

WRITING IONIC FORMULAS III

Formulas for these ionic compounds are written by these rules:

Rule 1 Write the formula for the cation (without the charge) followed by a subscript; write the formula for the anion (without the charge) followed by a subscript.

Rule 2 Subscripts are chosen so that the charges in a compound add to zero.

Rule 3 Put parentheses around polyatomic ions that have subscripts greater than 1.

The charges on polyatomic ions must be known (memorized!) in order to write formulas.

Examples: potassium carbonate

potassium is K^+ carbonate is CO_3^{2-}

try subscripts 2 (from 2-) and 1 (from 1+) so the formula is K_2CO_3

ammonium chloride

ammonium is NH_4^+ chloride is Cl^-

try subscripts 1 (from 1-) and 1 (from 1+) so the formula is NH_4Cl

chromium(III) sulfate

chromium(III) is Cr^{3+} sulfate is SO_4^{2-}

try subscripts 2 (from 2-) and 3 (from 3+) so the formula is $Cr_2(SO_4)_3$

tin(IV) chromate

tin(IV) is Sn^{4+} chromate is CrO_4^{2-}

try subscripts 2 (2-) and 4 (4+) then divide by 2 so the formula is $Sn(CrO_4)_2$

You should be able to write formulas for these compounds.

a. magnesium carbonate

g. strontium nitrate

m. potassium sulfate

b. silver chromate

h. lead(IV) sulfate

n. calcium thiosulfate

c. iron(III) sulfate

i. copper(II) cyanide

o. sodium phosphate

d. cobalt(III) hydroxide

j. potassium permanganate

p. tin(IV) nitrate

e. lithium dichromate

k. barium acetate

o. cobalt(II) phosphate

f. ammonium carbonate

l. zinc chlorate

p. gold(I) cyanide

Answers are on the other side