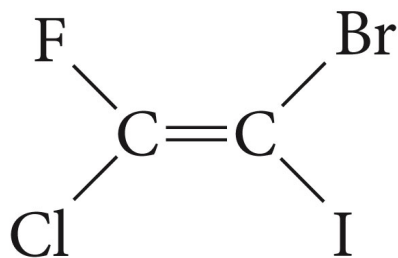


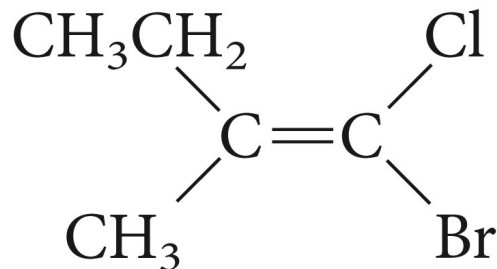
Mature crocodiles secrete from their skin glands the compound with the following structure. The compound is thought to be a communication pheromone for nesting and mating.

How many stereogenic centers are in the compound? Mark them with an asterisk.
How many stereoisomers of this compound are possible.

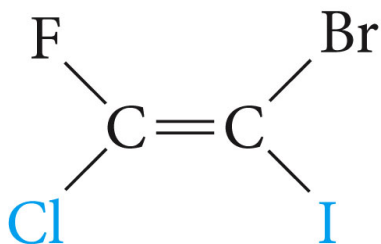
The *E-Z* convention for *Cis-Trans* Isomers



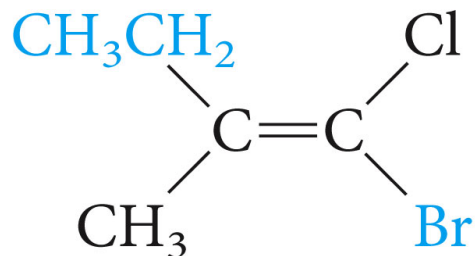
cis or trans?



cis or trans?

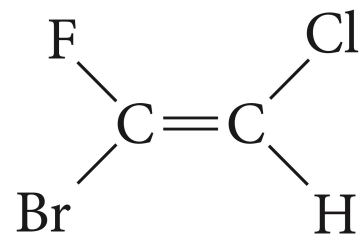
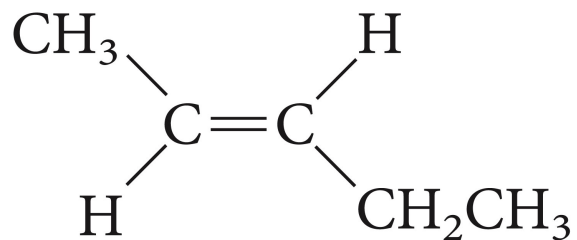


