

KEY

## Reviewing Content

## 11.1 Describing Chemical Reactions

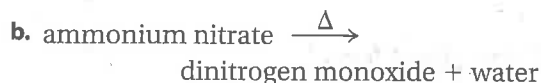
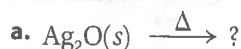
36. Identify the reactants and products in each chemical reaction.
- Hydrogen gas and sodium hydroxide are formed when sodium is dropped into water.
  - In photosynthesis, carbon dioxide and water react to form oxygen gas and glucose.
37. How did John Dalton explain a chemical reaction using his atomic theory?
38. What is the function of an arrow ( $\longrightarrow$ ) in a chemical equation? A plus sign (+)?
39. Write sentences that completely describe each of the chemical reactions shown in these skeleton equations.
- $\text{NH}_3(g) + \text{O}_2(g) \xrightarrow{\text{Pt}} \text{NO}(g) + \text{H}_2\text{O}(g)$
  - $\text{H}_2\text{SO}_4(aq) + \text{BaCl}_2(aq) \longrightarrow$   
 $\text{BaSO}_4(s) + \text{HCl}(aq)$
  - $\text{N}_2\text{O}_3(g) + \text{H}_2\text{O}(l) \longrightarrow \text{HNO}_2(aq)$
40. What is the purpose of a catalyst?
41. Balance equations for each item. The formula for each product (object) is given.
- a basketball team  
center + forward + guard  $\longrightarrow$  team  
 $\text{C} + \text{F} + \text{G} \longrightarrow \text{CF}_2\text{G}_2$
  - a tricycle  
frame + wheel + seat + pedal  $\longrightarrow$  tricycle  
 $\text{F} + \text{W} + \text{S} + \text{P} \longrightarrow \text{FW}_3\text{SP}_2$
42. The equation for the formation of water from its elements,  $\text{H}_2(g) + \text{O}_2(g) \longrightarrow \text{H}_2\text{O}(l)$ , can be "balanced" by changing the formula of the product to  $\text{H}_2\text{O}_2$ . Explain why this is incorrect.
43. Balance the following equations.
- $\text{PbO}_2 \longrightarrow \text{PbO} + \text{O}_2$
  - $\text{Fe}(\text{OH})_3 \longrightarrow \text{Fe}_2\text{O}_3 + \text{H}_2\text{O}$
  - $(\text{NH}_4)_2\text{CO}_3 \longrightarrow \text{NH}_3 + \text{H}_2\text{O} + \text{CO}_2$
  - $\text{NaCl} + \text{H}_2\text{SO}_4 \longrightarrow \text{Na}_2\text{SO}_4 + \text{HCl}$

## 11.2 Types of Chemical Reactions

44. What is a characteristic of every combination reaction?
45. Write balanced chemical equations for the following combination reactions.
- $\text{Mg} + \text{O}_2 \longrightarrow$
  - $\text{P} + \text{O}_2 \longrightarrow$  diphosphorus pentoxide
  - $\text{Ca} + \text{S} \longrightarrow$

46. What is a distinguishing feature of every decomposition reaction?

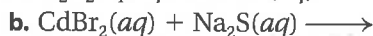
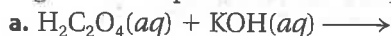
47. Write a balanced chemical equation for each decomposition reaction.



48. Use the activity series of metals to write a balanced chemical equation for each single-replacement reaction.



49. Write a balanced equation for each of the following double-replacement reactions.



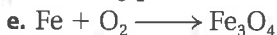
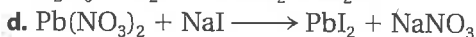
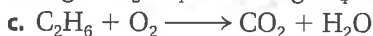
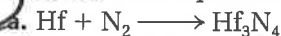
(Cadmium sulfide is a precipitate.)

50. What substance is common to all combustion reactions?

51. Write a balanced equation for the complete combustion of each compound.



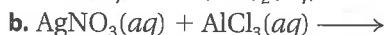
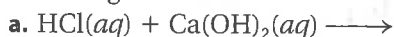
52. Balance each equation and identify its type.



## 11.3 Reactions in Aqueous Solution

53. What is a spectator ion?

54. Write a balanced net ionic equation for the following reactions.



(Silver chloride is a precipitate.)

55. Complete each equation and then write a net ionic equation.

