

14.3

HYDROGEN IONS AND ACIDITY

Section Review

Objectives

1. Calculate concentrations based on the pH of acids and bases and vice versa.
2. Calculate pH and concentrations based on K_a and K_b and vice versa.
3. Calculate the pH of weak acids and bases.

Vocabulary

- | | | |
|-------------------|-----------------------------|------------------|
| 1. autoionization | 2. conjugate acid-base pair | 3. acid solution |
| 4. autoionization | 5. acid rain | 6. acid rain |
| 7. autoionization | 8. acid rain | 9. acid |

Key Equation

- | | |
|-------------------------------------|-------------------------------------|
| 1. $\text{pH} = -\log [\text{H}^+]$ | 2. $\text{pH} = -\log [\text{H}^+]$ |
| 3. $\text{pH} = -\log [\text{H}^+]$ | 4. $\text{pH} = -\log [\text{H}^+]$ |

Part A Completion

Write the equation and/or the chemical formula(s) of the species involved in the reaction described in each problem. Be sure to include the correct state symbols.

1. Write the equation for the autoionization of water.
2. Write the equation for the autoionization of water.
3. Write the equation for the autoionization of water.
4. Write the equation for the autoionization of water.
5. Write the equation for the autoionization of water.
6. Write the equation for the autoionization of water.
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15. Write the equation for the autoionization of water.
16. Write the equation for the autoionization of water.
17. Write the equation for the autoionization of water.
18. Write the equation for the autoionization of water.
19. Write the equation for the autoionization of water.
20. Write the equation for the autoionization of water.

1. $\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$
2. $\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$
3. $\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$
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19. $\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$
20. $\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$

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Eileen Ramsden



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