Name: Date: Period:

**Practice: pH Calculations-Part 2**

1. What is the pH of a solution of Ca(OH)2 with a hydroxide ion concentration of 5.3 x 10-2 M?
2. A student has 6.4L of NaOH solution. It contains 2.71 moles of OH-. What is the pH of the solution?
3. What is the pH of a solution of NH3 with a hydroxide ion concentration of 2.67 x 10-4 M?
4. A student has 4.02L of H2NNH2 solution. It contains 1.69 moles of H+. What is the pH of the solution?
5. What is the pH of a solution of H3AsO4 with a hydrogen ion concentration of 4.1 x 10-5 M?
6. A student has 3.1L of Cu(OH)2 solution. It contains 2.05 moles of OH-. What is the pH of the solution?
7. There are six different solutions in the chemistry lab. Their hydroxide ion concentrations are shown in the table below:

|  |  |  |
| --- | --- | --- |
| **Chemical** | **Ion Concentration** | **pOH** |
| Hydrochloric Acid | 1.0 x 10-14 M |  |
| Water | 1.0 x 10-7 M |  |
| Sodium Hydroxide | 1.4 M |  |
| Milk | 7.61 x 10-7 M |  |
| Vinegar | 5.23 x 10-3 M |  |
| Baking Soda | 4.86 x 10-5 M |  |

1. Find the pOH of each chemical.
2. Order the chemicals from most acidic to most basic.
3. Gerson was making 2.4L of Potassium Hydroxide (KOH) solution. He wanted to make one with a pH of 13.2, but accidentally made a measurement mistake. After an experiment, he found that there were 6.1 x 10-2 moles of OH- in the solution. What was the actual pH? What is the pOH? Is this stronger or weaker base than the desired pH of 13.2?

**CHALLENGE (Extra Credit):**

1. Today we learned that the formula for pOH is as follows:

pOH = -log[OH-]

1. Solve the formula for [OH-]
2. If a solution has a pOH of 4.77, what is the hydroxide ion concentration?
3. For the solution in part (b), what is the pH?

1. Given the pH you found in part (c), what is the hydrogen ion concentration?

1. It turns out that the product of [H+] and [OH-] have a special relationship. This value is called Kw. What is the value of Kw?