Chemistry Acid-Base Concentration Name:

1. Identify each of the following solutions as acidic or basic:

a) [H₃O⁺] $3.4×10^{-8}$ M \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) [OH⁻] = $1.8×10^{-5}$ M \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) [OH⁻] = $6.5×10^{-12}$ M \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) [H₃O⁺] = $2.6×10^{-4}$ M \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. A solution of HBr has [H₃O⁺] = $4.5×10^{-3}$ M. Calculate the pH of this solution.

3. Complete the following table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **pH** | **[H₃O⁺]** | **[OH⁻]** | **Acidic, basic, or neutral?** |
| (a)  |  | $$5.4×10^{-4}$$ |  |  |
| (b)  |  |  | $$7.8×10^{-10}$$ |  |
| (c)  | 10.75 |  |  |  |

4. Rank the following solutions in order of increasing acidity (from lowest to highest):

Solution A with pH = 6.50 Solution C with [OH⁻] =$6.0×10^{-10}$ M

Solution B with [H3O⁺] = $3.5×10^{-5}$ M Solution D with pH = 5.85

\_\_\_\_\_\_\_\_ < \_\_\_\_\_\_\_\_\_< \_\_\_\_\_\_\_\_\_< \_\_\_\_\_\_\_\_\_\_

least acidic most acidic

5. What is the pOH of a solution prepared by dissolving 2.5 g HCl in water to make 425 mL of solution?