Name _____

Using pH Scale Answer Key

1. The pH can be calculated using the formula pH = -log[H+]. In this case, pH = -log(1 x $10^{(-4)}$) = 4.

2. The pOH can be calculated using the formula pOH = -log[OH-]. In this case, pOH = -log(1 x $10^{(-10)}$) = 10.

3. The hydrogen ion concentration can be calculated using the formula [H+] = $10^{(-pH)}$. In this case, [H+] = $10^{(-3)}$ = 0.001 M.

4. The pOH can be calculated using the formula pOH = -log[OH-]. In this case, pOH = -log(1 x 10^(-8)) = 8.

5. The pH can be calculated using the formula pH = 14 - pOH. In this case, pH = 14 - (-log(1 x 10^(-5))) = 9.

6. The hydroxide ion concentration can be calculated using the formula [OH-] = $10^{(-pOH)}$. In this case, [OH-] = $10^{(-6)}$ = 0.000001 M.

7. The pOH can be calculated using the formula pOH = -log[OH-]. In this case, pOH = -log(1 x $10^{(-2)}$) = 2.

8. The hydroxide ion concentration can be calculated using the formula [OH-] = $10^{(-pOH)}$. In this case, [OH-] = $10^{(-9)}$ = 0.000000001 M.

9. The hydrogen ion concentration can be calculated using the formula [H+] = $10^{(14 - pH)}$. In this case, [H+] = $10^{(14 - 5)}$ = 10^{9} M.

10. To determine the hydrogen ion concentration ([H+]) of a solution from its pH, you can use the equation:

[H+] = $10^{(-pH)}$

In this case, if the solution has a pH of 10:

[H+] = $10^{(-10)}$

Calculating this value, we find:

[H+] ≈ 1 x $10^{(-10)}$ mol/L

Therefore, the hydrogen ion concentration of a solution with a pH of 10 is approximately 1 x $10^{(-10)}$ mol/L.