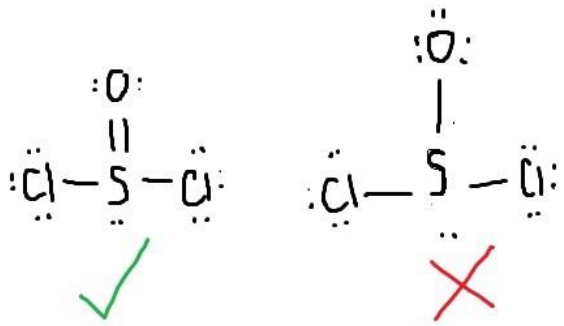
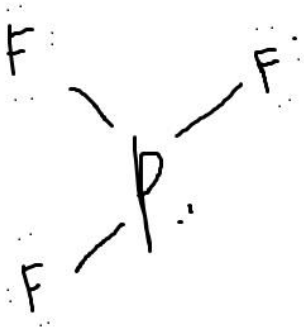
7. Draw two possible structures for $SOCl_2$. Assign formal charges to each atom and specify which is correct and why.



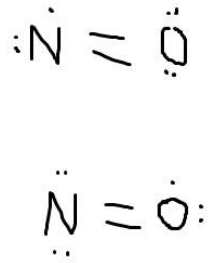
The SOCl2 with the red X has a negative charge on the oxygen. By creating a double bond to S, each charge is a satisfied 0.

8.34) Use Lewis symbols and Lewis structures, diagram formation of PF3 from P and F atoms.

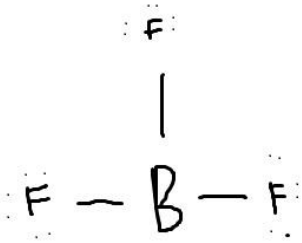


8.64) Draw the Lewis structures for each of the following molecules or ions. which do not obey the octet rule?

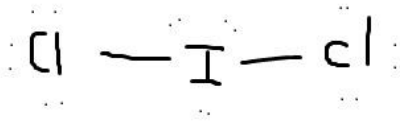
A) NO



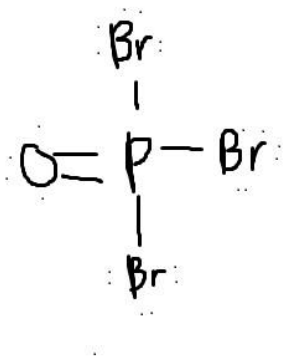
B) BF3



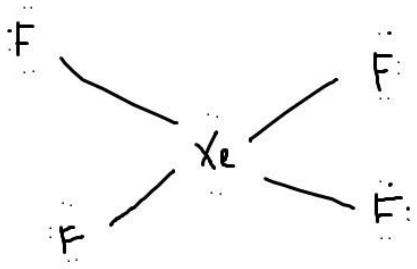
C) ICl2 (DOESN’T OBEY)



D) OPBr3 (DOESN’T OBEY)



E) XeF4 (DOESN'T OBEY)



9.14) Describe the bond angles to be found in each of the following molecular structures:

A) planar trigonal: This molecular structure is kinda triangular, but is flat which also makes it planar. The bond angles are 120 degrees.

B) tetrahedral: Tetrahedral means having four faces. The bond angles are $\cos^{-1}(-1/3) \approx 109.5$ degrees when all four substituents are the same.

C) octahedral: Octahedral means having eight faces. The bond angles are 90 degrees.

D) linear: This molecular structure is a straight line. So that would make each angle 180 degrees.

9.26) What are the electron-domain and molecular geometries of the molecule that has the following electron domains on its central atom?

A) three bonding domains and no non-bonding domains: sp^2; trigonal planar; trigonal planar (120 degrees)

B) three bonding domains and one non bonding domain: SP^3 ex. Ammonia; tetrahedral; Trigonal Pyramidal 107.3 degrees

C) two bonding domains and two non-bonding domains: Bent