

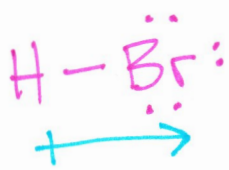
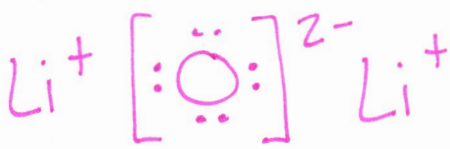
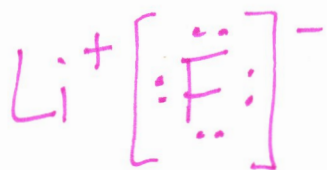
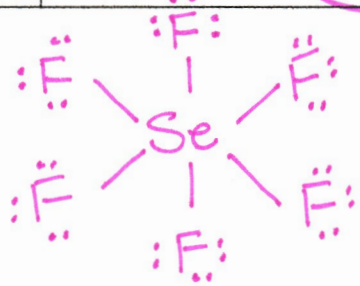

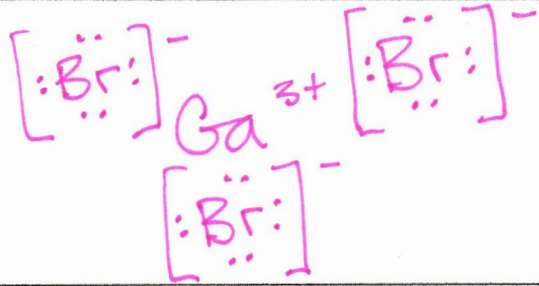
## EZPZ Unit 6: Bonding Review


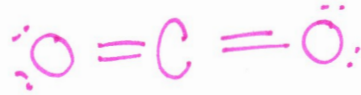
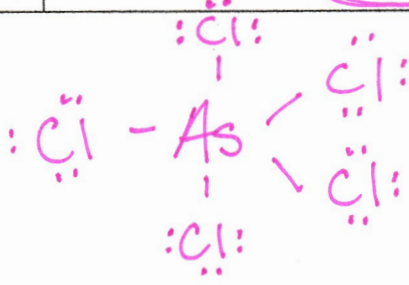
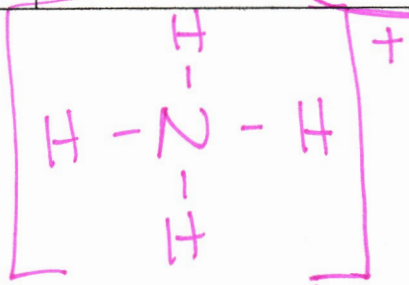
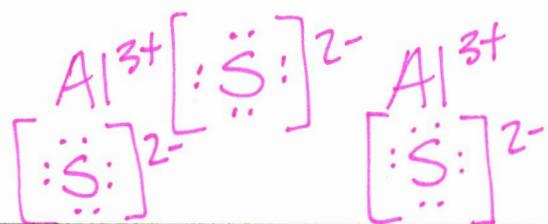
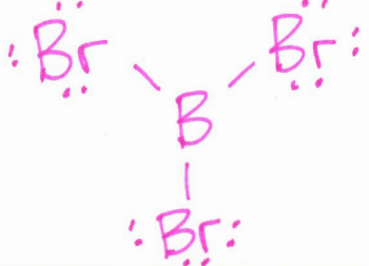
### Part 1: Name the following compounds.

