

Nomenclature- naming and writing formulas

ionic compounds (metal & non-metal)

acids (H & non-metal)

covalent compounds (both non-metals)

Ionic Compounds

1. Cations (+ ions, metals)

First check the periodic table to see if the metal forms more than one ion (charge). If so, you must figure out which one it is and use a Roman numeral in its name to indicate.

Check the following:

Ca

Ni

Zr

Mn

Anions

2. Monoatomic anions (negative ions derived from non-metals)

All end in "ide"

S^{-2} sulfide O^{-2} oxide Cl^{-1} chloride N^{-3} nitride

**Determine the charge by counting back
from the inert gas in that period**

iodide

phosphide

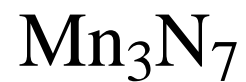
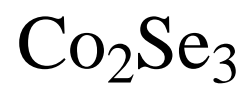
selenide

bromide

Examples



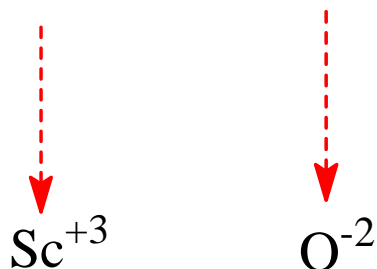
Try These



Writing Formulas from Names

scandium oxide

1. Write ions



2. Compounds are neutral
total(+) = total (-)

Write Formulas For:

chromium (III) iodide

barium phosphide

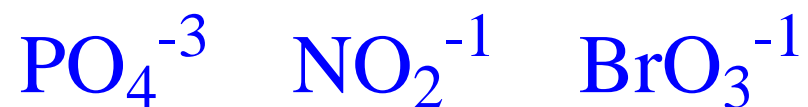
gold (I) sulfide

titanium (IV) oxide

aluminum nitride

Polyatomic Ions

**an ion that is made of several(many) atoms bonded to each other
that behaves as a single particle**



Note: you will have a chart to use on all exams.

The Chart

Ionic Charge: 1-		Ionic Charge: 2-		Ionic Charge: 3-	
Halogens: Group 7A/17		Oxyanions		Group 6A/16	
F ⁻	Fluoride	ClO ₄ ⁻	Perchlorate	O ²⁻	Oxide
Cl ⁻	Chloride	ClO ₃ ⁻	Chlorate	S ²⁻	Sulfide
Br ⁻	Bromide	ClO ₂ ⁻	Chlorite	Oxyanions	
I ⁻	Iodide	ClO ⁻	Hypochlorite	CO ₃ ²⁻	Carbonate
Acid Anions		BrO ₃ ⁻	Bromate	SO ₄ ²⁻	Sulfate
HCO ₃ ⁻	Hydrogen carbonate	BrO ₂ ⁻	Bromite	SO ₃ ²⁻	Sulfite
HS ⁻	Hydrogen sulfide	BrO ⁻	Hypobromite	C ₂ O ₄ ²⁻	Oxalate
HSO ₄ ⁻	Hydrogen sulfate	IO ₄ ⁻	Periodate	CrO ₄ ²⁻	Chromate
HSO ₃ ⁻	Hydrogen sulfite	IO ₃ ⁻	Iodate	Cr ₂ O ₇ ²⁻	Dichromate
H ₂ PO ₄ ⁻	Dihydrogen phosphate	NO ₃ ⁻	Nitrate	Acid Anions	
Other Anions		NO ₂ ⁻	Nitrite	HPO ₄ ²⁻ Hydrogen phosphate	
SCN ⁻	Thiocyanate	OH ⁻	Hydroxide	Diatomic Elemental	
CN ⁻	Cyanide	C ₂ H ₃ O ₂ ⁻	Acetate	O ₂ ²⁻ Peroxide	
H ⁻	Hydride	MnO ₄ ⁻	Permanganate		

Ions Derived from the Chart

"ite" ending means one less O than "ate" ending

"per...ate" means one more O than "ate"

"hypo...ite" means one less O than "ite"

name these ions, using the chart (table 6.8)



Using the Periodic Table



selenium is in the same group (directly below) as sulfur



What is the formula for the arsenate ion?

Acid Nomenclature

**Look like ionic compounds,
with H replacing the metal**



Named Based on Anion Ending

...ate becomes **...ic** acid



nit**rate**

nit**ric** acid

...ite become **...ous** acid



chlor**ite**

chlor**ous** acid

...ide becomes **hydro...ic** acid



brom**ide**

hydrobromic acid

Q1

Name or write formulas for:



chlorous acid



Binary Covalent Compounds

use prefixes to indicate number of atoms

mono= 1	hexa=6
di= 2	hepta= 7
tri= 3	octa= 8
tetra=4	nona= 9
penta= 5	deca= 10



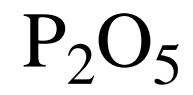
One Exception!

do not use mono for first atom

SO₂ sulfur dioxide

CO carbon monoxide

Q2



carbon disulfide

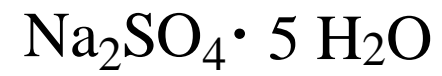
Hydrates

look like ionic compounds with waters attached



Q3

name the following:



Try These

calcium carbonate

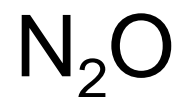
iron (III) sulfide



manganese (V) sulfite

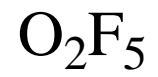


hydrosulfuric acid



Last Two

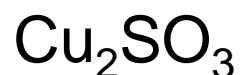
phosphorous tribromide



Nomenclature Practice Drill



hydroiodic acid



oxygen dibromide



potassium sulfate hexahydrate

lead (IV) phosphate

gold (III) selenide

