Worksheet: pH Calculations **Name_____**

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 HNO_3 solution.

2. What is the pH of a 2.5×10^{-6} M solution of HCl?

3. Calculate the pH of a solution of 0.0025M H_2SO_4.

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?_____