Formula	Type of bond (ionic/covalent)	Name
$\text{Fe}_2\text{S}_3$	ionic	iron (III) sulfide
$\text{AlPO}_4 \cdot 7\text{H}_2\text{O}$	ionic	aluminum phosphate heptahydrate
$\text{Si}_2\text{Br}_6$	covalent	disilicon hexabromide
$\text{NaBr}$	ionic	sodium bromide
$\text{C}_3\text{H}_8$	covalent	tricarbon octahydride
$\text{Na}_2\text{SO}_4$	ionic	sodium sulfate
$\text{Co}_3(\text{PO}_4)_2$	ionic	cobalt (II) phosphate
$\text{CF}_4$	covalent	carbon tetrafluoride
$\text{Ca}(\text{NO}_2)_2$	ionic	calcium nitrite
$\text{N}_2\text{O}_3$	covalent	dinitrogen trioxide
$\text{VO}_2$	ionic	vanadium (IV) oxide
$\text{LiBr} \cdot 4\text{H}_2\text{O}$	ionic	lithium bromide tetrahydrate
$\text{SrO}$	ionic	strontium oxide
$\text{Ag}_3\text{P}$	ionic	silver phosphide
$\text{H}_2\text{O}$	covalent	dihydrogen monoxide
$\text{Cd}_3\text{N}_2$	ionic	cadmium nitride
$\text{P}_4\text{Se}_3$	covalent	tetraphosphorus triselenide
$\text{Cu}_3(\text{PO}_4)_4 \cdot 5\text{H}_2\text{O}$	ionic	copper (IV) phosphate pentahydrate
$\text{ZnO}$	ionic	zinc oxide
$\text{HI}$	covalent	hydrogen monoiodide
$\text{AlCl}_3$	ionic	aluminum chloride
$\text{K}_2\text{CO}_3$	ionic	potassium carbonate
$\text{P}_4\text{O}_{10}$	covalent	tetraphosphorus decoxide
$\text{N}_2\text{O}_3$	covalent	dinitrogen trioxide
$\text{Ni}_2\text{S}_3$	ionic	nickel (III) sulfide
$\text{Sn}(\text{ClO}_3)_4$	ionic	tin (IV) chlorate
$\text{IF}_5$	covalent	iodine pentafluoride
$(\text{NH}_4)_2\text{O}$	<del>covalent</del> ionic	ammonium oxide
$\text{BF}_3$	covalent	boron trifluoride



**Part 2: Lewis Dot Structure & VSEPR:** Draw the appropriate Lewis structure for each compound. If the compound is ionic, cross out the 4 questions below. If the compound is covalent, answer the 4 questions below.

1) HBr	ionic or <b>covalent</b>	2) Li <sub>2</sub> O	<b>ionic</b> or covalent
			
1. VSEPR shape? <u>linear</u> 2. Are there polar bonds? <b>YES</b> or NO 3. Is it a polar <u>molecule</u> ? <b>YES</b> or NO 4. IMF present? <b>dispersion</b> <b>dipole-dipole</b> hydrogen		<del>             1. VSEPR shape? _____              2. Are there polar bonds? YES or NO              3. Is it a polar <u>molecule</u>? YES or NO              4. IMF present? dispersion dipole-dipole hydrogen           </del>	
3) LiF	<b>ionic</b> or covalent	4) SeF <sub>6</sub>	ionic or <b>covalent</b>
			
<del>             1. VSEPR shape? _____              2. Are there polar bonds? YES or NO              3. Is it a polar <u>molecule</u>? YES or NO              4. IMF present? dispersion dipole-dipole hydrogen           </del>		1. VSEPR shape? <u>octahedral</u> 2. Are there polar bonds? <b>YES</b> or NO 3. Is it a polar <u>molecule</u> ? YES or <b>NO</b> 4. IMF present? <b>dispersion</b> dipole-dipole hydrogen	
5) H <sub>2</sub> O	ionic or <b>covalent</b>	6) GaBr <sub>3</sub>	<b>ionic</b> or covalent
			
1. VSEPR shape? <u>bent</u> 2. Are there polar bonds? <b>YES</b> or NO 3. Is it a polar <u>molecule</u> ? <b>YES</b> or NO 4. IMF present? <b>dispersion</b> <b>dipole-dipole</b> hydrogen		<del>             1. VSEPR shape? _____              2. Are there polar bonds? YES or NO              3. Is it a polar <u>molecule</u>? YES or NO              4. IMF present? dispersion dipole-dipole hydrogen           </del>	

