

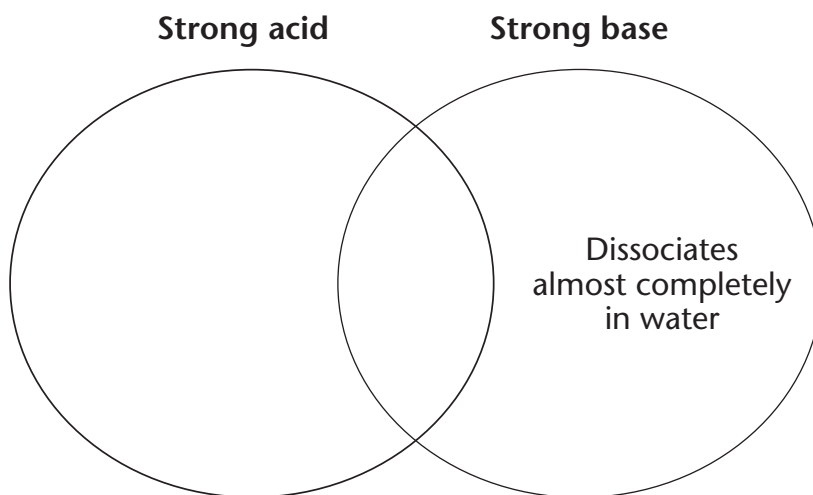
## Chapter 8 Solutions, Acids, and Bases

**Section 8.4 Strength of Acids and Bases****(pages 246–249)**

*This section explains how to describe acids and bases in terms of both concentration and strength.*

**Reading Strategy (page 246)**

**Comparing and Contrasting** As you read, complete the diagram by comparing and contrasting acids and bases. For more information on this reading strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

**The pH Scale (page 247)**

1. The pH scale ranges from \_\_\_\_\_ to \_\_\_\_\_.
2. Circle the letter that indicates the pH of a neutral solution.
  - a. 0
  - b. 3
  - c. 7
3. Water is neutral because it contains small but equal concentrations of \_\_\_\_\_ and \_\_\_\_\_. Circle the correct answers.

hydrogen            hydronium ions            hydroxide ions
4. Is the following sentence true or false? The higher the pH value of a solution, the greater the  $\text{H}_3\text{O}^+$  ion concentration is. \_\_\_\_\_
5. If you add acid to pure water, the concentration of  $\text{H}_3\text{O}^+$  \_\_\_\_\_ and the concentration of  $\text{OH}^-$  \_\_\_\_\_.

## Chapter 8 Solutions, Acids, and Bases

**Strong Acids and Bases** (pages 247–248)

6. Is the following sentence true or false? A strong acid always has a lower pH than a weak acid. \_\_\_\_\_
7. Circle the letters that identify a strong acid.
- a. HCl
  - b. HNO<sub>3</sub>
  - c. H<sub>2</sub>O
8. When dissolved in water, sodium hydroxide almost completely dissociates into \_\_\_\_\_ and \_\_\_\_\_ ions.
9. Circle the sentences that are true.
- a. Strong bases have a higher concentration of hydronium ions than pure water.
  - b. Strong bases dissociate almost completely in water.
  - c. Examples of strong bases include sodium hydroxide and calcium hydroxide.

**Weak Acids and Bases** (page 248)

10. Is the following sentence true or false? A weak acid has a higher pH than a strong acid of the same concentration. \_\_\_\_\_
11. \_\_\_\_\_ refers to the solute's tendency to form ions in water. Circle the correct answer.
- concentration      ionization      strength
12. Define a buffer. \_\_\_\_\_
- \_\_\_\_\_

**Electrolytes** (page 249)

13. An \_\_\_\_\_ is a substance that ionizes or dissociates into ions when it is dissolved in water.
14. Is the following sentence true or false? Strong acids and bases are weak electrolytes because they dissociate or ionize almost completely in water. \_\_\_\_\_