

Naming & Formula Writing

Unit Quiz Review

LEARNING TARGETS

Explain how to determine the charges of monatomic ions.

Explain how polyatomic ions differ from and are similar to monatomic ions.

Apply the rules for naming and writing formulas for binary ionic compounds.

Apply the rules for naming and writing formulas for ionic compounds with polyatomic ions.

Apply the rules for naming and writing formulas for binary molecular compounds.

1. How are monatomic and polyatomic ions similar and different?

Monatomic ions = Consists of a single atom with a positive or negative charge.

Polyatomic ions = composed of more than one atom that have one charge. Behave as a charged unit.

2. Determine the correct charges for each of the following monatomic ions.

a. Boron



b. Sulfur



c. Calcium



d. Iron (2 electrons lost)



e. Arsenic



f. Barium



3. What are the steps you should take when writing the chemical formula for a *binary ionic compound*?

1. write the symbol for the cation and anion.

2. Add subscripts as needed to balance charges.

4. What are the steps you should take when writing the name of a *binary ionic compound*?

1. place cation first

2. place anion second

3. change the ending of anion to -ide

5. What are the steps you should take when writing the chemical formula for an ionic compound that contains a *polyatomic ion*?

1. write symbol of cation, followed by anion.

2. Add subscripts as needed to balance charges.

6. What are the steps you should take when writing the name of ionic compound that contains a *polyatomic ion*?

1. state cation name first and then anion name.

2. Include Roman numeral in the cation name to indicate charge.

one = I two = II three = III four = IV

7. What are the steps you should take when writing the chemical formula for a molecular compound?

1. use the prefixes in the name to tell you the subscript of each element.
2. write symbols according/in order of name.

8. What are the steps you should take when writing the name of a molecular compound?

1. write names in order of how they appear in formula.
 2. use prefixes appropriately to indicate the number of each kind of atom.
 3. End the name of the second atom with -ide.
9. Write the name for the following compounds.

Chemical Formula	Compound Name	Ionic or Molecular Compound
K_2CO_3	Potassium carbonate	ionic
SO_2	Sulfur dioxide	molecular
KOH	Potassium hydroxide	ionic
Li_3PO_4	Lithium phosphate	ionic
BrF_5	Bromine pentafluoride	molecular
$Sn(NO_2)_4$	Tin (IV) nitrite	ionic
$CuMnO_4$	Copper (I) permanganate	ionic
Be_3N_2	Beryllium nitride	ionic
Pb_3N_4	Lead (IV) nitride	ionic
Cu_2O	Copper (I) oxide	ionic
AuI_3	Gold iodide	ionic
CrF_3	Chromium (III) fluoride	

Chemical Formula	Compound Name	Ionic or Molecular Compound
$(\text{NH}_4)_2\text{CO}_3$	Ammonium carbonate	molecular
BI_3	Boron triiodide	molecular
$\text{Rb}_2\text{Cr}_2\text{O}_7$	Rubidium dichromate	ionic
CCl_4	Carbon tetrachloride	molecular
$\text{Ca}(\text{SCN})_2$ $\text{Ca}(\text{SCH})_2$	Calcium thiocyanate	ionic
Na_2SO_3	Sodium sulfite	ionic
P_4S_6	Tetraphosphorus heptasulfide	molecular
SeF_6	Selenium hexafluoride	molecular
XeF_4	Xenon tetrafluoride	molecular
H_2O	Dihydrogen monoxide	molecular

10. Write the chemical formula for each of the compounds below.

Chemical Name	Chemical Formula	Ionic or Molecular Compound
Sodium fluoride $\text{Na}^+ \text{F}^-$	NaF	ionic
Manganese (III) iodide $\text{Mn}^{3+} \text{I}^-$	MnI_3	ionic
Lead (IV) sulfide $\text{Pb}^{4+} \text{S}^{2-}$	PbS_2	molecular
Copper (II) fluoride $\text{Cu}^{2+} \text{F}^-$	CuF_2	ionic
Tin (IV) sulfide $\text{Sn}^{4+} \text{S}^{2-}$	SnS_2	ionic

Chemical Name	Chemical Formula	Ionic or Molecular Compound
Radium bromide $Ra^{2+} Br^{-}$	$RaBr_2$	ionic
Nickel (III) oxide $Ni^{3+} O^{2-}$	Ni_2O_3	ionic
Antimony tribromide SbBr	$SbBr_3$	molecular
Potassium selenide $K^{+} Se^{2-}$	K_2Se	ionic
Strontium oxide $Sr^{2+} O^{2-}$	SrO	ionic
Calcium sulfide $Ca^{2+} S^{2-}$	CaS	ionic
Sodium hydroxide $Na^{+} OH^{-}$	$NaOH$	ionic
Cobalt (II) carbonate $Co^{2+} CO_3^{2-}$	$CoCO_3$	ionic
hexaboron silicide	B_6Si	molecular
Iron (III) chromate $Fe^{3+} CrO_4^{2-}$	$Fe_2(CrO_4)_3$	ionic
Ammonium phosphide $NH_4^{+} P^{3-}$	$(NH_4)_3P$	ionic
chlorine dioxide ClO O	ClO_2	molecular
Ammonium acetate $NH_4^{+} C_2H_3O_2^{-}$	$NH_4C_2H_3O_2$	ionic
phosphorus trioxide	PO_3	molecular
Uranium (III) hydroxide $U^{3+} OH^{-}$	$U(OH)_3$	ionic
Barium bicarbonate $Ba^{2+} HCO_3^{-}$	$Ba(HCO_3)_2$	ionic
Dinitrogen trioxide	N_2O_3	molecular