

BOND ENERGIES

NAME _____

SECTION _____

1. Given the information in the table below:

Bond Lengths and Bond Energies

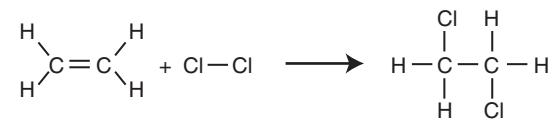
	Bond Length (nm)	Bond Energy (kJ/mol)
H-H	0.074	435
H-Cl	0.127	431
Cl-Cl	0.198	243
H-C	0.109	414
C-Cl	0.177	328
C-C	0.154	331
C=C	0.134	590
C≡C	0.120	812

	Bond Length (nm)	Bond Energy (kJ/mol)
C-O	0.143	326
C=O	0.120	803
C≡O	0.113	1075
N-N	0.145	159
N=N	0.125	473
N≡N	0.110	941
O ₂	0.121	495
H-O	0.096	463

Explain the observed relationship between bond length and bond energy in the three examples of carbon-carbon bonds and in the three examples of carbon-oxygen bonds. Which is stronger and why?

Compare the bond strengths in a dihydrogen molecule and a chlorine molecule. Which is stronger and why?

2. Using bond energies, calculate ΔH° for the reaction



3. Using bond energies, calculate ΔH° for the reaction

