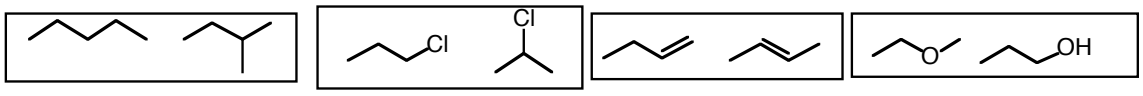
Classification of Isomers (2.7-2.8)

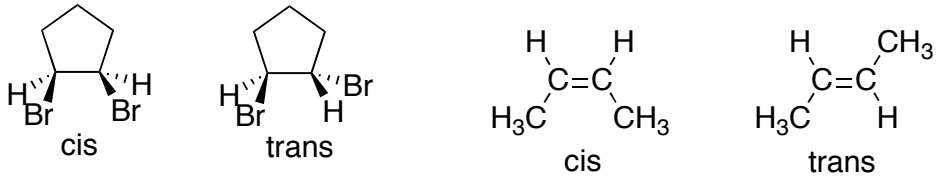
isomers-different compounds with the same molecular formula.

structural isomers (or constitutional isomers)-isomers that have their atoms connected in a different order.

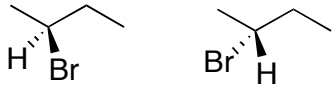


stereoisomers (or configurational isomers)-isomers in which atoms are joined in the same order but differ in the way their atoms are arranged in space.

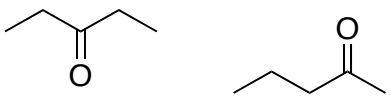
- Stereoisomers have the same condensed formula (if not, they aren't stereoisomers)
- Stereoisomers can not be interconverted by bond rotation or by being turned over
- If two things can be interconverted by bond rotation or being turned over, then they aren't stereoisomers!
- Stereoisomers are subdivided into two categories: **enantiomers** and **diastereomers**.
  - **Diastereomers**: have **cis/trans** relationship

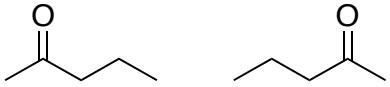


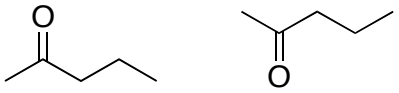
  - **Enantiomers**: have **mirror image** (left hand/right hand) relationship

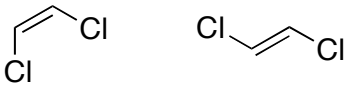


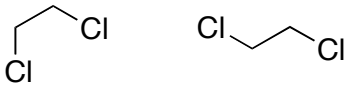
Problem: For the following pairs of structures, classify whether they are related as **same**, **structural isomers**, or **stereoisomers**.

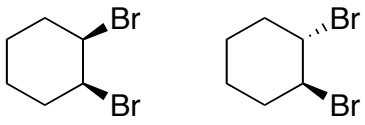
a. 

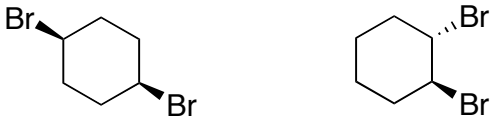
b. 

c. 

d. 

e. 

f. 

g. 

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