(*Z*)-1-bromo-2-chloro-
2-fluoro-1-iodoethene

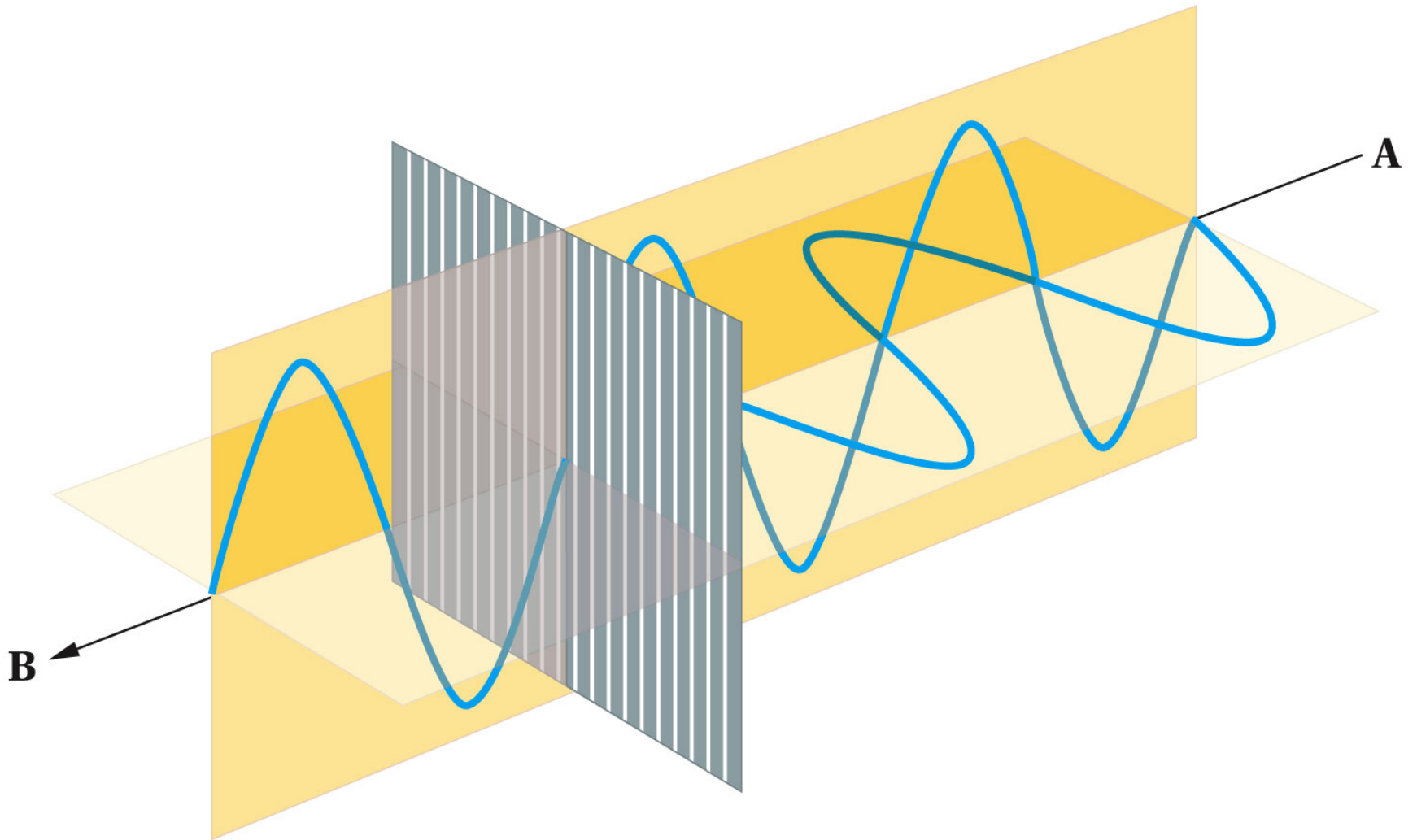


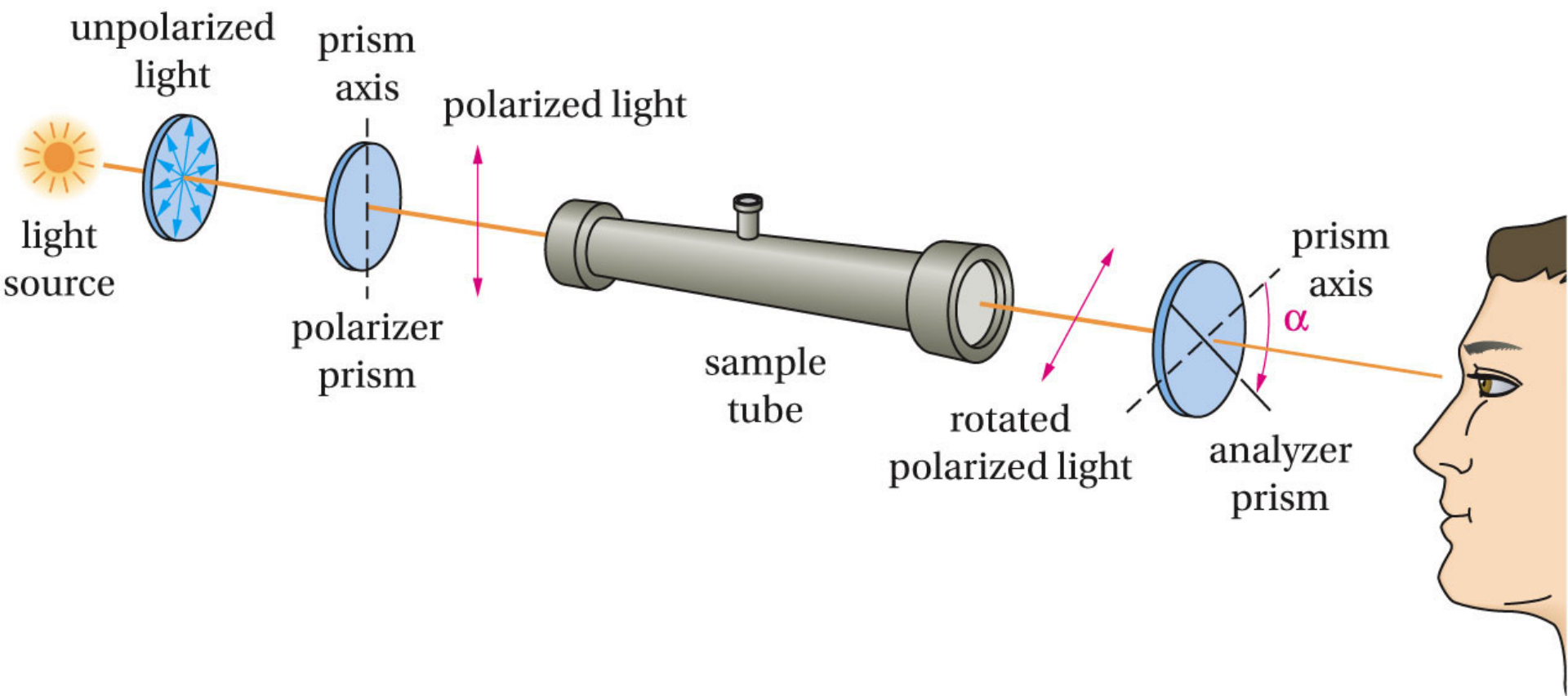
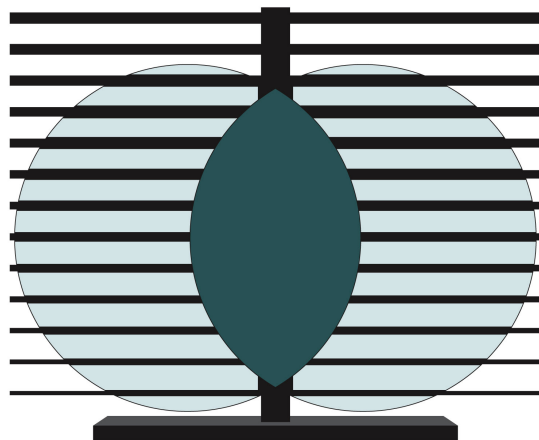
(*E*)-1-bromo-1-chloro-
2-methyl-1-butene

