



1

Provide a drawing for the following name:

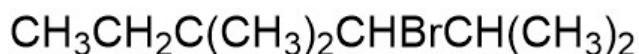
p.4-9

(1,1-dimethylethyl)cyclobutane

2

Provide an IUPAC name for the given compound:

p.4-9

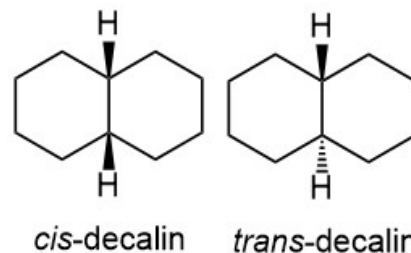


3

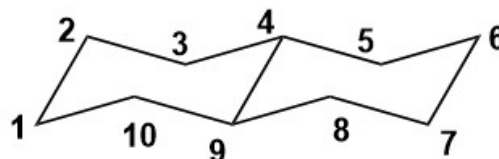
p.4-7

**Group work:** Decalin is composed of two fused cyclohexane rings.

- 1) Draw all of the missing hydrogen atoms on the numbered decalin framework shown. (Start by adding the axial hydrogens.)
- 2) Identify whether each of the following substituents would be in an equatorial (eq.) or axial (ax.) position.
- 3) Is the numbered drawing *cis*- or *trans*-decalin? Explain.

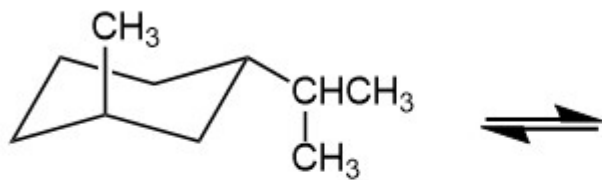


- a) A group at the C-3 position pointing UP. \_\_\_\_\_
- b) A group at the C-7 position pointing DOWN. \_\_\_\_\_
- c) A group at the C-2 position pointing UP. \_\_\_\_\_
- d) A group at the C-9 position pointing DOWN. \_\_\_\_\_
- e) A group at the C-10 position pointing DOWN. \_\_\_\_\_
- f) A group at the C-1 position pointing UP. \_\_\_\_\_

*cis* or *trans* decalin?see **SkillBuilders 4.9, 4.10**

4

Shown below is a chair conformation of a substituted cyclohexane (**X**). Perform a "chair flip" to draw the other chair conformation (**Y**).

**X****Y**

5

Is **X** the cis or trans isomer?

Is **Y** the cis or trans isomer?

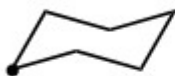
6

Which conformer (**X**, **Y** or neither) predominates at equilibrium? Explain.

7

Draw the **most stable chair conformation** of each of the following compounds, using the marked carbon atom as position #1 in each case. Which isomer is the most thermodynamically stable?

A) *cis*-1,4-dimethylcyclohexane



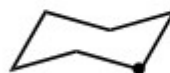
B) *trans*-1,4-dimethylcyclohexane



C) 1,1-dimethylcyclohexane



D) *cis*-1,2-dimethylcyclohexane



E) *trans*-1,3-dimethylcyclohexane

