

CHEMISTRY

NAMING IONIC COMPOUNDS

Learning Outcomes

- I can write the name of ionic compounds when given the formula.
- I can write the formula of an ionic compound when given the name.

Ionic Compounds

- _____

Naming Simple Ionic Compounds (one metal and one non-metal, both have only one charge).

Rules

potassium bromide

- Example: lithium and iodine → _____
 sodium and oxygen → _____

Practice Problems 1

- 1a. Li_3N →
- b. MgBr_2 →
- c. Ag_2O →
- d. RbF →
- e. AgI →

Writing Formulas for Simple Ionic Compounds

- _____

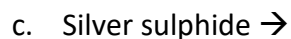
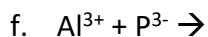
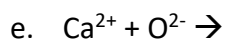
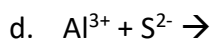
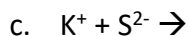
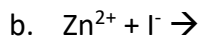
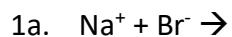
1. _____
2. _____

- Example: calcium oxide

- Example: calcium fluoride

Note that by swapping the _____ for the quantity of the other ion, the quantity number is found (the criss-cross or crossing over method).

Practice Problems 2



Multivalent Metals in Ionic Compounds (metal has more than one ion charge)

- Q: How do I name an ionic compound if the metal is multivalent (i.e., has more than one charge)?

- A: _____

- Roman Numerals used are:

1	2	3	4	5	6	7

- Name Examples: titanium (III) oxide
iron (II) nitride

Name to compound formula:

When given the name of the compound, use the _____ as the _____

when determining the compound formula.

Example: nickel (III) iodide

Compound formula to name:

- When given the _____ and you need to determine the _____, you must use the formula to determine the _____ of the metal ion.
- You can use the charge of the _____ to determine which charge to use of the _____ metal.
 - SnS

- If the number of atoms for each element in the formula are not the same, reverse the _____ to determine the ion charge of the metal
 - Fe₂O₃

Practice Problems 3

- Copper (I) nitride →
- Iron (II) phosphide →
- Manganese (II) oxide →
- Manganese (IV) oxide →
- Chromium (II) bromide →

- Fe₂O₃ →
- PbF₄ →
- FeI₂ →
- HgI₂ →
- Hg₃N₂ →

Polyatomic Ions (one of the ions is made up of two or more elements)

- Definition: An _____ that is made up of more than one type of atom joined by a _____ bond.

****Find the list of names and charges of polyatomic ions in your _____.

- Example: CO_3^{2-} _____
 PO_4^{3-} _____
 NH_4^+ _____

- Example: $\text{KClO}_2 =$ _____
 $\text{NH}_4\text{F} =$ _____

- Example: sodium sulphate =

calcium chromate =

cobalt (III) nitrite =

Practice Problems:

1a. $\text{KCH}_3\text{COO} \rightarrow$

b. $\text{Ca}(\text{CH}_3\text{COO})_2 \rightarrow$

c. $(\text{NH}_4)_3\text{P} \rightarrow$

d. $(\text{NH}_4)_3\text{PO}_4 \rightarrow$

e. $\text{Al}(\text{OH})_3 \rightarrow$

2a. Potassium permanganate $\rightarrow$

b. Sodium chromate $\rightarrow$

c. Ammonium nitrate $\rightarrow$

f. Lead (II) perchlorate $\rightarrow$

g. Iron (II) hydrogen sulphide $\rightarrow$

h. Vanadium (V) cyanide $\rightarrow$