Name each compound by the E-Z system



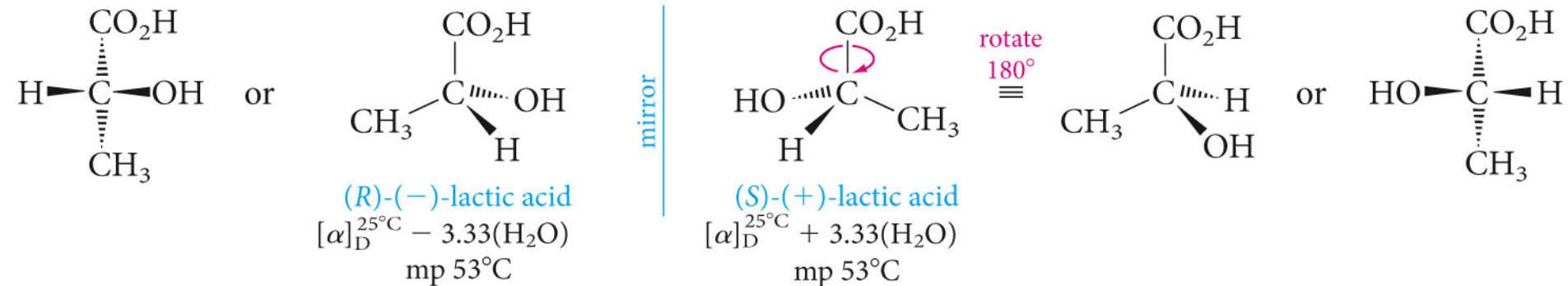
Polarized Light and Optical Activity

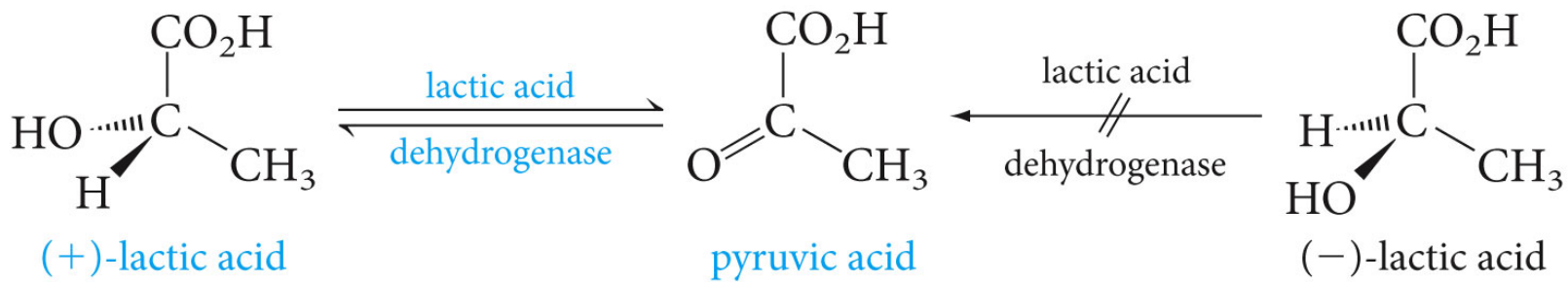
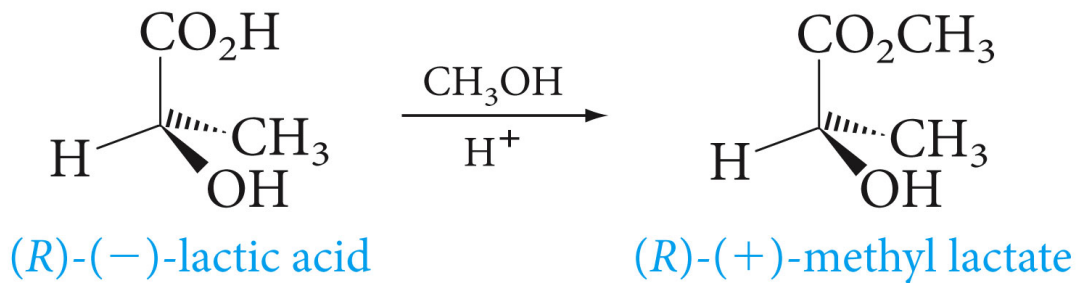




