

Use with textbook pages 206–211.

## Balancing equations

Starting with the skeleton equations, balance the following equations by adding coefficients where appropriate.

1.  $\text{H}_2 + \text{F}_2 \rightarrow \text{HF}$  \_\_\_\_\_
2.  $\text{Sn} + \text{O}_2 \rightarrow \text{SnO}$  \_\_\_\_\_
3.  $\text{MgCl}_2 \rightarrow \text{Mg} + \text{Cl}_2$  \_\_\_\_\_
4.  $\text{KNO}_3 \rightarrow \text{KNO}_2 + \text{O}_2$  \_\_\_\_\_
5.  $\text{BN} + \text{F}_2 \rightarrow \text{BF}_3 + \text{N}_2$  \_\_\_\_\_
6.  $\text{CuI}_2 + \text{Fe} \rightarrow \text{FeI}_2 + \text{Cu}$  \_\_\_\_\_
7.  $\text{Li} + \text{H}_2\text{O} \rightarrow \text{LiOH} + \text{H}_2$  \_\_\_\_\_
8.  $\text{NH}_3 + \text{O}_2 \rightarrow \text{N}_2 + \text{H}_2\text{O}$  \_\_\_\_\_
9.  $\text{V}_2\text{O}_5 + \text{Ca} \rightarrow \text{CaO} + \text{V}$  \_\_\_\_\_
10.  $\text{C}_9\text{H}_6\text{O}_4 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$  \_\_\_\_\_
11.  $\text{H}_2\text{S} + \text{PbCl}_2 \rightarrow \text{PbS} + \text{HCl}$  \_\_\_\_\_
12.  $\text{C}_3\text{H}_7\text{OH} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$  \_\_\_\_\_
13.  $\text{Zn} + \text{CuSO}_4 \rightarrow \text{Cu} + \text{ZnSO}_4$  \_\_\_\_\_
14.  $\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$  \_\_\_\_\_
15.  $\text{C}_2\text{H}_5\text{OH} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$  \_\_\_\_\_
16.  $\text{Al} + \text{H}_2\text{SO}_4 \rightarrow \text{H}_2 + \text{Al}_2(\text{SO}_4)_3$  \_\_\_\_\_
17.  $\text{FeCl}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Fe}(\text{OH})_3 + \text{CaCl}_2$  \_\_\_\_\_
18.  $\text{Pb}(\text{NO}_3)_2 + \text{K}_2\text{CrO}_4 \rightarrow \text{PbCrO}_4 + \text{KNO}_3$  \_\_\_\_\_
19.  $\text{Cd}(\text{NO}_3)_2 + (\text{NH}_4)_2\text{S} \rightarrow \text{CdS} + \text{NH}_4\text{NO}_3$  \_\_\_\_\_
20.  $\text{Ca}(\text{OH})_2 + \text{NH}_4\text{Cl} \rightarrow \text{NH}_3 + \text{CaCl}_2 + \text{H}_2\text{O}$  \_\_\_\_\_

Use with textbook pages 202–211.

## Word equations

Write the skeleton equation for each of the following reactions. Then balance each of the following chemical equations.

1. hydrogen + oxygen → water

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2. iron(III) oxide + hydrogen → water + iron

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3. sodium + water → sodium hydroxide + hydrogen

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4. calcium carbide + oxygen → calcium + carbon dioxide

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5. potassium iodide + chlorine → potassium chloride + iodine

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6. chromium + tin(IV) chloride → chromium(III) chloride + tin

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7. magnesium + copper(II) sulphate → magnesium sulphate + copper

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8. zinc sulphate + strontium chloride → zinc chloride + strontium sulphate

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9. ammonium chloride + lead(III) nitrate → ammonium nitrate + lead(III) chloride

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10. iron(III) nitrate + magnesium sulphide → iron(III) sulphide + magnesium nitrate

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11. aluminum chloride + sodium carbonate → aluminum carbonate + sodium chloride

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12. sodium phosphate + calcium hydroxide → sodium hydroxide + calcium phosphate

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