

Name: _____

Period: ____ Subject: _____

Date: _____

pH, pOH, $[H^+]$ and $[OH^-]$

In the following problems, you will be given either the pH, pOH, concentration of H^+ , or concentration of OH^- , and you will be asked to find one of those other quantities.

Concentrations should be given in scientific notation and the values will be in terms of molarity. Be sure to use the appropriate units.

1. A sample of orange juice is found to have a pH of 3.55. What is the molarity of hydrogen ions in this orange juice?
2. The water in your swimming pool has a hydrogen ion concentration of 3.82×10^{-7} M. Is the pool acidic or basic? (What is the pH of the water in the pool?)
3. The soapy water in your dishwasher is found to have a pH of 10.4. Find the $[H^+]$ for this soapy solution.
4. You have a blood sample drawn, and your blood is found to have a hydrogen ion concentration of 3.98×10^{-8} M. Normal blood pH would be around 7.4. Is your blood slightly acidic, slightly basic, or around normal?
5. You find the pH of your coca-cola to be around 3.2. What would the pOH of your soft drink be?
6. Would a substance with a pOH of 10.0 be acidic, basic, or neutral?

What would be the pH of this substance?

7. You find an interesting purple goo at a crime scene and have it analyzed. It has a pOH of 4.50. Is this substance acidic, basic or neutral?

What would be the $[H^+]$ for this substance?

8. What is the pH of a substance with a $[OH^-]$ of 4.83×10^{-9} M?

9. Which substance is more acidic: substance A with a $[H^+]$ of 5.3×10^{-4} M or substance B with a $[H^+]$ of 2.1×10^{-8} M?

10. Your tomato juice has a $[OH^-]$ of 2.1×10^{-10} M. What is the pH of your tomato juice?