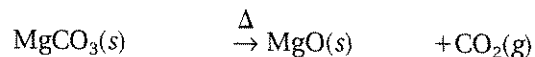
#### Your Solution

#### Example B

Write the skeleton equation representing the heating of magnesium carbonate, producing a powder, magnesium oxide, and carbon dioxide gas.

**Solution** The "word equation" for this reaction is as follows.  
magnesium carbonate → magnesium oxide + carbon dioxide

Write the formulas for the reactant and products.



Don't forget to include heat (when it is mentioned). Heat is represented by the Greek letter delta over the arrow.

### You Try It

2. Write the skeleton equation for the production of HCl gas from its elements. 7.2

### Your Solution

### Example C

Write a sentence that completely describes the chemical reaction represented in this skeleton equation. 7.2

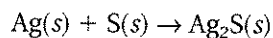


### Solution

Hydrochloric acid and calcium carbonate react to produce carbon dioxide and calcium chloride and water.

### You Try It

3. Write the word equation for the following skeleton equation. Write a sentence fully describing the reaction. 7.2

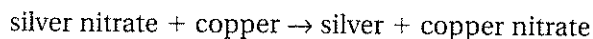


### Your Solution

### Problems For You To Try

4. Write the skeleton equation representing the formation of aqueous sulfuric acid from water and sulfur trioxide gas. 7.2

5. Write a skeleton equation from this word equation. 7.2



6. Write the skeleton equation for the following word equation. 7.2

