

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

Date: \_\_\_\_\_

## Notes: Acids and Bases

Write a sentence that describes the pH range of **acids** and **bases**. \_\_\_\_\_

What substance naturally has a pH of exactly 7? \_\_\_\_\_

How did Arrhenius define an acid? \_\_\_\_\_

How did Arrhenius define a base? \_\_\_\_\_

How did Brønsted-Lowry define an acid? \_\_\_\_\_

How did Brønsted-Lowry define a base? \_\_\_\_\_

Why is ammonia (NH<sub>3</sub>) classified as bases Brønsted-Lowry base but **not** an Arrhenius base?

What makes an acid or base *strong*? \_\_\_\_\_

What makes an acid or base *weak*? \_\_\_\_\_

### Determine pH of each of the solutions below based on the concentration of H<sup>+</sup> ions.

1. [H<sup>+</sup>] = 0.000425 M pH = \_\_\_\_\_

4. [H<sup>+</sup>] = 0.00025 M pH = \_\_\_\_\_

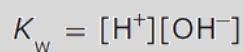
2. [H<sup>+</sup>] = 0.0081 M pH = \_\_\_\_\_

5. [H<sup>+</sup>] = 0.000019 M pH = \_\_\_\_\_

3. [H<sup>+</sup>] = 0.00001 M pH = \_\_\_\_\_

6. [H<sup>+</sup>] = 0.0023 M pH = \_\_\_\_\_

What ions do water break apart into? \_\_\_\_\_



$$K_w = \text{ionization constant of water} = 1.00 \times 10^{-14} \left( \frac{\text{mol}}{\text{L}} \right)^2$$

### Determine pH of each of the solutions below based on the concentration of OH<sup>-</sup> ions.

1. [OH<sup>-</sup>] = 0.0033 M pH = \_\_\_\_\_

2. [OH<sup>-</sup>] = 0.000008 M pH = \_\_\_\_\_

3. [OH<sup>-</sup>] = 0.0000025 M pH = \_\_\_\_\_

4. [OH<sup>-</sup>] = 0.025 M pH = \_\_\_\_\_

5. [OH<sup>-</sup>] = 0.000125 M pH = \_\_\_\_\_

How do you dilute a solution? \_\_\_\_\_

Why can diluting acids be dangerous? \_\_\_\_\_

What procedure should you follow to safely dilute a concentrated acid? \_\_\_\_\_



Why can acids and bases be so dangerous? \_\_\_\_\_

**Name the following acids.**

1.  $\text{H}_2\text{SO}_4$  \_\_\_\_\_

2.  $\text{HF}$  \_\_\_\_\_

3.  $\text{HClO}_4$  \_\_\_\_\_

4.  $\text{HClO}$  \_\_\_\_\_

5.  $\text{HI}$  \_\_\_\_\_

**For each of the neutralization reactions shown below, write the products that would be expected.**