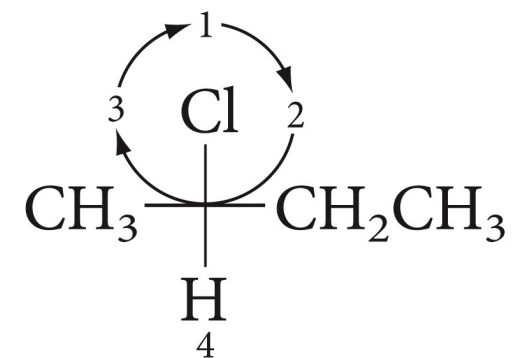
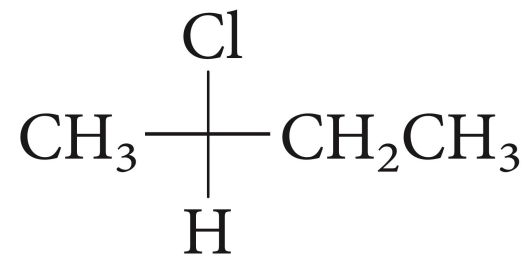
$$\text{Specific rotation} = [\alpha]_{\lambda}^t = \frac{\alpha}{l \times c} \text{ (solvent)}$$

Properties of Enantiomers

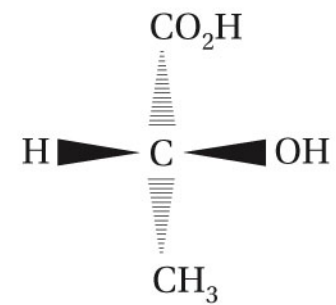




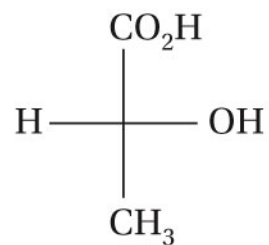
Fischer Projection Formulas



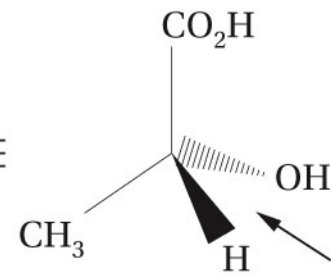
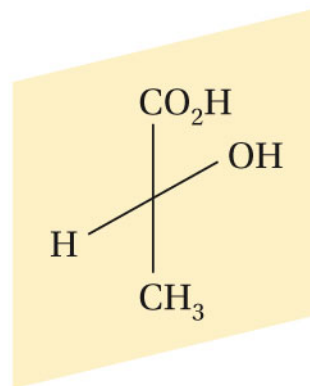
clockwise = *R*



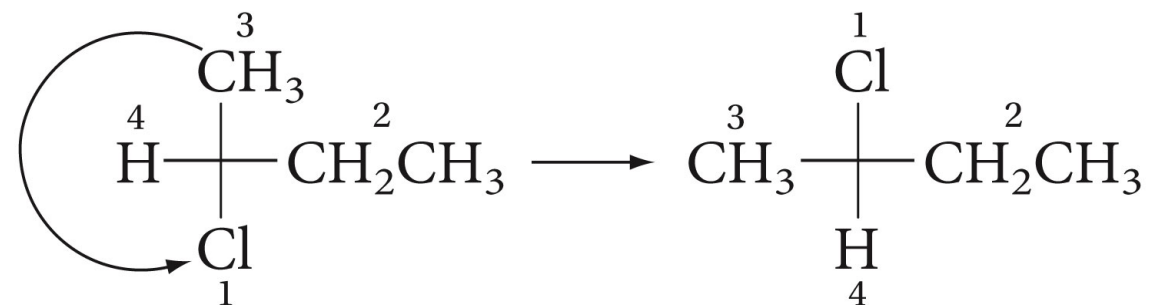
(R)-lactic acid



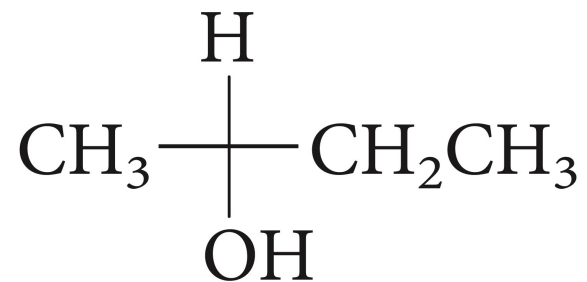
Fischer projection
formula of
(R)-lactic acid



