

Compounds must have the same molecular formula

If they have the same connectivity, they are a type of Constitutional Isomer.

If they don't, they are a type of Stereoisomer.

CONSTITUTIONAL ISOMERS

Same molecular formula

Atoms are bonded in different order

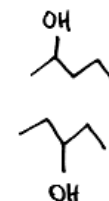
FUNCTIONAL GROUP ISOMERS

Different functional groups



POSITIONAL ISOMERS

Same functional groups but placed differently



If the Stereoisomers are superimposable, they are Diastereomers.

If the Stereoisomers are not superimposable, they are Enantiomers.

STEREOISOMERS

Same molecular formula

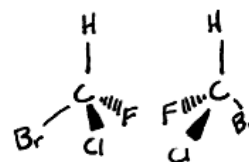
Same bonding order

3D configuration is different

ENANTIOMERS

Can make a mirror image

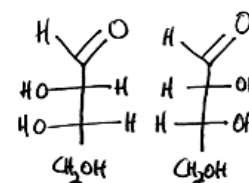
Nonsuperimposable



DIASTEREOMERS

Cannot make a mirror image

Nonsuperimposable

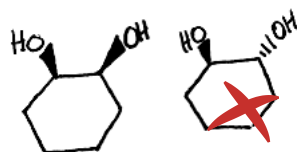


If the compounds have a plane of symmetry, they are Meso Compounds.

MESO COMPOUNDS

Have a plane of symmetry

Achiral



DETERMINING S AND R OF CHIRAL CARBON

1. Rank the atoms the carbon is attached to based off of number of protons.

2. Label most as 1, second as 2, and third as 3.

(Ties go to the atom that is attached to the most protons.)

3. Point your thumbs in the direction of the least highest priority.

4. The appropriate hand will have fingers pointing in the order of the numbers.

(Right = R and Left = S)