The letters “pH” represent the French words “pouvoir hydrogene” which means “hydrogen power”.

- The definition of pH is *pH is equal to the negative log (logarithm) of the ____________ ion concentration of a solution.*
- The logarithm of a number is the *power* to which 10 must be raised to equal that number.

A pH value of less than 7 indicates a(n) _______________ solution. A pH value of _____ indicates a neutral solution. A pH value of more than 7 indicates a(n) _______________ solution.

**PROBLEMS:** Show all work and circle the final answer.

1. Determine the pH of a 0.010 M HNO₃ solution.

2. What is the pH of a 2.5 x 10⁻⁶ M solution of HCl?

3. Calculate the pH of a solution of 0.0025M H₂SO₄.

4. Calculate the pH of a 0.0010 M NaOH solution.

5. What is the pH of a 0.020M Sr(OH)₂ solution?
6. a) What is the hydrogen ion concentration of an aqueous HCl solution that has a pH of 3.0?

   b) What is the hydroxide ion concentration of this same solution?

   c) Which ion, H⁺ or OH⁻, is in greater concentration? ________________

   d) Is this solution acidic or basic? ________________

7. Find the [H⁺] and the [OH⁻] of a solution with a pH of 3.494.

   Is this solution acidic or basic?________________________