(R)-lactic acid



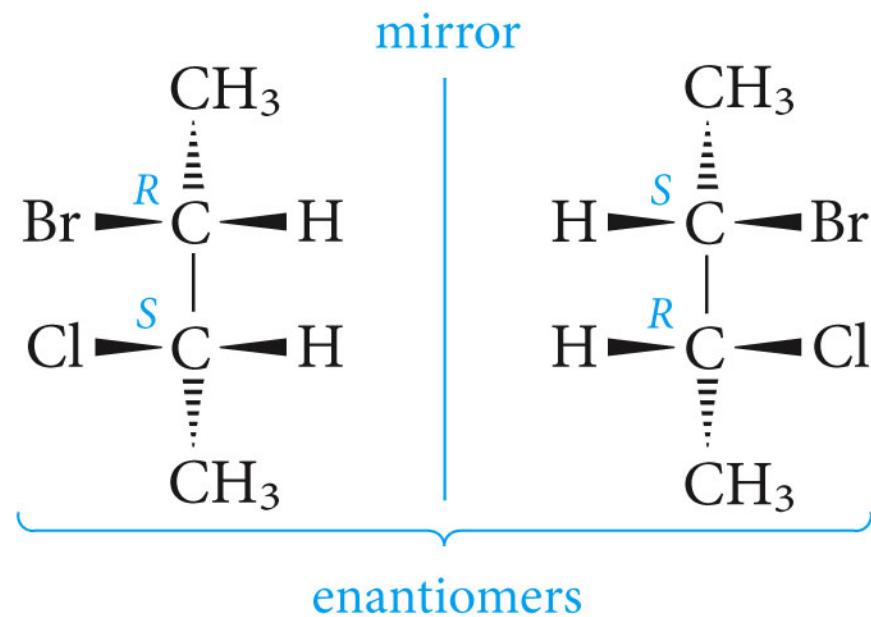
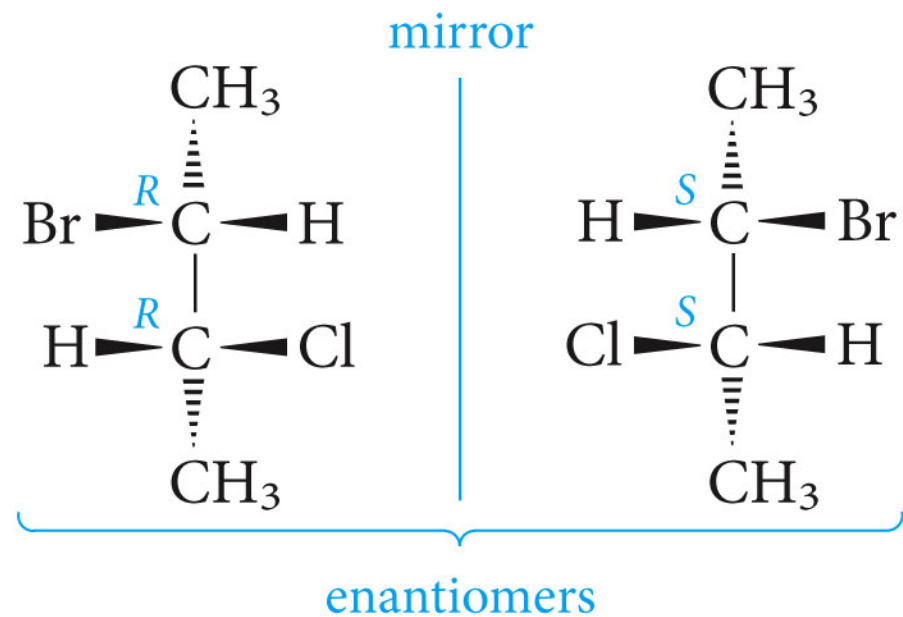
Determine the absolute configuration of of the following enantiomer of 2-butanol from its Fischer projection



