

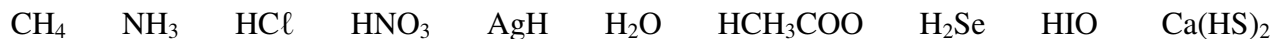
## Unit #4 Review: Chemical Nomenclature

1. Be able to recognize the following types of compounds from their chemical formulas: ionic compounds, covalent compounds, binary compounds, acids, peroxides, and hydrates. Know the naming rules for each type of compound.

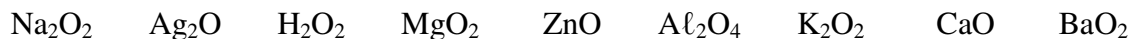
2. Which of the following are binary ionic compounds?



3. Which of the following are acids?



4. Which of the following are peroxides?



5. Which of the following are binary covalent compounds?



6. Write the chemical formulas for the following compounds:

|                                    |                             |
|------------------------------------|-----------------------------|
| cadmium hydroxide                  | arsenic (V) acetate         |
| sulfuric acid                      | hydrobromic acid            |
| barium hydride                     | silver chromate             |
| phosphorus (V) chloride            | sodium hypoiodite           |
| carbon tetrafluoride               | hypochlorous acid           |
| mercury (I) hypobromite            | gold (I) phosphide          |
| hydrophosphoric acid               | xenon hexafluoride          |
| arsenic (III) oxide                | chromium (II) iodite        |
| phosphorous acid                   | nitrogen gas                |
| nickel (III) perchlorate           | strontium hydroxide         |
| sodium cyanide                     | cesium peroxide             |
| mercury (II) thiosulfate           | lithium perchlorate         |
| iodine heptachloride               | oxalic acid                 |
| hydrogen peroxide                  | dinitrogen pentoxide        |
| oxygen gas                         | iron (III) hydrogen sulfide |
| nitrogen trihydride                | silicon tetrabromide        |
| hydrofluoric acid                  | periodic acid               |
| tin (IV) borate                    | lead (IV) thiocyanate       |
| titanium hydrogen sulfite          | boric acid                  |
| bismuth (III) dihydrogen phosphate |                             |
| copper (II) hydroxide pentahydrate |                             |
| gold (III) nitrite tetrahydrate    |                             |
| sodium acetate trihydrate          |                             |

7. Provide IUPAC names for the following. If the first element is hydrogen, name the compound as an acid (unless it is a peroxide). If the first element is a non-metal, name the compound using the prefix system.

|  |                           |
|--|---------------------------|
| $\text{Ni}_2(\text{Cr}_2\text{O}_7)_3$                   | $\text{Mn}(\text{OH})_4$  |
| $\text{P}_2\text{O}_3$                                   | $\text{CS}_2$             |
| $\text{NH}_4\text{BrO}$                                  | $\text{Li}_2\text{O}_2$   |
| $\text{As}(\text{BrO}_3)_5$                              | $\text{SnC}_2\text{O}_4$  |
| $\text{Bi}(\text{IO}_2)_3$                               | $\text{As}_2\text{O}_3$   |
| $\text{HIO}_4$   | $\text{H}_3\text{PO}_3$   |
| $\text{CuHCO}_3$   | $\text{Cs}_2\text{O}_2$   |
| $\text{Co}(\text{BrO}_2)_3$                              | $\text{Au}_3\text{BO}_3$  |
| $\text{F}_2$   | $\text{Cd}(\text{HS})_2$  |
| $\text{Ba}(\text{CH}_3\text{COO})_2$                     | $\text{HBrO}_2$           |
| $\text{HClO}$  | $\text{KHSO}_4$           |
| $\text{Pb}(\text{C}_2\text{O}_4)_2$                      | $\text{MgHPO}_3$          |
| $\text{Na}_2\text{O}_2$                                  | $\text{SO}_2$             |
| $\text{LiH}$   | $\text{CBr}_4$            |
| $\text{Ti}(\text{HS})_3$                                 | $\text{Cl}_2$             |
| $\text{HMnO}_4$  | $\text{Ag}_2\text{O}_2$   |
| $\text{SnF}_4$   | $\text{HI}$               |
| $(\text{NH}_4)_3\text{P}$                                | $\text{Bi}(\text{SCN})_3$ |
| $\text{H}_2\text{SO}_4$                                  | $\text{H}_2\text{O}_2$    |
| $\text{H}_3\text{P}$                                     | $\text{N}_2\text{O}_4$    |
| $\text{HIO}$   | $\text{HCH}_3\text{COO}$  |
| $\text{Cd}_3(\text{BO}_3)_2 \cdot 5 \text{H}_2\text{O}$  |                           |
| $\text{Bi}(\text{ClO}_2)_3 \cdot 3 \text{H}_2\text{O}$   |                           |
| $\text{As}_2(\text{HPO}_3)_3 \cdot 7 \text{H}_2\text{O}$ |                           |
| $\text{NH}_4\text{OCN} \cdot 4 \text{H}_2\text{O}$       |                           |

8. What are two correct names for the following compounds?

$\text{H}_2\text{S}$  \_\_\_\_\_ and \_\_\_\_\_

$\text{H}_2\text{O}$  \_\_\_\_\_ and \_\_\_\_\_

$\text{PCl}_3$  \_\_\_\_\_ and \_\_\_\_\_

$\text{P}_2\text{O}_5$  \_\_\_\_\_ and \_\_\_\_\_

$\text{H}_3\text{P}$  \_\_\_\_\_ and \_\_\_\_\_

9. Follow the naming rules to determine names for the following (they are not on your ion chart):

$\text{Hg}(\text{MnO}_2)_2$  \_\_\_\_\_

$\text{Li}_2\text{S}_2\text{O}_2$  \_\_\_\_\_

$\text{Fe}(\text{HCrO}_4)_3$  \_\_\_\_\_

$\text{Pb}(\text{SO}_2)_2$  \_\_\_\_\_

$\text{Cs}_3\text{BO}_2$  \_\_\_\_\_