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Answers to Practice Problems A

1. $[\text{H}_3\text{O}^+] = 1.38 \times 10^{-11} \text{ M}$
2. $[\text{OH}^-] = 2.22 \times 10^{-14} \text{ M}$
3. $[\text{H}_3\text{O}^+] = 2.67 \times 10^{-13} \text{ M}$
4. $[\text{OH}^-] = 5.00 \times 10^{-14} \text{ M}$
5. $[\text{OH}^-] = 2.4 \times 10^{-4} \text{ M};$
 $[\text{H}_3\text{O}^+] = 4.2 \times 10^{-11} \text{ M}$

Homework

BASIC

Additional Practice

1. Calculate the hydroxide ion concentration in an aqueous solution that has a concentration of hydronium ion equal to $1.55 \times 10^{-2} \text{ M}$. **Ans. $6.45 \times 10^{-13} \text{ M}$**
2. What is $[\text{OH}^-]$ for a 0.125 M solution of HCl? **Ans. $8.00 \times 10^{-14} \text{ M}$**
3. What is $[\text{H}_3\text{O}^+]$ in a solution of 0.000500 M NaOH? **Ans. $2.00 \times 10^{-11} \text{ M}$**
4. What is $[\text{OH}^-]$ in a 0.00240 M solution of the strong acid HBr? **Ans. $4.17 \times 10^{-12} \text{ M}$**
5. Based on the definition of K_w , show mathematically that in pure water, $[\text{H}_3\text{O}^+] = [\text{OH}^-] = 1 \times 10^{-7} \text{ M}$. **Ans. $[\text{H}_3\text{O}^+] = [\text{OH}^-] = x; x^2 = 1.00 \times 10^{-14}; x = 1 \times 10^{-7} \text{ M}$**