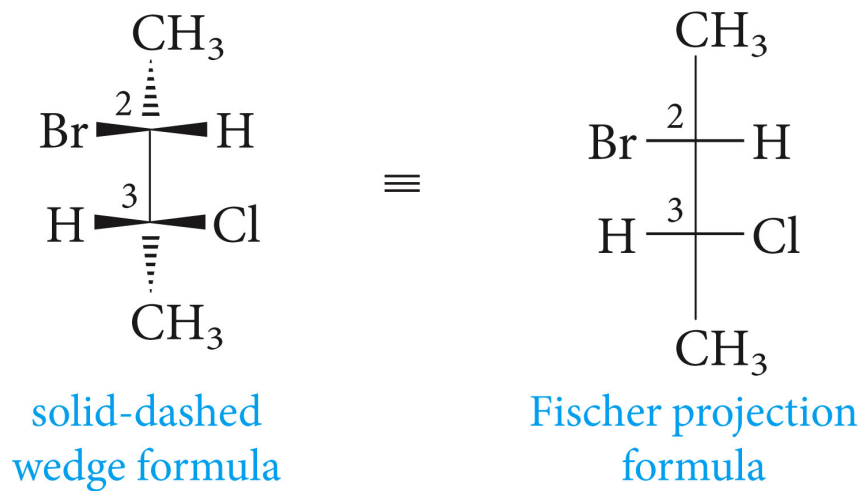
Compounds with More Than One Stereogenic Center; Diastereomers

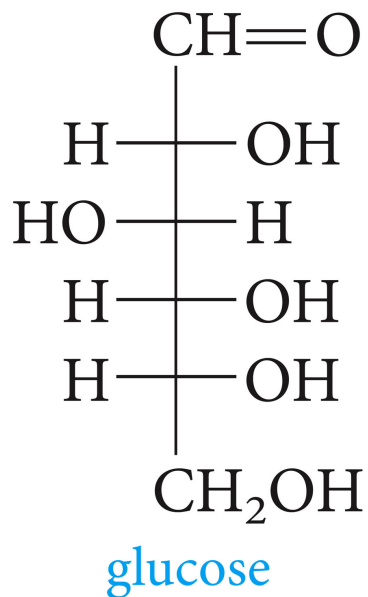


2-bromo-3-chlorobutane



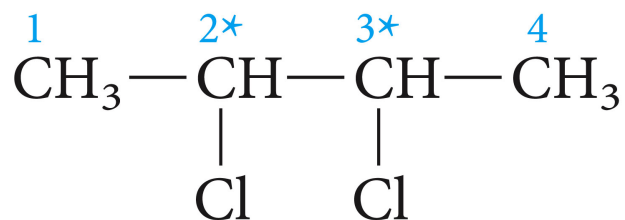
The four stereoisomers of 2-bromo-3-chlorobutane a compound with two stereogenic centers



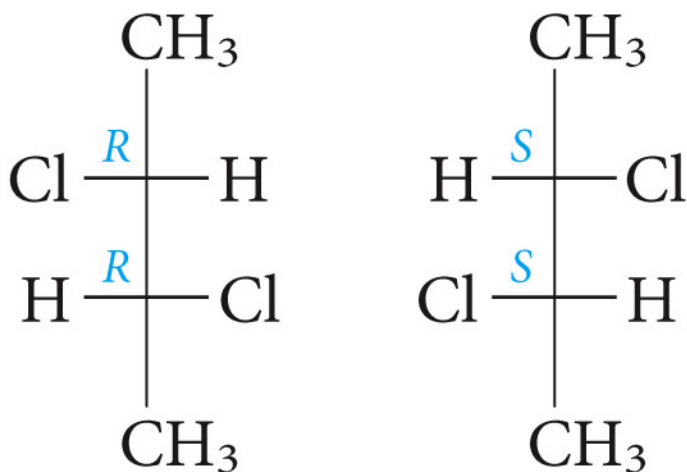


Given is the Fischer projection of glucose (blood sugar), how many stereoisomers of this sugar are possible?

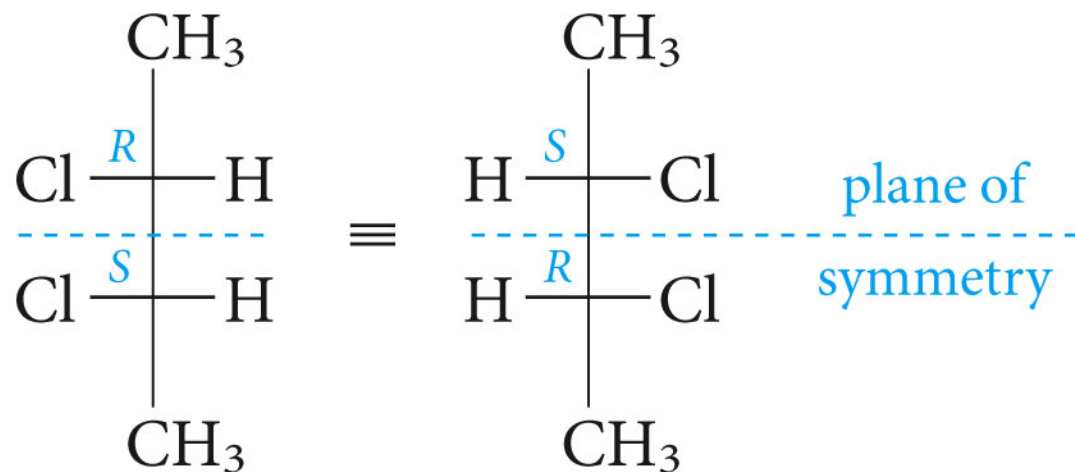
Meso Compounds; the Stereoisomers of Tartaric Acid



