

Practice Problems 1 – Chemistry review

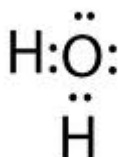
1. How many bonds do these atoms form to have a full octet?
 - a. C – 4. Carbon has 4 valence electrons (electrons in the outer shell). It can form 4 bonds and have an octet.
 - b. H – 1. Hydrogen has 1 valence electrons. It needs to form one bond to fill its 1s orbital.
 - c. O – 2. Oxygen has 6 valence electrons, needs 2 more to have an octet.
 - d. N – 3. Nitrogen has 5 valence electrons.

2. Which atom is the most electronegative in each compound?

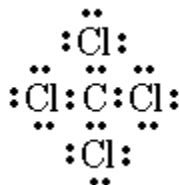
Use the electronegativity chart.

- a. H₂O - O
 - b. CCl₄ - Cl
 - c. NH₃ - N
3. Draw the Lewis structure for the following molecules:

- a. H₂O



- b. CCl₄



- c. NH₃



4. What is the molecular shape of CH₄? (VSEPR theory)

Tetrahedral, carbon has 4 atoms attached to it.

5. What is the electron configuration of the following atoms?

a. C – $1s^2 2s^2 2p^2$

b. O – $1s^2 2s^2 2p^4$

c. N – $1s^2 2s^2 2p^3$