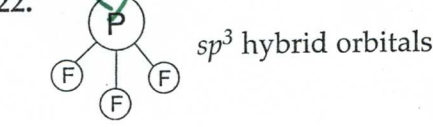
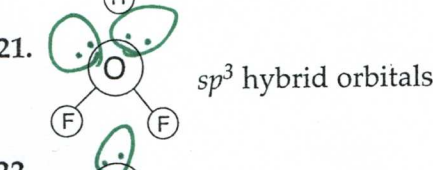
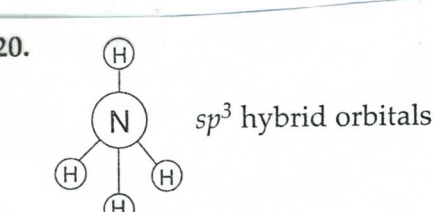
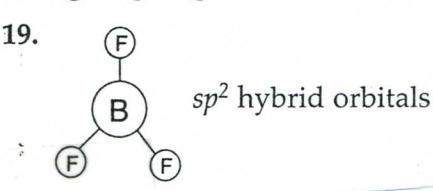
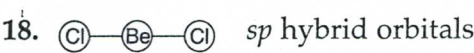
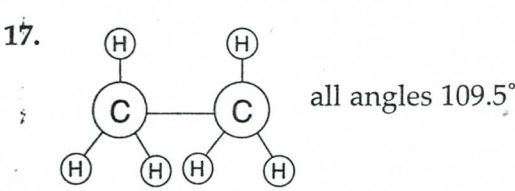
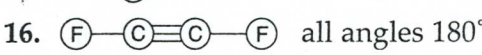
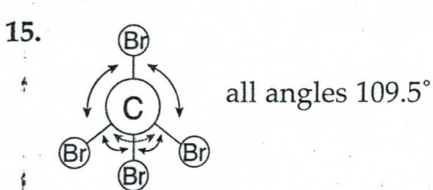
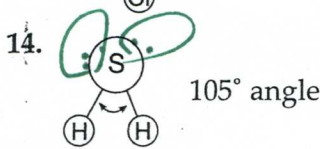
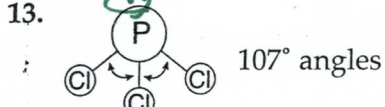


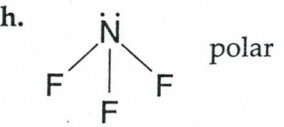
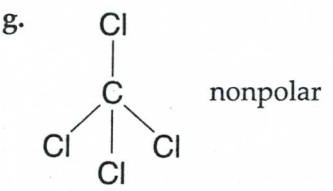
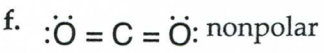
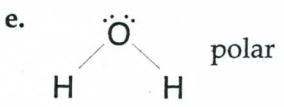
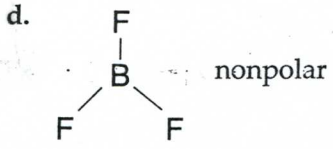
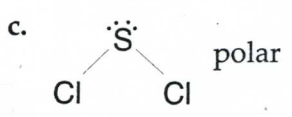
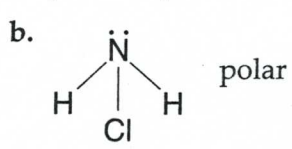
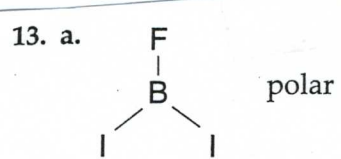
8-1 Review and Reinforcement, pages 12-13

1. ball-and-stick model
2. sp orbital
3. bond angle
4. unshared pair
5. VSEPR theory
6. trigonal planar
7. sp^2 orbital
8. bent, 105°
9. tetrahedral, 109.5°
10. trigonal planar, 120°
11. pyramidal, 107°
12. linear, 180°



8-2 Review and Reinforcement, pages 19-20

1. unequally
2. nonpolar
3. shape
4. negative
5. electric
6. polarity
7. polar
8. nonpolar
9. polar
10. nonpolar
11. nonpolar
12. nonpolar



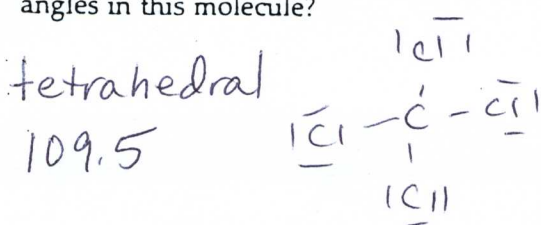
14. Both HCl and Cl_2 are linear molecules. However, Cl_2 is nonpolar because there is no difference in electronegativity between the two chlorine atoms. In the HCl molecule there is not an equal sharing of electrons because of the difference in electronegativities between hydrogen and chlorine.

