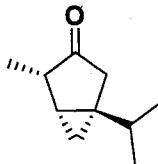


## Chem 30A- Week 4

### Warm-up Exercise (5 min.)



Thujone is the active psychotropic ingredient found in wormwood (used to make absinthe).

How many chiral centers

Provide priorities to each substituent on each chiral center

Draw the enantiomer

Draw a diastereomer

### Class Exercise

1. Cyclopropane was first prepared by reaction of 1,3-dibromopropane with sodium metal. If that is true- what would you predict was the product of 1,3-dibromo-2,2-(bromomethyl) propane with sodium metal?

What is the geometry of the product? Draw the structure in three dimensions.

Chapters 2-4

2. Formaldehyde,  $\text{H}_2\text{C}=\text{O}$ , is a common chemical used as a preservative in biology. When pure, formaldehyde trimerizes to give trioxane,  $\text{C}_3\text{H}_6\text{O}_3$ . Trioxane, surprisingly enough, has no carbonyl groups. Only one monobromo derivative of trioxane is possible (bromination reactions are when bromine replaces a hydrogen in the molecule). Propose a structure that fits these data.
3. Draw the ring flip for the possible chair conformations for cis-1-*tert*-butyl-4-chlorocyclohexane (show both chairs and a boat conformation). Which is more stable? Why? Draw the Newman projections. Label interactions as gauche, syn-periplanar, anti-periplanar, eclipsed, staggered, 1,3-diaxial strain where appropriate.

Chapters 2-4

4. The energy diagram below describes which of the following molecules: trans-1,2-dimethylcyclohexane or 1,2-dichloroethane. Support your answer.

