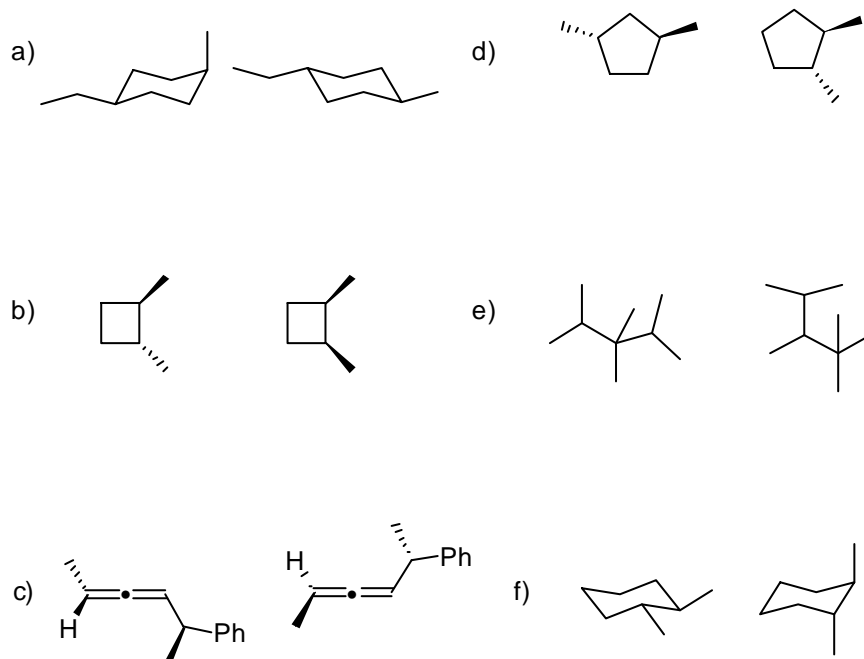


Problem Set No. 1 (16.04.2013)

1. Which kind of isomers are the following pairs of compounds (conformers, diastereomers, constitutional isomers)? If there are stereogenic centers or axes apply the CIP-nomenclature!



2. Draw the compounds with their correct absolute configuration:

(1*R*,3*R*)-1-chloro-3-ethylcyclohexane

(3*R*,7*R*,4*Z*)-3-chloro-5,7-dimethylnon-4-ene

(*aR*)-2,3-pentadiene

(*pS*,3*R*)-*E*-3-methylcyclooctene

(*R*)-(diethyl)amino-ethylphosphane

3. Make a plausible mechanistic suggestion for the formation of Tröger's base!

4. Draw L-glyceraldehyde and D-cysteine in their Fischer projections and determine the configuration of the stereogenic centers by applying the CIP rules.

5. Give examples of an atropisomer and of a compound with planar chirality!

5. Give examples of compounds

a) with two homotopic ligands

b) with two enantiotopic ligands

c) with two diastereotopic ligands

d) with two enantiotopic faces

6. Draw 1,1,1-trideuteriopropenone in a mode that the *Si*-face is directed to the front side!