7) $\text{PI}_3$	ionic or <b>covalent</b>	8) $\text{CO}_2$	ionic or <b>covalent</b>
			
<p>1. VSEPR shape? <u>trigonal pyramidal</u></p> <p>2. Are there polar bonds? <b>YES</b> or NO</p> <p>3. Is it a polar <u>molecule</u>? <b>YES</b> or NO</p> <p>4. IMF present? <b>dispersion</b> <b>dipole-dipole</b> hydrogen</p>		<p>1. VSEPR shape? <u>linear</u></p> <p>2. Are there polar bonds? <b>YES</b> or NO</p> <p>3. Is it a polar <u>molecule</u>? YES or <b>NO</b></p> <p>4. IMF present? <b>dispersion</b> dipole-dipole hydrogen</p>	
9) $\text{AsCl}_5$	ionic or <b>covalent</b>	10) $\text{NH}_4^+$	ionic or <b>covalent</b>
			
<p>1. VSEPR shape? <u>trigonal bipyramidal</u></p> <p>2. Are there polar bonds? <b>YES</b> or NO</p> <p>3. Is it a polar <u>molecule</u>? YES or <b>NO</b></p> <p>4. IMF present? <b>dispersion</b> dipole-dipole hydrogen</p>		<p>1. VSEPR shape? <u>tetrahedral</u></p> <p>2. Are there polar bonds? <b>YES</b> or NO</p> <p>3. Is it a polar <u>molecule</u>? YES or <b>NO</b></p> <p>4. IMF present? <b>dispersion</b> dipole-dipole hydrogen</p>	
11) $\text{Al}_2\text{S}_3$	<b>ionic</b> or covalent	12) $\text{BBr}_3$	ionic or <b>covalent</b>
			
<p>1. VSEPR shape? _____</p> <p>2. Are there polar bonds? YES or NO</p> <p>3. Is it a polar <u>molecule</u>? YES or NO</p> <p>4. IMF present? dispersion dipole-dipole hydrogen</p>		<p>1. VSEPR shape? <u>trigonal planar</u></p> <p>2. Are there polar bonds? <b>YES</b> or NO</p> <p>3. Is it a polar <u>molecule</u>? YES or <b>NO</b></p> <p>4. IMF present? <b>dispersion</b> dipole-dipole hydrogen</p>	



Explanations:

1) Explain why compound #5 and compound #8 are different shapes.

#5 has lone pairs on the central atom, forcing the bonds down into a bent shape

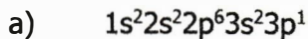
2) Explain why compound #7 and #12 are different shapes.

#7 has lone pairs on the central atom, forcing the bonds down into a pyramidal shape

General information of each type of bond:

Type of Bond	Type of Elements?	Electron behavior	Properties
<b>Ionic Bond</b>	metal & nonmetal	transferred metal → nonmetal	<ul style="list-style-type: none"><li>• Brittle (easy to break)</li><li>• <u>High</u> melting point</li><li>• Conduct electrical current (only when in aq solutions)</li></ul>
<b>Covalent Bond</b>	nonmetal & nonmetal	shared	<ul style="list-style-type: none"><li>• <u>Low</u> melting point</li><li>• No electrical current</li></ul>
<b>Metallic Bond</b>	metal & metal	sea of electrons (mobile & delocalized)	<ul style="list-style-type: none"><li>• <u>Malleable</u> (easy to bend)</li><li>• <u>Ductile</u> (form wires)</li><li>• Conduct electrical current</li></ul>

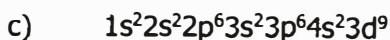
\*remember how to do this\* Identify the atoms through use of their arrangement of electrons:



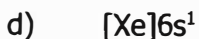
Al



Se



Cu



Cs