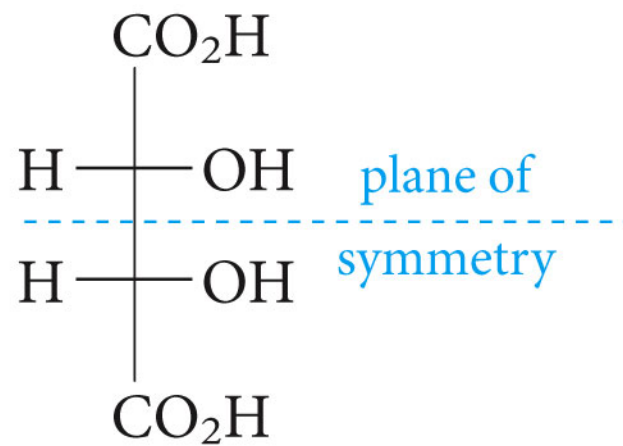
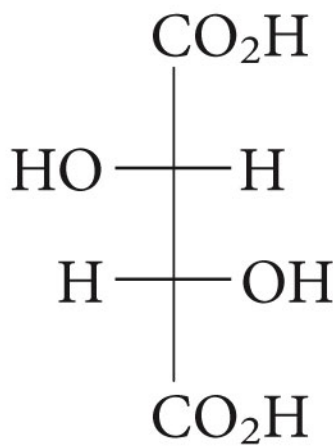
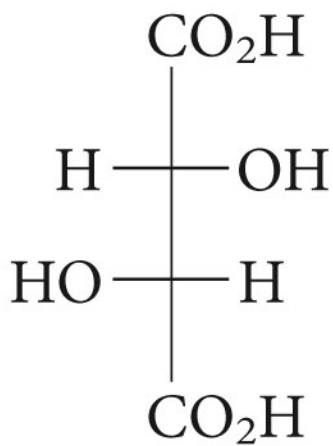
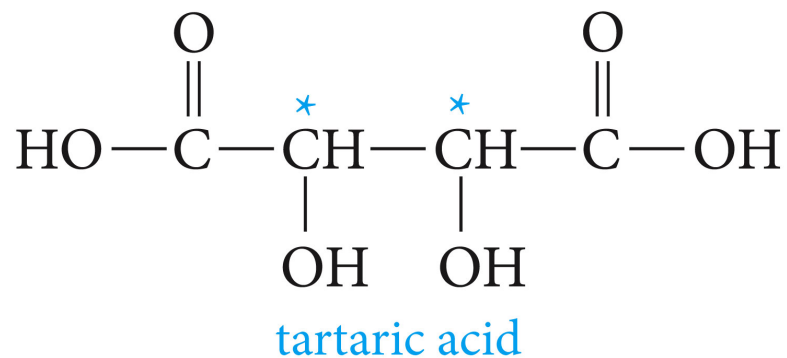
2,3-dichlorobutane



enantiomers, chiral



identical, achiral
a meso form



Configuration

(R,R)

(S,S)

meso (R,S)

$[\alpha]_D^{20}$ (H₂O)

+12

-12

0

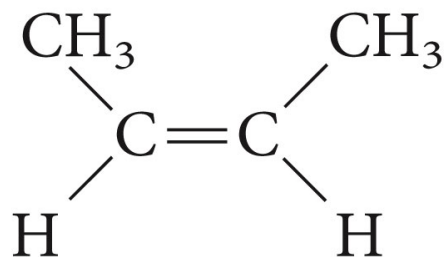
Melting point, °C

170

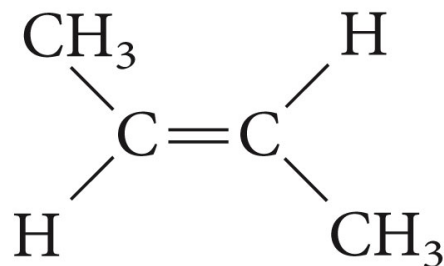
170

140

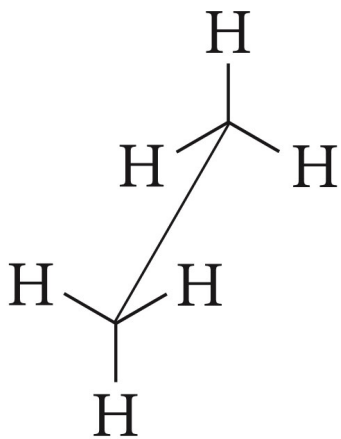
Stereochemistry A Recap of Definitions



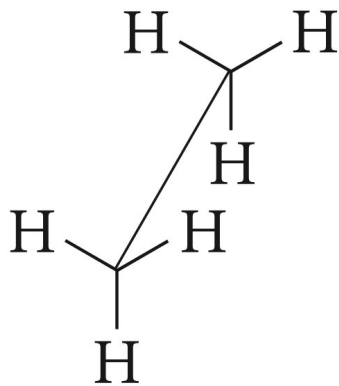
and



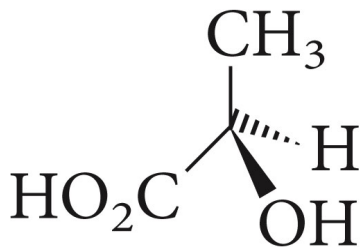
Cis-trans 2-butene (Z and E notation)



