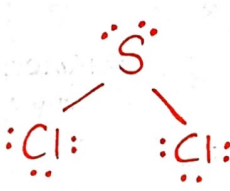
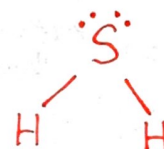

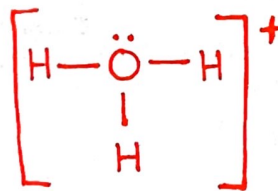


ANSWER KEY

Molecular Polarity Practice

Name: _____

FORMULA	LEWIS STRUCTURE	VSEPR	MOLECULAR POLARITY
1) SCl_2	$S = 1 \times 6 = 6e^-$ $Cl = 2 \times 7 = 14e^-$ $\underline{T = 20e^-}$ 	A.B.E. VSEPR Term AB_2E_2	<u>Circle One:</u>
Total # Val e ⁻ 20		Electron Pair Geometry (EPG) Tetrahedral	<u>Polar</u> / Non-Polar / Ion ?
Total # e ⁻ Pairs 4		Molecular Geometry (MG) Bent	<u>EXPLAIN WHY:</u>
# Bonded Pairs 2			* Lone pairs on central atom
# Lone Pairs 2			
2) H_2S	$H = 2 \times 1 = 2e^-$ $S = 1 \times 6 = 6e^-$ $\underline{T = 8e^-}$ 	A.B.E. VSEPR Term AB_2E_2	<u>Circle One:</u>
Total # Val e ⁻ 8		Electron Pair Geometry (EPG) Tetrahedral	<u>Polar</u> / Non-Polar / Ion ?
Total # e ⁻ Pairs 4		Molecular Geometry (MG) Bent	<u>EXPLAIN WHY:</u>
# Bonded Pairs 2			* Lone pairs on central atom
# Lone Pairs 2			
3) CF_4	$C = 1 \times 4 = 4e^-$ $F = 4 \times 7 = 28e^-$ $\underline{T = 32e^-}$ 	A.B.E. VSEPR Term AB_4	<u>Circle One:</u>
Total # Val e ⁻ 32		Electron Pair Geometry (EPG) Tetrahedral	Polar / <u>Non-Polar</u> / Ion ?
Total # e ⁻ Pairs 4		Molecular Geometry (MG) Tetrahedral	<u>EXPLAIN WHY:</u>
# Bonded Pairs 4			* No lone pairs on central atom
# Lone Pairs 0			* All terminal atoms are identical * All bonds identical
4) H_3O^+	$H = 3 \times 1 = 3e^-$ $O = 1 \times 6 = 6e^-$ $\text{Subtract } 1e^-$ $\underline{T = 8e^-}$ 	A.B.E. VSEPR Term AB_3E_1	<u>Circle One:</u>
Total # Val e ⁻ 8		Electron Pair Geometry (EPG) Tetrahedral	Polar / Non-Polar / <u>Ion</u> ?
Total # e ⁻ Pairs 4		Molecular Geometry (MG) Trigonal Pyramidal	<u>EXPLAIN WHY:</u>
# Bonded Pairs 3			* Molecule has a net charge of (+1)
# Lone Pairs 1			

FORMULA	LEWIS STRUCTURE	VSEPR	MOLECULAR POLARITY
5) SO_3^{2-}	$S = 1 \times 6 = 6e^-$ $O = 3 \times 6 = 18e^-$ Add 2 = $2e^-$ $T = 26e^-$	A.B.E. VSEPR Term AB_3E_1	<u>Circle One:</u>
Total # Val e ⁻ 26		Electron Pair Geometry (EPG) Tetrahedral	Polar / Non-Polar / <u>Ion</u> ?
Total # e ⁻ Pairs 4		Molecular Geometry (MG) Trigonal Pyramidal	<u>EXPLAIN WHY:</u> * Molecule has a net charge of (2-)
# Bonded Pairs 3			
# Lone Pairs 1			
6) ClO_3^-	$Cl = 1 \times 7 = 7e^-$ $O = 3 \times 6 = 18e^-$ Add 1 = $1e^-$ $T = 26e^-$	A.B.E. VSEPR Term AB_3E_1	<u>Circle One:</u>
Total # Val e ⁻ 26		Electron Pair Geometry (EPG) Tetrahedral	Polar / Non-Polar / <u>Ion</u> ?
Total # e ⁻ Pairs 4		Molecular Geometry (MG) Trigonal Pyramidal	<u>EXPLAIN WHY:</u> * Molecule has a net charge of (-1)
# Bonded Pairs 3			
# Lone Pairs 1			
7) PCl_5	$P = 1 \times 5 = 5e^-$ $Cl = 5 \times 7 = 35e^-$ $T = 40e^-$	A.B.E. VSEPR Term AB_5	<u>Circle One:</u>
Total # Val e ⁻ 40	 (Expanded Octet)	Electron Pair Geometry (EPG) Trigonal Bipyramidal	Polar / <u>Non-Polar</u> / Ion ?
Total # e ⁻ Pairs 5		Molecular Geometry (MG) Trigonal Bipyramidal	<u>EXPLAIN WHY:</u> * No lone pairs on central atom * All terminal atoms are identical * All bonds identical
# Bonded Pairs 5			
# Lone Pairs 0			
8) BrF_3	$Br = 1 \times 7 = 7e^-$ $F = 3 \times 7 = 21e^-$ $T = 28e^-$	A.B.E. VSEPR Term AB_3E_2	<u>Circle One:</u>
Total # Val e ⁻ 28	 (Expanded Octet)	Electron Pair Geometry (EPG) Trigonal Bipyramidal	<u>Polar</u> / Non-Polar / Ion ?
Total # e ⁻ Pairs 5		Molecular Geometry (MG) T-Shaped	<u>EXPLAIN WHY:</u> * Lone pairs on central atom
# Bonded Pairs 3			
# Lone Pairs 2			