

Name

Key

Chapter 8 Review

This review is due on Monday 11/23

The test on this chapter is on Tuesday 11/24

1. How do you apply the Octet Rule when drawing Lewis structures of molecules?

Make sure every atom has 8 valence electrons (except H)

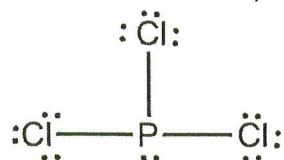
2. How is a single covalent bond formed?

Two electrons are shared between two atoms

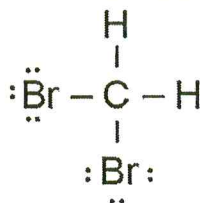
3. Complete the chart below:

Molecule	Lewis Structure	Name of VSEPR Shape	Are the bonds polar or nonpolar?	Is the molecule polar or nonpolar?
N ₂	$\text{:N} \equiv \text{N:}$	linear	$\begin{array}{r} 3.04 \\ - 3.04 \\ \hline 0 \end{array}$ nonpolar	nonpolar
CCl ₄	$\begin{array}{c} \text{:Br:} \\ \\ \text{:Br:} - \text{C} - \text{:Br:} \\ \\ \text{:Br:} \end{array}$	tetrahedral	$\begin{array}{r} 3.55 \\ - 2.96 \\ \hline .59 \end{array}$ polar	nonpolar
NH ₃	$\begin{array}{c} \text{H} - \text{N} - \text{H} \\ \\ \text{H} \end{array}$	Pyramidal	$\begin{array}{r} 3.04 \\ - 2.20 \\ \hline .84 \end{array}$ polar	polar
OCl ₂	$\text{:Cl} - \text{O} - \text{Cl:}$	Angular (bent)	$\begin{array}{r} 3.44 \\ - 3.16 \\ \hline .28 \end{array}$ nonpolar	nonpolar
CO ₂	$\text{:O} = \text{C} = \text{O:}$	linear	$\begin{array}{r} 3.44 \\ - 2.55 \\ \hline .89 \end{array}$ polar	nonpolar
HCl	$\text{H} - \text{Cl:}$	linear	$\begin{array}{r} 3.16 \\ - 2.20 \\ \hline .96 \end{array}$ polar	polar

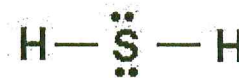
2. For each molecule, write the name of its VSEPR shape and write its bond angle.



trigonal
Pyramidal



tetrahedral



Angular
(Bent)

3. For each pair of elements, calculate the difference in electronegativity (show work) and state if the bond will be nonpolar covalent, polar covalent, or ionic.

a) O—F $3.98 - 3.44 = 0.54$ polar covalent

b) C—H $2.55 - 2.20 = 0.35$ nonpolar covalent

c) Ca—Cl $3.16 - 1.00 = 2.16$ ionic

4. Describe the difference between how electrons are shared in polar covalent bonds and nonpolar covalent bonds.

In a nonpolar bond the electrons are shared equally

In a polar bond the electrons are shared unequally

5. Write the names of the following compounds:

a) P_4O_8 tetraphosphorous octoxide

b) N_5F_2 pentanitrogen difluoride

c) S_8Cl octasulfur ~~en~~ monochloride

6. Write the formulas of the following compounds:

a) boron trichloride BCl_3

b) heptaselenium nonabromide Se_7Br_9

c) carbon monoxide CO