

Chapter 8 Practice Problems

Instructions: Complete the following problems by (1) drawing the electron dot structure to the right and (2) answering the following questions.

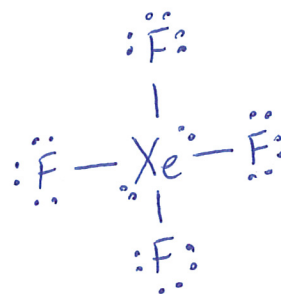
1. Draw the Lewis structure for F₂O in the space on the right.

- a. On central atom, Bonding Groups 2 Lone Pairs 2
- b. State the molecular geometry: bent
Electron geometry? tetrahedral
- c. State the hybridization on the central atom: sp³
- d. How many total sigma bonds are in the molecule? 2 Pi bonds? 0
- e. Polar or nonpolar? polar



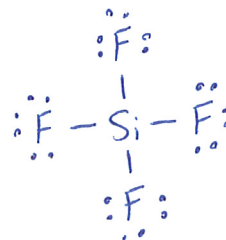
2. Draw the Lewis structure for XeF₄ in the space on the right.

- a. On central atom, Bonding Groups 4 Lone Pairs 2
- b. State the molecular geometry: square planar
Electron geometry? octahedral
- c. State the hybridization on the central atom: sp³d²
- d. How many total sigma bonds are in the molecule? 4 Pi bonds? 0
- e. Polar or nonpolar? nonpolar



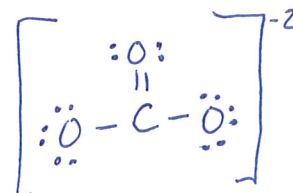
3. Draw the Lewis structure for SiF₄ in the space on the right.

- a. On central atom, Bonding Groups 4 Lone Pairs 0
- b. State the molecular geometry: tetrahedral
Electron geometry? tetrahedral
- c. State the hybridization on the central atom: sp³
- d. How many total sigma bonds are in the molecule? 4 Pi bonds? 0
- e. Polar or nonpolar? nonpolar



4. Draw the Lewis structure for CO₃²⁻ in the space on the right.

- a. On central atom, Bonding Groups 3 Lone Pairs 0
- b. State the molecular geometry: trigonal planar



Electron geometry? trigonal planar

- c. State the hybridization on the central atom: sp^2
d. How many total sigma bonds are in the molecule? 3 Pi bonds? 1
e. Polar or nonpolar? nonpolar

5. Draw the Lewis structure for BrF_5 in the space on the right.

a. On central atom, Bonding Groups 5 Lone Pairs 1

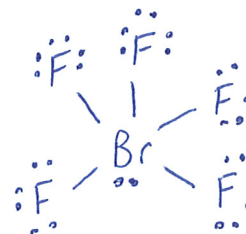
b. State the molecular geometry: square pyramidal

Electron geometry? octahedral

c. State the hybridization on the central atom: sp^3d^2

d. How many total sigma bonds are in the molecule? 5 Pi bonds? 0

e. Polar or nonpolar? polar



6. Draw the Lewis structure for N_2 in the space on the right.

a. On central atom, Bonding Groups X Lone Pairs X

b. State the molecular geometry: linear

Electron geometry? linear

c. State the hybridization on the central atom: X

d. How many total sigma bonds are in the molecule? 1 Pi bonds? 2

e. Polar or nonpolar? nonpolar

