

## 14.1

## HYDROGEN IONS AND ACIDITY

## Section Overview

## Objectives

1. Identify conjugate acid-base pairs of ions, acids, or hydroxides and of aqueous concentrations.
2. Calculate hydroxide and hydronium ion concentrations and pH values and vice versa for weak acids and bases.
3. Calculate the pH of weak acid solutions.

## Vocabulary

- |                   |                                    |                   |
|-------------------|------------------------------------|-------------------|
| 1. autoionization | 2. conjugate acid-base pair        | 3. weak acid      |
| 4. hydronium      | 5. hydroxide ion ( $\text{OH}^-$ ) | 6. autoionization |
|                   | 7. weak base                       | 8. pH             |

## Key Equations

- |  |  |
|--|--|
| 1. $\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$ (14.1) | 2. $\text{H}_2\text{O} \rightleftharpoons \text{H}_3\text{O}^+ + \text{OH}^-$ (14.2) |
| 3. $\text{pH} = -\log[\text{H}^+]$ (14.3)                                  | 4. $\text{pOH} = -\log[\text{OH}^-]$ (14.4)  |

## Part A: Completion

Use the appropriate number to identify the relationship of the conjugate acid-base pair indicated in the second step. Each correct response receives a score of one. Complete as needed.

1. What product is the \_\_\_\_\_ of a weak hydroxide ion and a hydronium ion? \_\_\_\_\_ of the conjugate acid-base pair.
2. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
3. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
4. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
5. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
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13. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
14. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
15. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
16. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
17. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
18. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
19. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.
20. \_\_\_\_\_ of a weak acid and a hydroxide ion is \_\_\_\_\_.

1. \_\_\_\_\_
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# 19 2 Hydrogen Ions And Acidity Worksheet Answers

**Camilla Rothe**



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