

Molecule	Lewis structure	electron domain Geometry	molecular geometry	bond angle	Polar or not?
Example: CH ₄		tetrahedral	tetrahedral	109.5°	not
CCl ₄		tetrahedral	tetrahedral	109.5°	not
H ₂ O		tetrahedral	V-shape	104.5°	polar
NH ₃		tetrahedral	trigonal pyramidal	107°	polar
CO ₂		linear	linear	180°	non polar
SO ₂		trigonal planar	V-shape	119°	polar
HCN		linear	linear	180°	non polar
N ₂		linear	linear	180°	non polar
OH ⁻		linear	linear	180°	/
SO ₄ ²⁻ 3/2 = 16		tetrahedral	tetrahedral	109.5°	/

CO ₃ ²⁻		trigonal planar	trigonal planar	120°	✓
BeCl ₂		linear	linear	180°	nonpolar
BF ₃ 3 + 21		trigonal planar	trigonal planar	120°	nonpolar
CO		linear	linear	180°	polar
HCOO ⁻ (2 + 4 + 1) = 7		trigonal planar	trigonal planar	120°	polar

Predict electron domain Geometry, molecular geometry and bond angle.

<p>1) PBr₃ 5 + 7*3 = 26</p> <p>ED: tetrahedral molecular: trigonal pyramidal</p> <p>107°</p>	<p>2) N₂H₂ 12/2 = 6</p> <p>ED: trigonal planar molecular: V-shape</p> <p>119°</p>
<p>3) CH₃OH</p> <p>ED: tetrahedral molecular: tetrahedral</p> <p>109.5°</p>	<p>4) NO₂⁻ 5 + 1*2 = 7</p> <p>ED: trigonal planar molecular: V-shape</p> <p>119°</p>

<p>5) H_2S $6 + 2 = 8$</p> <p>$\text{H}-\ddot{\text{S}}-\text{H}$</p> <p>ED: tetrahedral molecular: V-shape 104.5°</p>	<p>6) CCl_4</p> <p>$\begin{array}{c} \text{Cl} \\ \\ \text{Cl}-\text{C}-\text{Cl} \\ \\ \text{Cl} \end{array}$</p> <p>ED: tetrahedral molecular: tetrahedral 109.5°</p>
<p>7) O_3</p> <p>$\text{O}=\ddot{\text{O}}-\ddot{\text{O}}$</p> <p>ED: trigonal planar molecular: V-shape 119°</p>	<p>8) NO^+</p> <p>$5 + 6 - 1 = 10$</p> <p>$[\text{N} \equiv \text{O}]^+$</p> <p>linear 180°</p>
<p>9) PO_4^{3-}</p> <p>ED: tetrahedral molecular: tetrahedral 109.5°</p> <p>$\begin{array}{c} \text{O} \\ \\ \text{O}-\text{P}-\text{O} \\ \\ \text{O} \end{array} \quad \left[\begin{array}{c} \text{O} \\ \\ \text{O}-\text{P}-\text{O} \\ \\ \text{O} \end{array} \right]^{3-}$</p>	<p>10) PO_3^{3-}</p> <p>$5 + 18 + 3 = 26$ 13</p> <p>$\begin{array}{c} \text{O} \\ \\ \text{O}-\text{P}-\text{O} \\ \\ \text{O} \end{array} \quad \left[\begin{array}{c} \text{O} \\ \\ \text{O}-\text{P}-\text{O} \\ \\ \text{O} \end{array} \right]^{3-}$</p> <p>ED: tetrahedral molecular: trigonal pyramidal 107°</p>