15. Even though water and carbon dioxide both have polar bonds, they have different shapes. Carbon dioxide is linear, while water is bent. This makes water polar and carbon dioxide nonpolar.

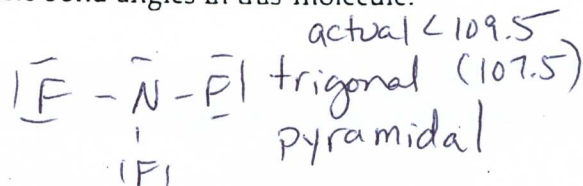
16. Polar sidechains are on the outside of the protein molecule because they interact with cytoplasm, which contains a large amount of water, a polar molecule. Nonpolar sidechains are not attracted to water but instead are attracted to each other.

8-1 Practice Problems

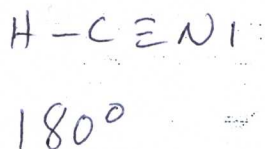
1. What is the molecular shape of carbon tetrachloride (CCl_4)? What are the bond angles in this molecule?



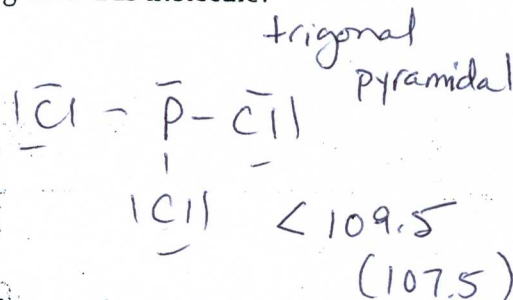
6. The molecule NF_3 has nitrogen as the central atom with the 3 fluorine atoms bonded to it. Predict the molecular shape and the bond angles in this molecule.



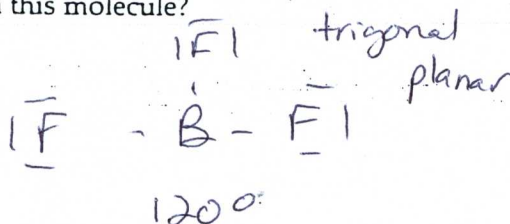
2. A molecule of hydrogen cyanide contains 1 hydrogen atom, 1 carbon atom, and 1 nitrogen atom. The carbon is bonded to the hydrogen atom and to the nitrogen atom. Predict the bond angle in this molecule.



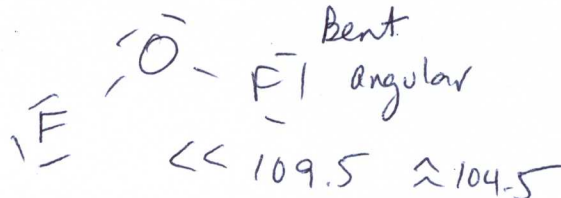
7. What is the molecular shape of phosphorus trichloride (PCl_3)? What are the bond angles in this molecule?



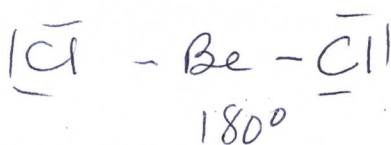
3. What is the molecular shape of boron trifluoride (BF_3)? What are the bond angles in this molecule?



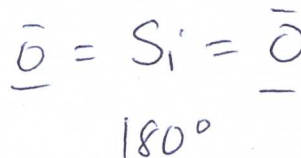
8. What is the molecular shape of OF_2 ? What is the bond angle in this molecule?



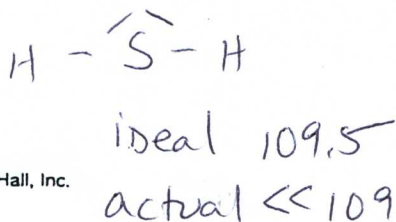
4. A molecule of beryllium chloride contains a beryllium atom bonded to 2 chlorine atoms. Beryllium has only 4 electrons. Predict the bond angle in this molecule.



9. Silicon dioxide contains a silicon atom bonded with double bonds to 2 oxygen atoms. Predict the bond angle in this molecule.



5. What is the molecular shape of dihydrogen monosulfide (H_2S)? What is the bond angle in this molecule?



10. What is the molecular shape of CF_4 ? What are the bond angles in this molecule?

