Rules for Naming Binary Covalent Compounds

A binary covalent compound is composed of two different nonmetal elements. For example, a molecule of chlorine trifluoride, ClF_3 contains 1 atom of chlorine and 3 atoms of fluorine.

Rules

- **The element with less electronegativity is written first in the name.**
  Exception: ***when the compound contains oxygen and a halogen, the name of the halogen is the first word in the name.***

- **The second element in the name is named as if it were an anion, i.e., by adding the suffix *-ide* to the name of the element.**

- **Greek prefixes (see the Table provided at the bottom of this page) are used to indicate the number of atoms of each nonmetal element in the chemical formula for the compound.**
  Exception: ***if the compound contains one atom of the element that is written first in the name, the prefix "mono-" is not used. For example:*** ***CO_2 = carbon dioxide (NOT monocarbon)***

  Note: *when the addition of the Greek prefix places two vowels adjacent to one another, the "a" (or the "o") at the end of the Greek prefix is usually dropped to avoid "ao" or "oo" combinations, but not "io".*
  For example: "nonaoxide" would be written as "nonoxide", and "monooxide" would be written as "monoxide". The "i" at the end of the prefixes "di-" and "tri-" are never dropped. For example: SO_2= sulfur dioxide (NOT sulfur doxide)

Number of Atoms	*Prefix*
1	*mono-*
2	*di-*
3	*tri-*
4	*tetra-*
5	*penta-*
6	*hexa-*
7	*hepta-*
8	*octa-*
9	*nona-*
10	*deca-*

Additional online practice can be found at:
http://www.chem.purdue.edu/gchelp/nomenclature/covalent.htm

Naming Covalent Compounds

Write the formulas for the following covalent compounds:

1) antimony tribromide _____

2) hexaboron silicide _____

3) chlorine dioxide _____

4) hydrogen iodide _____

5) iodine pentafluoride _____

6) dinitrogen trioxide _____

7) phosphorus triiodide _____

8) phosphorus triiodide _____

9) carbon dioxide _____

10) sulfur dichloride _____

11) nitrogen trifluoride _____

12) dioxygen difluoride _____

Write the names for the following covalent compounds:

13) P_4S_5 _____

14) SCl_4 _____

15) SeF_6 _____

16) Si_2Br_6 _____

17) SCl_4 _____

18) SiO_2 _____

19) B_2Si _____

20) NF_3 _____

21) N_2F_4 _____

22) P_4O_{10} _____

23) TeF_4 _____

24) ClF_3 _____