

Chapter 8 Solutions, Acids, and Bases

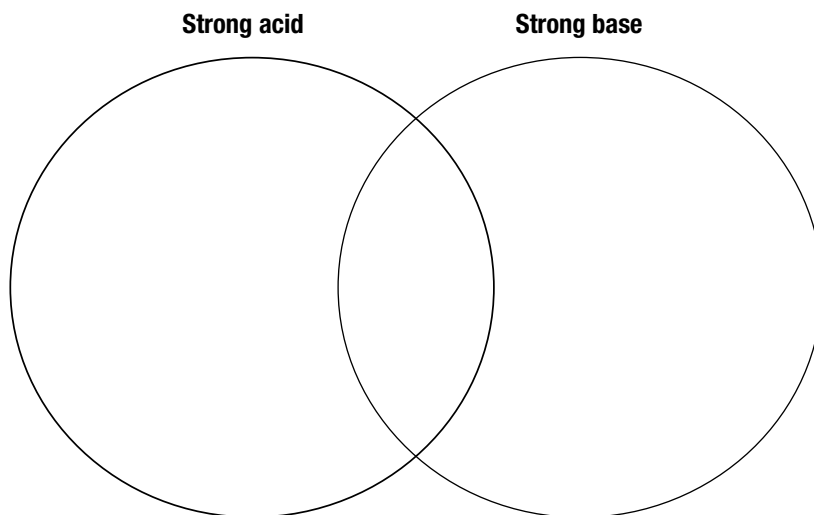
Section 8.4 Strength of Acids and Bases

(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. What is the name of the number scale chemists use to describe the concentration of hydronium ions in a solution?

2. The pH scale ranges from _____ to _____.
3. Circle the letter that indicates the pH of a neutral solution.
 - a. 0
 - b. 3
 - c. 7
 - d. 12
4. Water is neutral because it contains small but equal concentrations of _____ and _____.
5. Is the following sentence true or false? The higher the pH value of a solution, the greater the H_3O^+ ion concentration is.

6. If you add acid to pure water, the concentration of H_3O^+ _____ and the concentration of OH^- _____.

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Strong Acids and Bases (pages 247–248)

7. What happens when strong acids and bases dissolve in water? _____

8. Is the following sentence true or false? A strong acid always has a lower pH than a weak acid. _____
9. Circle the letters that identify a strong acid.
- a. HCl
 - b. $\text{Ca}(\text{OH})_2$
 - c. H_2O
 - d. HNO_3
10. When dissolved in water, sodium hydroxide almost completely dissociates into _____ and _____ ions.
11. 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. Strong bases have a pH below 7.
 - d. Examples of strong bases include sodium hydroxide and calcium hydroxide.

Weak Acids and Bases (page 248)

12. What happens when weak acids and bases dissolve in water? _____

13. Is the following sentence true or false? A weak acid has a higher pH than a strong acid of the same concentration. _____
14. Describe the difference between concentration and strength. _____

15. Describe a buffer. _____

Electrolytes (page 249)

16. An electrolyte is _____

17. Is the following sentence true or false? Strong acids and bases are weak electrolytes because they dissociate or ionize almost completely in water. _____
18. Is acetic acid an example of a weak electrolyte? Explain. _____
