Chemical Formula Notes Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chem 332 – O’Dette Date \_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_

What is a formula?

Ionic Compounds

* The sum of the ionic charges in the formula is always \_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Binary =

How to Name

* + Metal ions are always written \_\_\_\_\_\_\_\_\_\_\_\_ and keep their elemental name.
  + For nonmetal ions the end of the elemental name is changed to \_\_\_\_\_\_\_\_\_.
  + Ex:

How to Write Formulas

* + Determine individual \_\_\_\_\_\_\_\_\_\_\_\_ of each the cation and the anion
  + Determine how many atoms of each element are in the compound to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge
  + What is the formula for a compound containing the following ions, calcium and fluorine?

1. Variable Charge =

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ metals except Cd, Zn, and Ag exhibit variable charge
* Other metals such as \_\_\_\_\_ and \_\_\_\_\_ exhibit variable charge

How to Name

* + Same rules as binary, but include roman numeral
  + Roman numerals in parentheses represent the \_\_\_\_\_\_\_\_\_\_\_\_\_ of the ion
  + Example :
* Use the known charge of anion to determine charge of cation
* Ex: Write the name for Au2S

How to Write Formulas

* Use same rules as binary
* Ex: Write the formula for copper (II) iodide

1. Polyatomic Ions =

How to Name

* Look up the \_\_\_\_\_\_\_\_\_\_\_\_ on Ion Chart
* Cations Anions

- If it’s an element, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - If it’s an element, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- If it’s a polyatomic, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - If it’s a polyatomic, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Ex: Ba(OH)2 Ex: (NH4)S

How to Write Formulas

* Use same rules as binary
* Use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when there is more than one polyatomic ion
* Ex: aluminum sulfate

Learning Check

* Name the following
  1. Na3N\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. FeCl2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. Zn3(PO4)2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  4. (NH4)2NO2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Write the formula for the following

5. Potassium oxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Silver (I) sulfide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Mercury (II) sulfate \_\_\_\_\_\_\_\_\_\_\_\_\_

8. Lithium thiocyanate \_\_\_\_\_\_\_\_\_\_\_\_

Covalent Compounds

* Memorize and use these prefixes
* 1-\_\_\_\_\_\_\_, 2-\_\_\_\_\_\_\_, 3-\_\_\_\_\_\_\_, 4-\_\_\_\_\_\_\_, 5-\_\_\_\_\_\_\_, 6-\_\_\_\_\_\_\_, 7-\_\_\_\_\_\_\_, 8-\_\_\_\_\_\_\_, 9-\_\_\_\_\_\_\_, 10-\_\_\_\_\_\_\_

How to Name

* + Use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ before first element, unless it is mono
  + Use element name of first element
  + Use prefix before second element, no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Use element name of second element with \_\_\_\_\_\_\_\_ ending
  + Ex: CO2

How to Write Formulas

* + Use prefixes to determine how many of each element are in compound
  + Ex: dinitrogen monoxide

Learning Check

* Write the name the following

9. SbI4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. P2Cl3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. CO \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Write the formula for the following

12. arsenic tribromide \_\_\_\_\_\_\_\_\_\_\_\_

13. carbon tetrachloride\_\_\_\_\_\_\_\_\_\_\_\_

14. diphosphorus pentasulfide\_\_\_\_\_\_\_\_