

8.34

Atoms with high electronegative and partial full s and/or p orbitals tend to form covalent bonds. Based on this Ar won't form covalent bonds because all of its orbitals are full and K won't because it is a weak metal.

8.37

- a) Electronegativity is a measure of an atom's attraction for electrons.
- b) On the Pauling scale, e-neg ranges from 0.7 (Fr) to 3.98 (F)
- c) Fluorine has the largest electronegativity.
- d) Francium has the smallest electronegativity.

8.43

- a) Polar, F is the most electronegative.
- b) Nonpolar
- c) Polar, O is the most electronegative.
- d) Polar, I is the most electronegative.

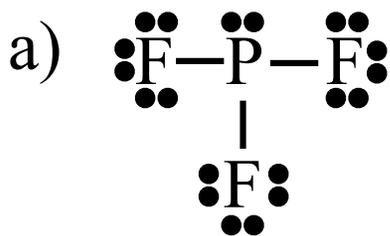
8.47

- a)  $\text{SiF}_4$  (silicon tetrafluoride) is molecular  
 $\text{LaF}_3$  (lanthanum fluoride) is an ionic salt
- b)  $\text{FeCl}_2$  (iron II chloride) is an ionic salt  
 $\text{ReCl}_6$  (rhenium hexachloride) is molecular
- c)  $\text{PbCl}_4$  (lead tetrachloride) is molecular  
 $\text{RbCl}$  (rubidium chloride) is an ionic salt

8.49

- a) Formal charge is a mathematical representation of the amount of change an atom undergoes in bonding covalently to form a molecule.
- b) Formal charges are not actually an atom's charge. Instead, they are a representation of change.
- c) Formal charge is comparative in nature, while oxidation numbers represent the number of electrons an atoms shares or loses during bonding.

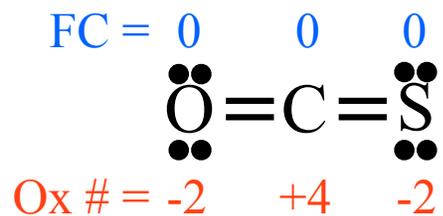
8.52



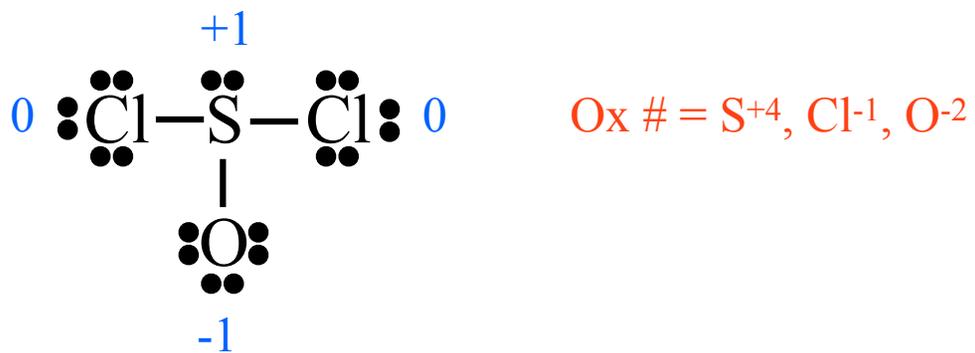
- b) P's oxidation state is +3, F's are -1.
- c) P's formal charge is 0 (5-5), F's are 0 as well (7-7)
- d) They are different because oxidation number represents how many electrons each atom shares, while formal charge represents how much change is involved in sharing these electrons.

8.53

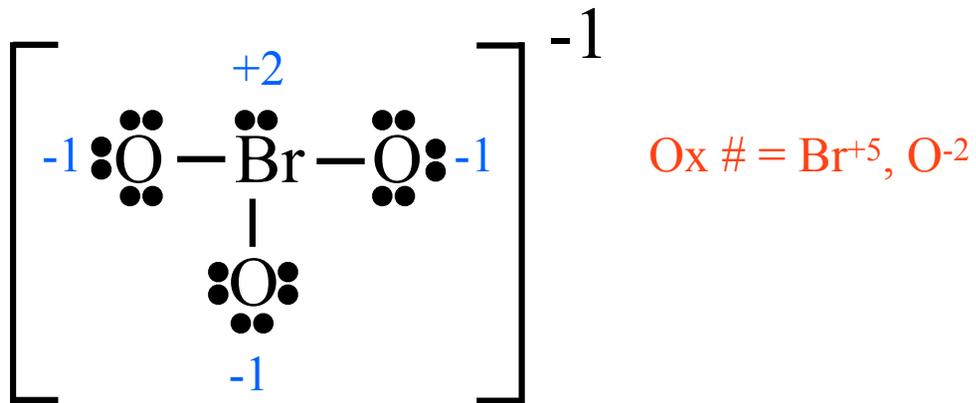
a)



b)



c)



d)

