

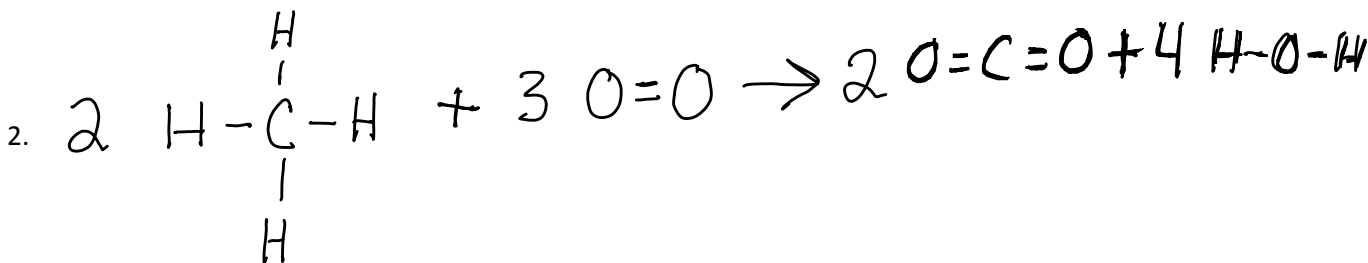
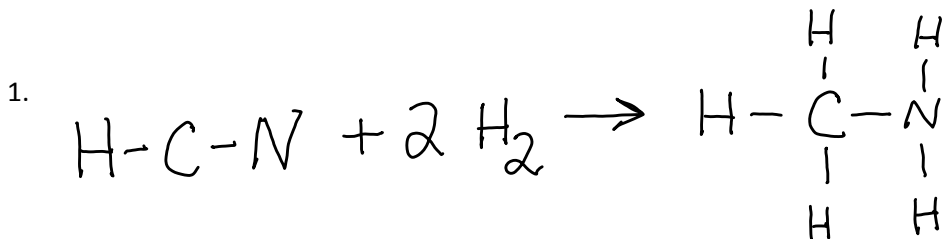
Using bond energies from the provided table, calculate the reaction energy for the following:

8.8 Covalent Bond Energies and Chemical Reactions 351

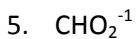
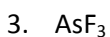
TABLE 8.4 Average Bond Energies (kJ/mol)

Single Bonds				Multiple Bonds			
H—H	432	N—H	391	I—I	149	C=C	614
H—F	565	N—N	160	I—Cl	208	C≡C	839
H—Cl	427	N—F	272	I—Br	175	O=O	495
H—Br	363	N—Cl	200			C=O*	745
H—I	295	N—Br	243	S—H	347	C≡O	1072
		N—O	201	S—F	327	N=O	607
C—H	413	O—H	467	S—Cl	253	N=N	418
C—C	347	O—O	146	S—Br	218	N≡N	941
C—N	305	O—F	190	S—S	266	C≡N	891
C—O	358	O—Cl	203			C=N	615
C—F	485	O—I	234	Si—Si	340		
C—Cl	339			Si—H	393		
C—Br	276	F—F	154	Si—C	360		
C—I	240	F—Cl	253	Si—O	452		
C—S	259	F—Br	237				
		Cl—Cl	239				
		Cl—Br	218				
		Br—Br	193				

\*C=O(CO<sub>2</sub>) = 799



Draw the correct Lewis Structure for the following. Be certain to show the correct notation for ions, resonance structures if applicable and both the Lewis structure that obeys the octet rule and one that meets the requirements for formal charge if applicable: (5 points each)



8. Why do bonds form? (1pt)

9. Name 4 ions that are isoelectronic with xenon. (2 points)

10. Place the above 4 ions in order from smallest to largest. (2 points)

11. What are the three forces that must be balanced for a covalent bond to occur? (3 points)

12. Place the following bonds in order of increasing ionic character: C-O, S-H, O-H. (3 points)