Newman Conformations

1. Draw the staggered conformation and eclipsed conformation Newman projections for ethane.

2. (Note the dihedral angle). Draw the 0° Eclipsed, 60° Gauche, 120° Eclipsed, 180° Anti, 240° Eclipsed, and 300° Gauche conformations for butane.

Chair Conformations

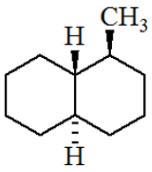
1. Draw a chair conformation for each molecule below. Draw the ring-flipped version of each molecule. Circle the more stable of the two conformers.

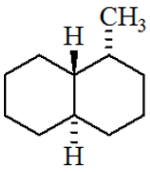
   cis-1-Bromo-2-chlorocyclohexane
   trans-1,3-diethylcyclohexane

2. Draw the more stable chair conformation for each of the following cyclohexanes. Then "flip" the ring and redraw the molecule in the higher energy form.

   chlorocyclohexane
   trans-1-methyl-3-propylcyclohexane
   cis-1-chloro-2-methylcyclohexane
   cis-1-tert-butyl-4-methylcyclohexane

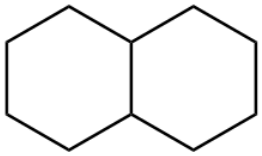
3. Which compound below is more stable? Explain.





4.

There are two possible arrangements for decalin.



decalin

a. Draw out the two stereoisomers.
b. Which is the most stable and why?

5.

Glucose is a simple sugar with 5-substituents bonded to a 6-membered ring.

a. Using a chair representation, draw the most stable arrangement of these substituents on the 6-membered ring.
b. Convert the representation into one that uses a hexagon with wedges and dashes (2D structure).