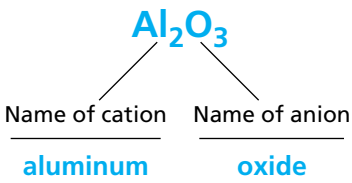
the anion. For most simple ionic compounds, the ratio of the ions is not indicated in the compound's name because it is understood based on the relative charges of the compound's ions. The naming of a simple binary ionic compound is illustrated below.



SAMPLE PROBLEM A

Write the formulas for the binary ionic compounds formed between the following elements:
a. zinc and iodine **b. zinc and sulfur**

SOLUTION

Write the symbols for the ions side by side. Write the cation first.

a. Zn^{2+} I^-
b. Zn^{2+} S^{2-}

Cross over the charges to give subscripts.

a. Zn_1^{2+} I_2^-
b. Zn_2^{2+} S_2^{2-}

Check the subscripts and divide them by their largest common factor to give the smallest possible whole-number ratio of ions. Then write the formula.

a. The subscripts are mathematically correct because they give equal total charges of $1 \times 2+ = 2+$ and $2 \times 1- = 2-$. The largest common factor of the subscripts is 1. The smallest possible whole-number ratio of ions in the compound is therefore 1:2. *The subscript 1 is not written,* so the formula is ZnI_2.

b. The subscripts are mathematically correct because they give equal total charges of $2 \times 2+ = 4+$ and $2 \times 2- = 4-$. The largest common factor of the subscripts is 2. The smallest whole-number ratio of ions in the compound is therefore 1:1. The correct formula is ZnS.

PRACTICE

Answers in Appendix E

1. Write formulas for the binary ionic compounds formed between the following elements:
   a. potassium and iodine
   b. magnesium and chlorine
   c. sodium and sulfur
   d. aluminum and sulfur
   e. aluminum and nitrogen

2. Name the binary ionic compounds indicated by the following formulas:
   a. AgCl
   b. ZnO
   c. $CaBr_2$
   d. SrF_2
   e. BaO
   f. $CaCl_2$

extension
Go to **go.hrw.com** for more practice problems that ask you to write formulas for binary ionic compounds.
Keyword: HC6FRMX