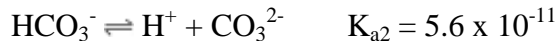
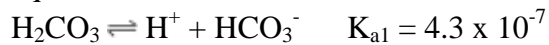


17 • Acid-Base Equilibria

PRACTICE TEST

- What is the $[H^+]$ when $[OH^-] = 8.1 \times 10^{-5}$?
 - $8.1 \times 10^{-5} \text{ M}$
 - $1.0 \times 10^{-7} \text{ M}$
 - $1.2 \times 10^{-10} \text{ M}$
 - $3.6 \times 10^{-6} \text{ M}$
 - $8.1 \times 10^{-5} \text{ M}$
- What is the $[H^+]$ when $[OH^-] = 3.3 \times 10^{-9}$?
 - $3.0 \times 10^{-6} \text{ M}$
 - $1.0 \times 10^{-7} \text{ M}$
 - $3.3 \times 10^{-5} \text{ M}$
 - $6.6 \times 10^{-5} \text{ M}$
 - $3.3 \times 10^{-9} \text{ M}$
- What is the $[H^+]$ in a 0.0025 M HCl solution?
 - $1.0 \times 10^{-7} \text{ M}$
 - $4.0 \times 10^{-12} \text{ M}$
 - $2.5 \times 10^{-3} \text{ M}$
 - $3.6 \times 10^{-5} \text{ M}$
 - need more info
- What is the $[OH^-]$ in a 0.0050 M HCl solution?
 - $5.0 \times 10^{-3} \text{ M}$
 - 1.0 M
 - $1.0 \times 10^{-7} \text{ M}$
 - $6.6 \times 10^{-5} \text{ M}$
 - $2.0 \times 10^{-12} \text{ M}$
- A solution in which $[H^+] = 10^{-8}$ has a pH of ____ and is _____.
 - 8, acidic
 - 6, basic
 - 6, basic
 - 8, neutral
 - 8, basic
- What is the pH of a 0.00030 M HNO_3 solution?
 - 8.11
 - 3.00
 - 3.52
 - 4.48
 - none of these
- What is the pH of a 0.0060 M KOH solution?
 - 5.12
 - 2.22
 - 11.78
 - 8.88
 - 7.00
- A sample of lemon juice is found to have a pH of 2.55. What is the H^+ concentration of the juice?
 - 0.0035 M
 - 0.0028 M
 - 11.6 M
 - 0.0080 M
 - 355 M
- A sample of milk is found to have a pH of 6.60. What is the OH^- concentration of the milk?
 - $2.5 \times 10^{-21} \text{ M}$
 - $1.0 \times 10^{-7} \text{ M}$
 - $5.0 \times 10^{-7} \text{ M}$
 - $4.0 \times 10^{-8} \text{ M}$
 - $2.5 \times 10^{-7} \text{ M}$
- What is the concentration of OCl^- in a 0.60 M solution of $HOCl$? $K_a = 3.1 \times 10^{-8}$.
 - $1.8 \times 10^{-4} \text{ M}$
 - $7.1 \times 10^{-11} \text{ M}$
 - 0.40 M
 - $1.4 \times 10^{-4} \text{ M}$
 - $1.1 \times 10^{-4} \text{ M}$
- What is the pH of a 0.020 M solution of hydrosulfuric acid, a diprotic acid?
 $K_{a1} = 1.1 \times 10^{-7}$ $K_{a2} = 1.0 \times 10^{-14}$
 - 7.00
 - 9.67
 - 7.84
 - 4.33
 - 3.05

12. What is the concentration of CO_3^{2-} in a 0.010 M solution of carbonic acid? The relevant equilibria are,



- a) 6.6×10^{-5} M d) 7.5×10^{-7} M
b) 5.6×10^{-11} M e) 7.9×10^{-7} M
c) 6.7×10^{-11} M

13. What is the S^{2-} concentration in a saturated solution (0.10 M) of H_2S , in which the pH has been adjusted to 6.00 by the addition of HCl?

For H_2S , $K_{a1} = 1.1 \times 10^{-7}$ and $K_{a2} = 1.0 \times 10^{-14}$.

- a) 1.1×10^{-16} M d) 3.2×10^{-8} M
b) 1.1×10^{-10} M e) 3.2×10^{-6} M
c) 1.0×10^{-2} M

14. Which of the following salts will result in a basic solution when it is dissolved in water?

- a) KCl d) MgBr_2
b) NH_4I e) none of these
c) NaCN

15. What is the pH of a 0.50 M solution of NaNO_2 ?

For HNO_2 , $K_a = 4.5 \times 10^{-4}$.

- a) 12.18 d) 8.52
b) 5.48 e) 7.00
c) 1.82

16. What is the pH of a 1.0 M solution of NaOCl?

For HOCl, $K_a = 3.1 \times 10^{-8}$.

- a) 10.75 d) 10.25
b) 3.25 e) 7.00
c) 3.75