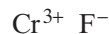


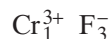
SAMPLE PROBLEM B

Write the formula and give the name for the compound formed by the ions Cr^{3+} and F^- .

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



Cross over the charges to give subscripts.



Check the subscripts and write the formula.

The subscripts are correct because they give charges of $1 \times 3+ = 3+$ and $3 \times 1- = 3-$. The largest common factor of the subscripts is 1, so the smallest whole-number ratio of the ions is 1:3. The formula is therefore CrF_3 . As **Table 1** shows, chromium forms more than one ion. Therefore, the name of the $3+$ chromium ion must be followed by a Roman numeral indicating its charge. The compound's name is chromium(III) fluoride.

PRACTICE

Answers in Appendix E

- Write the formula and give the name for the compounds formed between the following ions:
 - Cu^{2+} and Br^-
 - Fe^{2+} and O^{2-}
 - Pb^{2+} and Cl^-
 - Hg^{2+} and S^{2-}
 - Sn^{2+} and F^-
 - Fe^{3+} and O^{2-}
- Give the names for the following compounds:
 - CuO
 - CoF_3
 - SnI_4
 - FeS

extension

Go to go.hrw.com for more practice problems that ask you to write formulas for ionic compounds.



Keyword: HC6FRMX

Compounds Containing Polyatomic Ions

Table 2 on the next page lists some common polyatomic ions. Most are negatively charged and most are **oxyanions**—polyatomic ions that contain oxygen. Some elements can combine with oxygen to form more than one type of oxyanion. For example, nitrogen can form NO_3^- or NO_2^- . The name given a compound containing such an oxyanion depends on the number of oxygen atoms in the oxyanion. The name of the ion with the greater number of oxygen atoms ends in *-ate*. The name of the ion with the smaller number of oxygen atoms ends in *-ite*.



Sometimes, an element can form more than two types of oxyanions. In this case, an anion that has one fewer oxygen atom than the *-ite* anion