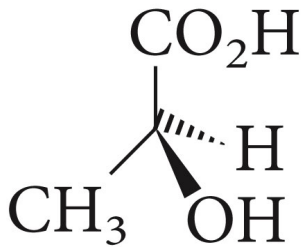
and



Staggered and eclipsed

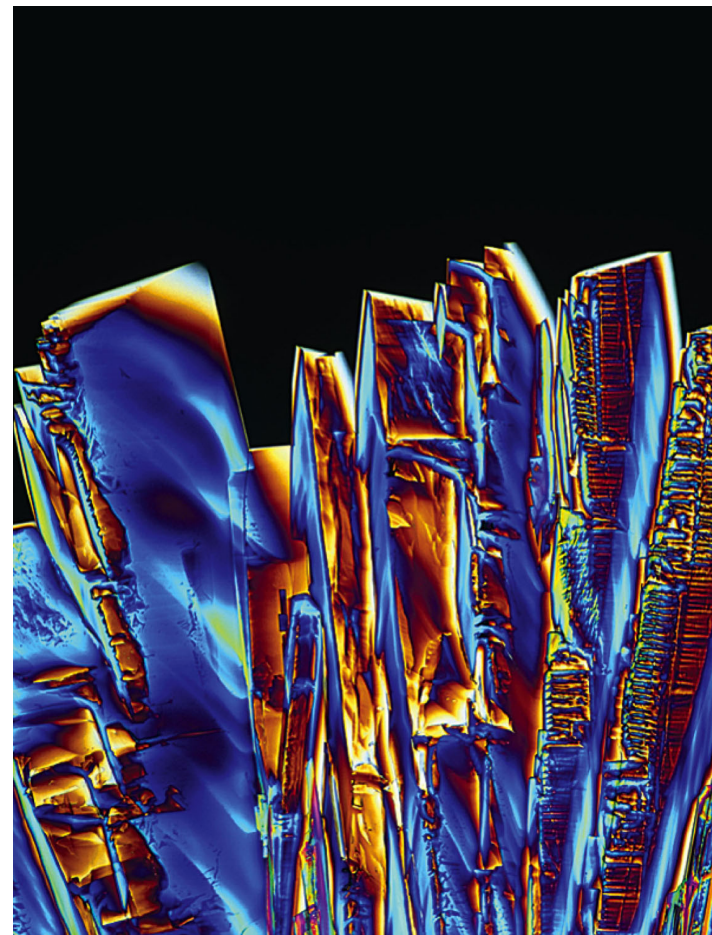
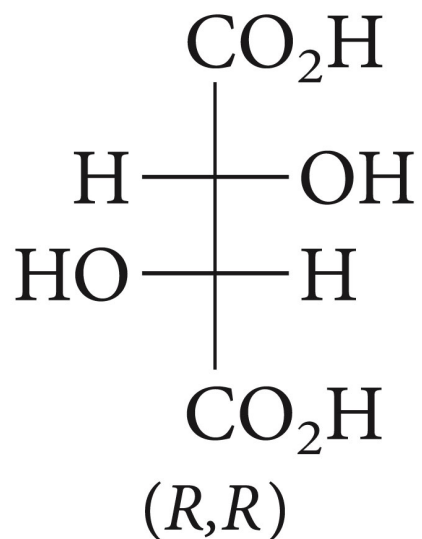
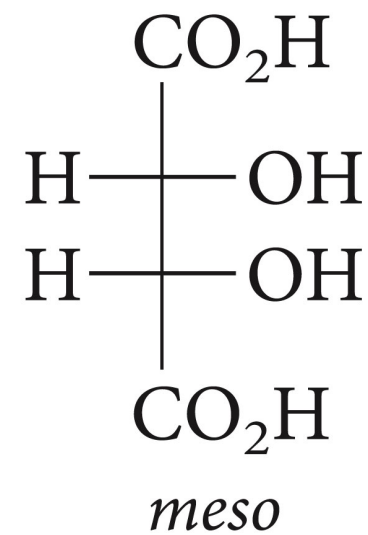


and



(R)- and (S)-lactic acids

Meso- and (RR)-tartaric acids



Tartaric acid crystals under polarized light