

d. sulfurous acid



98. Write the formula for each of the following.

a. silicon dioxide



b. bromous acid



c. chlorine trifluoride



d. hydrobromic acid



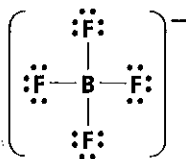
### Lewis Structures (9.3)

99. Draw the Lewis structure for each of these molecules or ions.

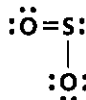
a.  $\text{H}_2\text{S}$



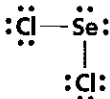
b.  $\text{BF}_4^-$



c.  $\text{SO}_2$

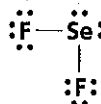


d.  $\text{SeCl}_2$

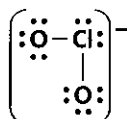


100. Draw the Lewis structure for each of these molecules or ions.

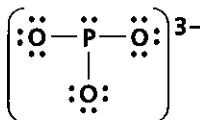
a.  $\text{SeF}_2$



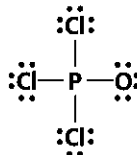
b.  $\text{ClO}_2^-$



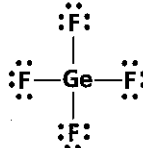
c.  $\text{PO}_3^{3-}$



d.  $\text{POCl}_3$



e.  $\text{GeF}_4$

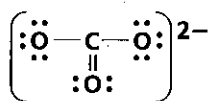
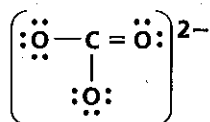
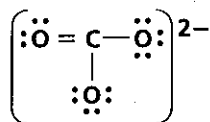


101. Which of the following elements are capable of forming molecules in which an atom has an expanded octet? Explain your answer.

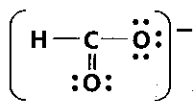
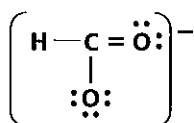
- B
- C
- P
- O
- Se

P and Se because they are period 3 and higher and have a d sublevel available

102. Draw three resonance structures for the polyatomic ion  $\text{CO}_3^{2-}$ .

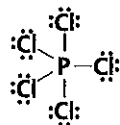


103. Draw two resonance structures for the polyatomic ion  $\text{CHO}_2^-$ .

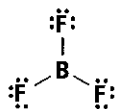


104. Draw the Lewis structure for each of the following molecules that have central atoms that do not obey the octet rule.

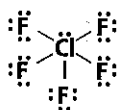
- a.  $\text{PCl}_5$



- b.  $\text{BF}_3$



- c.  $\text{ClF}_5$



- d.  $\text{BeH}_2$



### Molecular Shape (9.4)

105. Predict the molecular shape and bond angle, and identify the hybrid orbitals for each of the following. Drawing the Lewis structure may help you.

- a.  $\text{SCl}_2$

bent,  $104.5^\circ$ ,  $sp^3$

- b.  $\text{NH}_2\text{Cl}$

trigonal pyramidal,  $107^\circ$ ,  $sp^3$

- c.  $\text{HOF}$

bent,  $104.5^\circ$ ,  $sp^3$

- d.  $\text{BF}_3$

trigonal planar,  $120^\circ$ ,  $sp^2$

106. For each of the following, predict the molecular shape.

- a.  $\text{COS}$

linear

- b.  $\text{CF}_2\text{Cl}_2$

tetrahedral

107. Identify the expected hybrid on the central atom for each of the following. Drawing the Lewis structure may help you.

- a.  $\text{XeF}_4$

$sp^3d^2$

- b.  $\text{TeF}_4$

$sp^3d$

- c.  $\text{KrF}_2$

$sp^3d$

- d.  $\text{OF}_2$

$sp^3$