**Name: Period: Seat#:**

**Worksheet #5**

|  |  |
| --- | --- |
| 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** | 1. What is the difference between a strong acid or base, and a weak acid or base?
 |
| 1. List names of the strong bases.

 | 1. List the names of the strong acids.
 |
|     |      |
| 1. What are the products of a neutralization reaction?
 | 1. What is the equilibrium equation for the dissociation of water?
 | 1. What is the equilibrium constant for water at 25˚C? How does this relate to the pH scale?
 |
| 1. Calculate the values of [H+] and [OH-] in a neutral solution at 25oC. Show the calculation!
 | 1. Would each of the following ion concentrations be neutral, acidic, or basic?
2. [H+] = 4 × 10-9 M 🡪
3. [OH-]= 1 × 10-7 M 🡪
4. [OH-] = 7 × 10-13 M 🡪
 |
| 1. 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 25oC* )
	1. A solution in which [OH-] is 0.010 M

* 1. A solution in which [OH-] is 1.8 × 10-9 M.
 |
| 1. Determine the hydronium and hydroxide ion concentration in a 1.0 x 10-4 M solution of HCl.

$$2HCl+2H\_{2}O \rightarrow 2H\_{3}O^{+} +Cl\_{2}$$ | 1. Determine the hydronium and hydroxide ion concentration in a 1.0 x 10-4 M solution of Ca(OH)2
 |
| 1. What is the pH and pOH of the solution in Q. #11?
 | 1. What is the pH and pOH of the solution in Q. #12?
 |
| 1. Hydrochloric acid and barium hydroxide are mixed together. Write the balanced equation below.
 |
| 1. Sulfuric acid and potassium hydroxide react together. Write the balanced equation below.
 |
| 1. 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?
 | 1. 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?
 |

**Complete the table below.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Solution** | **[H3O+]** | **[OH-]** | **pH** | **pOH** |
| 1.0 x 10-3 M KOH |  | 1.0 x 10-3 M |  |  |
| 1.0 x 10-2 M Ba(OH)2 |  | 2.0 x 10-2 M |  |  |
| Pure H2O |  |  |  |  |
| 1.0 x 10-3 M HCl |  |  |  |  |
| 1.0 x 10-3 M H2SO4 |  |  |  |  |