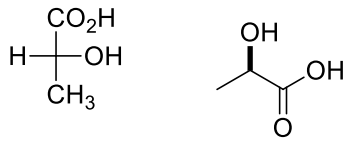
ORGANIC CHEMISTRY **CH 384, Fall 2012**

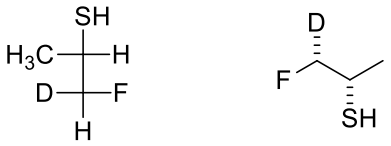
WORKSHOP 7

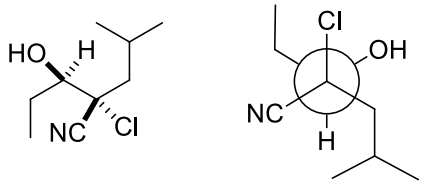
Stereochemistry

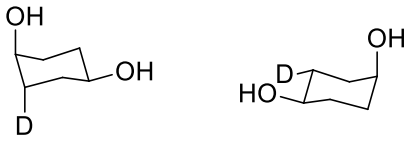
1. a. Identify if the following pairs of compounds as **identical, constitutional isomers**, **enantiomers**, or **diastereomers**.
   b. Assign **configuration (R or S)** to all stereocenters.
   c. For the following pairs of compounds, pick one and draw a constitutional isomer, its enantiomer and a diastereomer.

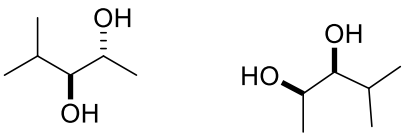
   It may help to make molecular models of these compounds to confirm your assignments.

a 

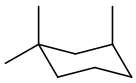
b 

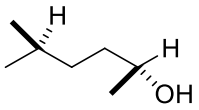
c 

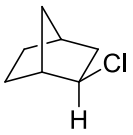
d 

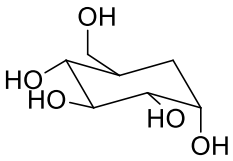
e 

2. Name the following compounds in IUPAC. Use absolute stereochemistry.





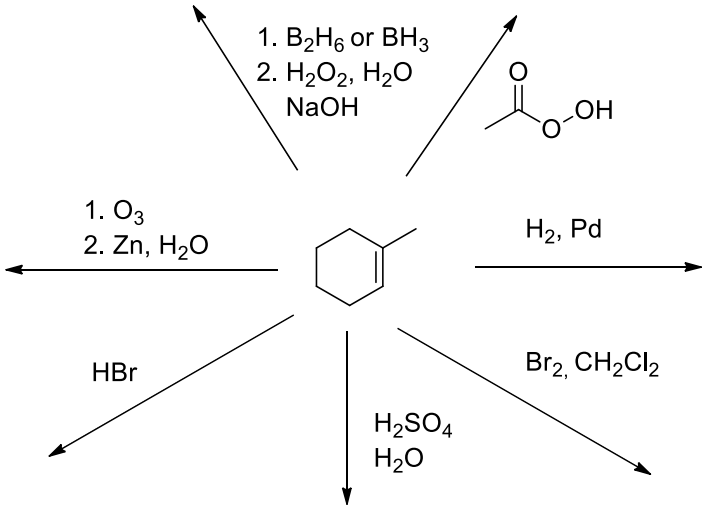




3. For each of the following reactions, predict whether the product will be optically active, a racemic mixture or achiral. **Explain your choice.**

a. (+)-2-chlorobutane $\xrightarrow{Br_2,\ heat}$ 2-bromo-2-chlorobutane

b.



c. *cis*–2–butene $\xrightarrow[\text{in } CCl_4]{Cl_2}$

d. (+)–1,3–dimethylcyclopentene $\xrightarrow[\text{in CCl4}]{\text{NBS } h\nu}$