

9. If the pH of a sulfuric acid solution is 1.2,  
What is the concentration of hydronium?

$$[\text{H}_3\text{O}^+] = 10^{-1.2} = 0.063 \text{ M}$$

What is the hydroxide concentration?

$$[\text{OH}^-] = 10^{-12.8} = 1.58 \times 10^{-13} \text{ M}$$

What is the molarity of the solution?

$$\frac{0.063}{2} = 0.0315 \text{ M}$$

What is the pOH?

$$14 - 1.2 = 12.8$$

10. If the pH of a solution of sodium hydroxide is 9.0,  
What is the concentration of hydronium?

$$[\text{H}_3\text{O}^+] = 10^{-9.0} = 1.0 \times 10^{-9} \text{ M}$$

What is the hydroxide concentration?

$$[\text{OH}^-] = 10^{-5.0} = 1.0 \times 10^{-5} \text{ M}$$

What is the molarity of the solution?

$$1.0 \times 10^{-5} \text{ M}$$

What is the pOH?

$$14 - 9.0 = 5.0$$

11. If the pH of a solution of ammonia is 7.6,  
What is the concentration of hydronium?

$$[\text{H}_3\text{O}^+] = 10^{-7.6} = 2.5 \times 10^{-8} \text{ M}$$

What is the hydroxide concentration?

$$[\text{OH}^-] = 10^{-6.4} = 4.0 \times 10^{-7} \text{ M}$$

What is the molarity of the solution?

$$4.0 \times 10^{-7} \text{ M}$$

What is the pOH?

$$14 - 7.6 = 6.4$$