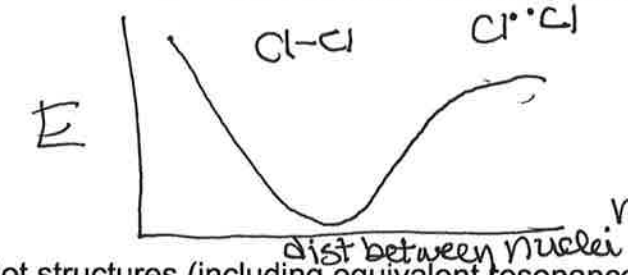
Chem 130, Eppley

KEY

In Class 7: Lewis Dot Structures, VSEPR, resonance, and bonding applications

1. Is energy released or absorbed when a bond is formed? Why?

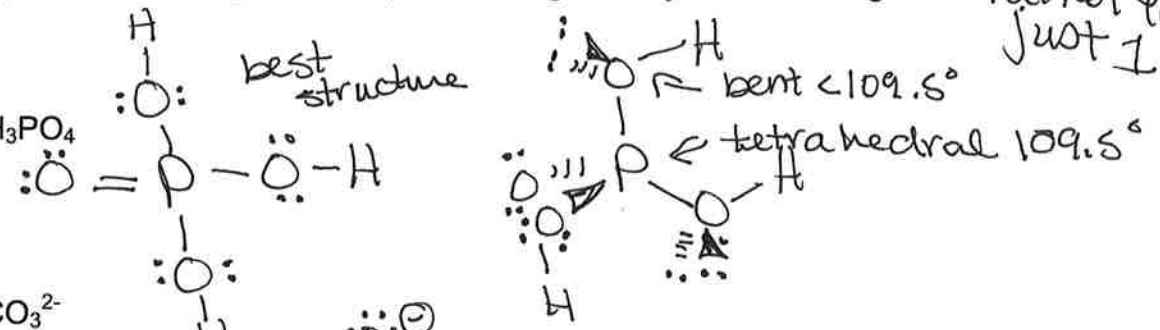
released



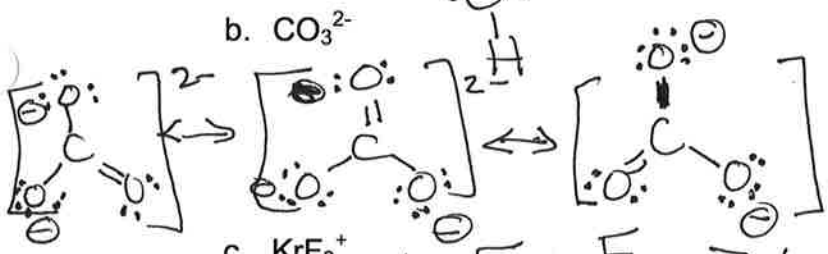
When a bond forms, energy is given off b/c the bonding e⁻ are now attracted to 2 nuclei rather than just 1

2. Draw valid Lewis dot structures (including equivalent resonance structures if relevant) for the following and then predict the geometry and bond angles:

a. H_3PO_4

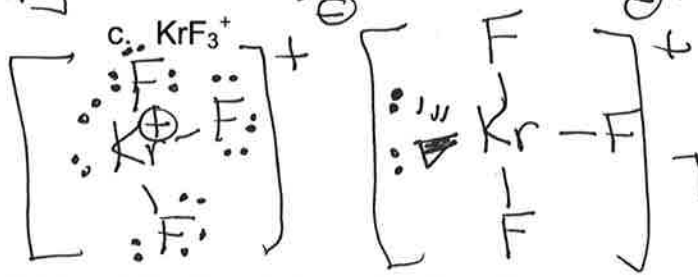


b. CO_3^{2-}



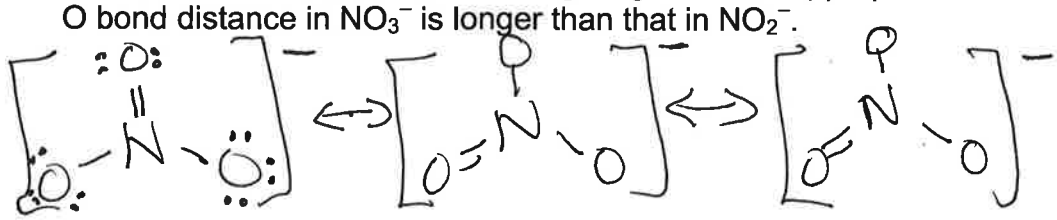
trigonal planar 120°

c. KrF_3^+



T-shaped <90°

Justify the following statement using diagrams and appropriate bonding models: The N-O bond distance in NO_3^- is longer than that in NO_2^-.



B.O = 4/3 = 1.33

B.O. = 3/2 = 1.5

Since NO_2^- has a higher bond order (1.5) than NO_3^- (1.33) it will have a shorter bond.