

# Exercise 14.1a

## Acids & Bases

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

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

**DIRECTIONS:** Answer the following in the space provided.

1. Complete the following table:

|   | Acids | Bases |
|---|-------|-------|
| Arrhenius Definition:                         |       |       |
| Electrolyte?                                  |       |       |
| Taste:  |       |       |
| Turns litmus:                                 |       |       |
| Texture on hands:                             |       |       |
| Reactive w/metals to form H <sub>2</sub> gas? |       |       |

2. A(n) \_\_\_\_\_ acid has only two elements, though they may exist in multiple ratios. Their names will always include the prefix \_\_\_\_\_ and the suffix \_\_\_\_\_. Acids that have oxygen in their structure are called \_\_\_\_\_ and will have no prefixes. They will, however, have either the suffix \_\_\_\_\_ or, \_\_\_\_\_. The suffix has to do with the number of \_\_\_\_\_.
3. Complete the table (*some boxes will be blank*):

| Naming Acids      |              |             |           |             |           |
|-------------------|--------------|-------------|-----------|-------------|-----------|
| Acid              | Anion Suffix | Acid Prefix | Acid Root | Acid Suffix | Acid Name |
| HCl               |              |             |           |             |           |
| HClO              |              |             |           |             |           |
| HClO <sub>2</sub> |              |             |           |             |           |
| HClO <sub>3</sub> |              |             |           |             |           |
| HClO <sub>4</sub> |              |             |           |             |           |

4. Using your common ion chart as a reference, name/write the formula for the following *aqueous* substances.

- |  |  |
|--|--|
| <p>a. H<sub>2</sub>SO<sub>4</sub> _____</p> <p>b. nitrous acid _____</p> <p>c. H<sub>2</sub>S _____</p> <p>d. hydroselenic acid _____</p> <p>e. H<sub>2</sub>CO<sub>3</sub> _____</p> <p>f. permanganic acid _____</p> | <p>g. HNO<sub>3</sub> _____</p> <p>h. acetic acid _____</p> <p>i. H<sub>3</sub>PO<sub>3</sub> _____</p> <p>j. oxalic acid _____</p> <p>k. H<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> _____</p> <p>l. hydroiodic acid _____</p> |
|--|--|

5. Arrhenius acids produce \_\_\_\_\_ ions in water, whereas Arrhenius bases produce \_\_\_\_\_ ions in water. The H<sup>+</sup> ion produced by an acid in solution bonds to water forming a(n) \_\_\_\_\_ ion represented by the formula \_\_\_\_\_.

6. Classify each of the following as an Arrhenius acid or base from its formula:

- |   |   |
|---|---|
| <p>a. Ba(OH)<sub>2</sub> _____</p> <p>b. KNO<sub>2</sub> _____</p> <p>c. KOH _____</p> <p>d. Mg(OH)<sub>2</sub> _____</p> | <p>e. HBr _____</p> <p>f. HCN _____</p> <p>g. LiOH _____</p> <p>h. NH<sub>3</sub> _____</p> |
|---|---|

# Exercise 14.1a

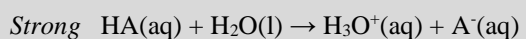
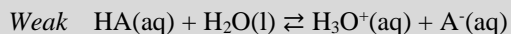
## Acids & Bases

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

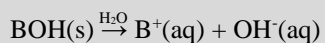
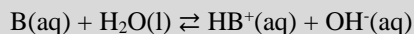
Date: \_\_\_\_\_ Per: \_\_\_\_\_

Strong acids and bases completely ionize in water. This means that essentially 100% of the acid or base forms products (the arrow in the chemical equation points one direction only). Weak acids and bases, however, only ionize partially before reaching a dynamic equilibrium (double arrows should be used in their formation equations).

Acids



Bases



**DIRECTIONS:** Answer the following in the space provided.

7. Write the equations (acid ionization equations) representing the ionization of each of these acids in aqueous solution.
- a. HCNO (weak acid)
  - b. HCl (strong acid)
  - c. HNO<sub>3</sub> (strong acid)
  - d. HC<sub>2</sub>H<sub>3</sub>O<sub>2</sub> (weak acid)
8. Write the equations (base dissociation equations) representing the dissociation of each of these bases in aqueous solution.
- a. NaOH (strong base)
  - b. NH<sub>3</sub> (weak base)
  - c. CH<sub>3</sub>NH<sub>2</sub> (weak base)
  - d. KOH (strong base)