

Exam 3 Test Prep

Write the electron configuration for Mg^{2+}

Write the condensed electron configuration for Sb^{2+}

What is the element with the electron configuration $[\text{Ne}] 3s^2 3p^3$?

What letter applies to the transition metals for writing electron configuration?

What is the periodic trend for atomic radius and ionic radius?

What is the periodic trend for electron affinity, ionization energy, and electronegativity?

Draw a line to match the terms with the correct definition:

Atomic radius	Remove an electron from the ground state of gaseous atom
Ionization energy	Attract shared electrons
Electron affinity	Distance between the nucleus and a ring
Electronegativity	Addition of an electron to a gaseous atom (exothermic)

Which has the largest atomic radius? K, Be, or P?

Rank the following from largest to smaller atomic radius. K^+ , Ar, Cl^- , or Ca^{2+}

Arrange the elements in decreasing electron affinity: C, O, Na, F

Which element has the highest ionization energy? Mg, Al, or Si?

Arrange the following ions in order of increasing ionic radius: Li^+ , B^{3+} , O^{2-} , F^-

Draw a line to match the terms with the correct description:

- | | |
|----------------------|------------------------------|
| 1.) Ionic Bonding | Sea of delocalized electrons |
| | Metal and Metal |
| 2.) Covalent Bonding | Nonmetal and Nonmetal |
| | Electrons transferred |
| 3.) Metallic Bonding | Electrons shared |
| | Nonmetal and Metal |

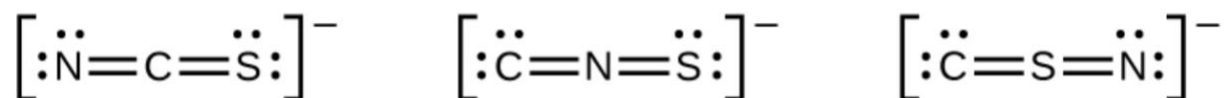
List the exceptions to the octet rule:

Draw the Lewis dot structures for following compounds: Ne, Na, Na^+

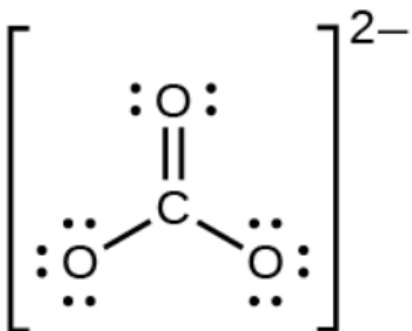
Draw the Lewis dot structure for: lithium bromide, sodium nitride, and tin (IV) oxide.

Draw the resonance structure of carbon dioxide

Which is the more dominant structure?



The Lewis structure of carbonate anion CO_3^{2-} is shown. What is the formal charge of the single bonded oxygen atom?



Single bond: _____ bond length and _____

Triple bond: _____ bond length and _____

Sigma bonds are formed by _____ overlap

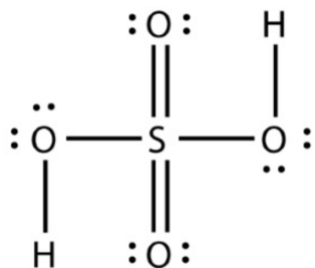
Pi bonds are formed by _____ overlap

Fill in the chart:

e- domain geometry	Molecular geometry	Bond angle	Hybridization
		180	
		120	
	Bent		sp ²
Tetrahedral			
		107	
		105	

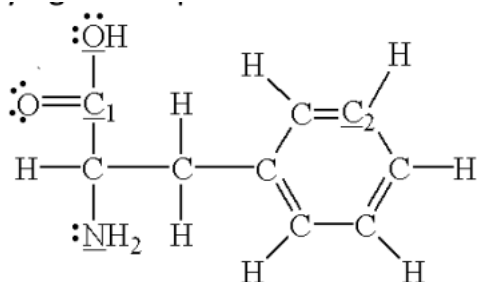
Using the VSEPR model, give the molecular geometry, bond angles, and hybridization, and determine whether molecule is polar or nonpolar for AsCl₃.

How many sigma and pi bonds are in sulfuric acid? What is the electron-domain geometry of single bonded oxygen?

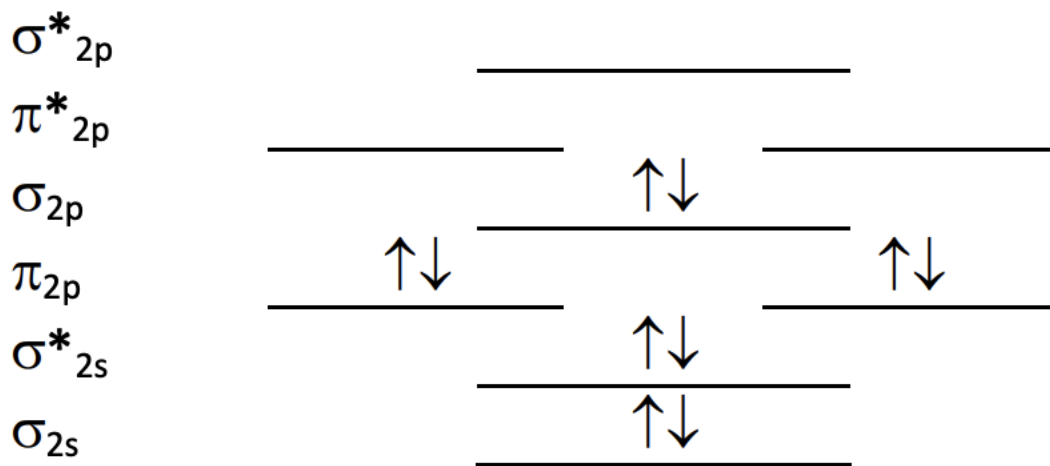


How many sigma and pi bonds are in C_3H_8 ? What is the hybridization of the second carbon?

How many sigma and pi bonds are in the molecule given below?



Which molecule will have the following valence molecular orbital energy level diagram?



A.) N_2

B.) B_2

C.) O_2

D.) C_2