

## Section 4.2

# Names and Formulas of Compounds

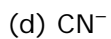
## Check Your Understanding

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### Checking Concepts

- List the information about a compound given by the name of:
  - an ionic compound
  - a covalent compound
- Explain the following terms related to chemical naming.
  - multivalent
  - polyatomic
  - ratio of ions
- List the prefixes used in covalent naming that represent the numbers 1 through 10.
- Name each of the ions in the list below.
  - $\text{Na}^+$
  - $\text{SO}_4^{2-}$
  - $\text{V}^{4+}$



5. List which of the following words describes each ion in question 4: polyatomic ion, multivalent metal, negative ion, positive ion.

6. Complete the following chart about polyatomic ions.

	Formula	Name	Number of Each Kind of Atom	Total Number of Atoms	Electric Charge on the Ion
(a)	$\text{CH}_3\text{COO}^-$				
(b)	$\text{HSO}_3^-$				
(c)	$\text{PO}_4^{3-}$				
(d)	$\text{CrO}_4^{2-}$				
(e)	$\text{Cr}_2\text{O}_7^{2-}$				
(f)	$\text{MnO}_4^-$				

## Understanding Key Ideas

7. Write the formula of each of the following ionic compounds.

(a) sodium bromide

(b) calcium fluoride

(c) iron(III) bromide

(d) gold(I) iodide

(e) vanadium(V) oxide

(f) molybdenum(III) nitride

(g) ammonium phosphate

(h) potassium nitrate

(i) manganese(II) perchlorate

8. Write the name of each of the following ionic compounds.

(a) LiF

(b)  $\text{MgI}_2$

(c)  $\text{Fe}_2\text{O}_3$

(d)  $\text{Ag}_3\text{N}$

(e)  $\text{Au}_3\text{N}$

(f)  $\text{Pt}(\text{SO}_4)_2$

(g)  $(\text{NH}_4)_2\text{CO}_3$

(h)  $\text{CsNO}_3$

9. Write the formula of each of the following covalent compounds.

(a) sulphur dioxide

(b) chlorine monofluoride

(c) nitrogen triiodide

(d) dinitrogen monoxide

(e) dinitrogen tetraoxide

(f) selenium difluoride

10. Write the name of each of the following covalent compounds.

(a)  $\text{PF}_5$

(b)  $\text{P}_4\text{O}_{10}$

(c)  $\text{CO}$

(d)  $\text{SF}_6$

(e)  $\text{XeO}_3$

(f)  $\text{NO}_2$

(g)  $\text{OF}_2$

11. Complete the following chart.

	Formula	Ionic or Covalent?	Name of Compound
(a)	$\text{Cl}_2\text{O}$		
(b)	$\text{CO}_2$		
(c)	$\text{CoO}$		
(d)	$\text{CO}$		
(e)	$\text{PbO}_2$		
(f)	$\text{MgCl}_2$		
(g)	$\text{PtCl}_2$		
(h)	$\text{SCl}_2$		
(i)	$\text{NaCH}_3\text{COO}$		
(j)	$\text{NH}_4\text{CH}_3\text{COO}$		

## ***Pause and Reflect***

Reflect on the similarities and differences between ionic compounds and covalent compounds. Draw a mind map that shows both types of compounds and the steps for writing their chemical formulas. Include examples of compounds in your mind map.