Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_\_

**pH and pOH**

**Worksheet**

The pH of a solution indicates how acidic or basic that solution is.

 pH range of

0 – 7 acidic

 7 neutral

7 – 14 basic

Since [H+] [OH-] = 1 x 10 -14 at 25oC, if [H+] is known, the [OH-] can be calculated and vice versa.

pH = -log[H+] so if [H+] = 1 x 10-6 M, pH = 6

pOH = -log[OH-] so if [OH-] = 1 x 10-8 M, pOH = 8

Together, pH + pOH = 14

Complete the following chart, using the above information.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **[H+]** | **pH** | **[OH-]** | **pOH** | **Acidic or basic?** |
| 1. | 1 x 10-5 M | 5 | 1 x 10-9 M | 9 | acidic |
| 2.  |  | 7 |  |  |  |
| 3.  |  |  | 1 x 10-4 M |  |  |
| 4.  | 1 x 10-2M |  |  |  |  |
| 5. |  |  |  | 11 |  |
| 6. |  | 12 |  |  |  |
| 7. |  |  | 1 x 10-5 M |  |  |
| 8. | 1 x 10-11 M |  |  |  |  |
| 9. |  |  |  | 13 |  |
| 10. |  | 6 |  |  |  |

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_Hour:\_\_\_\_\_**

**pH and pOH**

**Calculations**

Calculate the pH of the following solutions. Tell whether the solution is acidic or basic.

1. 0.01 M HCl
2. 0.0010 M NaOH
3. 0.050 M Ca(OH)2
4. 0.030 M HBr
5. 0.150 M KOH
6. 0.50 M HNO3