

Name: _____

Period: _____

Seat#: _____

1) Circle the strong acids, and underline the strong bases.

HBr HClO₃ Mg(OH)₂ KOH NH₃ Ba(OH)₂

HCl H₂SO₄ HCOOH NH₄ HClO₄ NaOH

H₂SO₃ HI HNO₃ LiOH H₃PO₄ HF MgO

2) What is the difference between a strong acid or base, and a weak acid or base?

3) List names of the strong bases.

4) List the names of the strong acids.

5) What are the products of a neutralization reaction?

6) What is the equilibrium equation for the dissociation of water?

7) What is the equilibrium constant for water at 25°C? How does this relate to the pH scale?

8) Calculate the values of [H⁺] and [OH⁻] in a neutral solution at 25°C. Show the calculation!

9) Would each of the following ion concentrations be neutral, acidic, or basic?

a) [H⁺] = 4 × 10⁻⁹ M →

b) [OH⁻] = 1 × 10⁻⁷ M →

c) [OH⁻] = 7 × 10⁻¹³ M →

10) Calculate the concentration of H⁺_(aq) in the following solutions. (Note: in this problem and all that follow, we assume, unless stated otherwise, that the temperature is 25°C)

a) A solution in which [OH⁻] is 0.010 M

b) A solution in which [OH⁻] is 1.8 × 10⁻⁹ M.

Dougherty Valley HS Chemistry
Acids & Bases – Nomenclature/Self Ionization of Water Practice

<p>11) Determine the hydronium and hydroxide ion concentration in a 1.0×10^{-4} M solution of HCl. $2HCl + 2H_2O \rightarrow 2H_3O^+ + Cl_2$</p>	<p>12) Determine the hydronium and hydroxide ion concentration in a 1.0×10^{-4} M solution of $Ca(OH)_2$</p>
<p>13) What is the pH and pOH of the solution in Q. #11?</p>	<p>14) What is the pH and pOH of the solution in Q. #12?</p>
<p>15) Hydrochloric acid and barium hydroxide are mixed together. Write the balanced equation below.</p>	
<p>16) Sulfuric acid and potassium hydroxide react together. Write the balanced equation below.</p>	
<p>17) If I had a solution with a pH = 6 is it an acid or a base, and is it strong or weak? How do you know?</p>	<p>18) If I had a solution with a pH = 12 is it an acid or a base, and is it strong or weak? How do you know?</p>

Complete the table below.

Solution	$[H_3O^+]$	$[OH^-]$	pH	pOH
1.0×10^{-3} M KOH		1.0×10^{-3} M		
1.0×10^{-2} M $Ba(OH)_2$		2.0×10^{-2} M		
Pure H_2O				
1.0×10^{-3} M HCl				
1.0×10^{-3} M H_2SO_4				