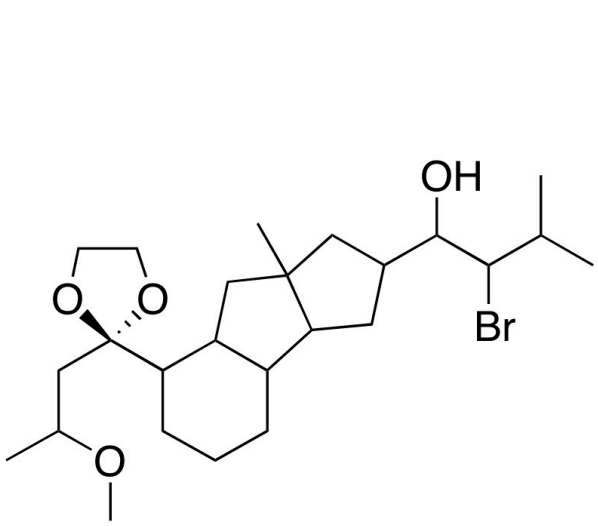
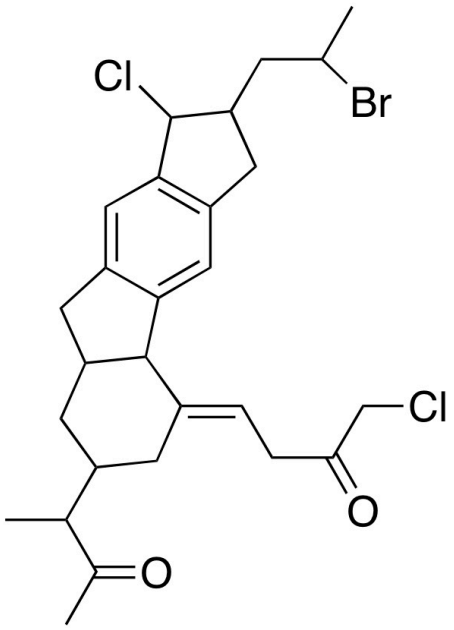
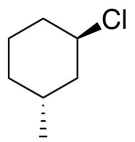
CEM 251, Problem Set 3: Chapter 3

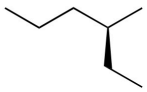
1.Use an asterisk (*) to indicate the chiral carbons in the following molecules.

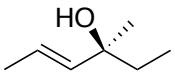


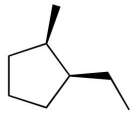


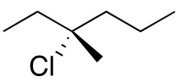
2. Determine R and S stereochemistry for all the stereocenters of the following molecules

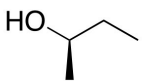


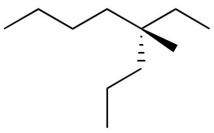


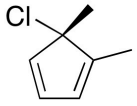


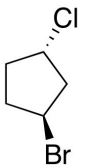


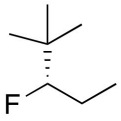


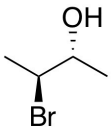


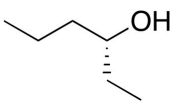




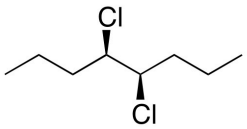


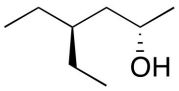


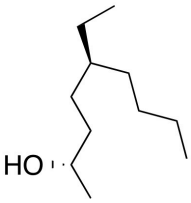


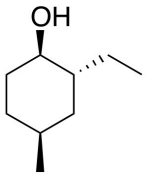


3. Give complete IUPAC names, including stereochemistry, for the following molecules:









4. Provide the correct structure for the following IUPAC names:

(3R,6R)-6-ethyl-3-hydroxy nonane

(1R,3R)-1-ethyl-3-methylcyclohexane

(1R,3R)-3-chlorocyclopentanamine

(2S,4R)-2-bromo-4-methylhexane

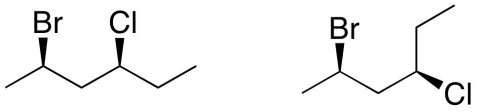
(2S, 4S)-2-chloro-4-methyl-hexane

(3S,4S)-3-methyl-4-chloro heptane

5. Indicate if the following pairs are constitutional isomers, diastereomers, enantiomers, or identical

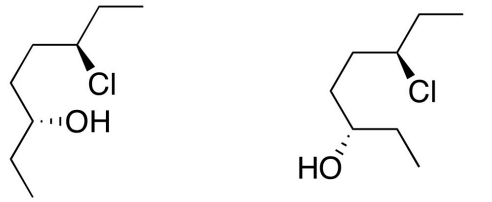
a.

c.



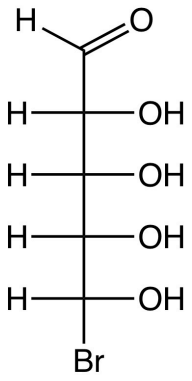
b.

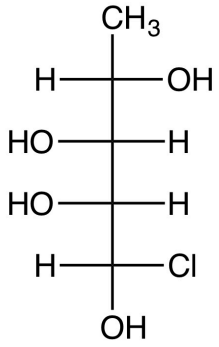
d.



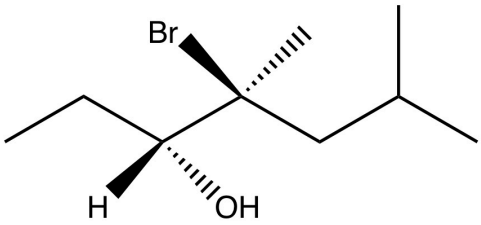
6. Draw all of the stereoisomers for 1,3-dimethylcyclopentane. Label each stereocenter as R and S. If a meso compound exists, circle it.

7. Determine the stereochemistry of each chiral carbon in the following molecules:

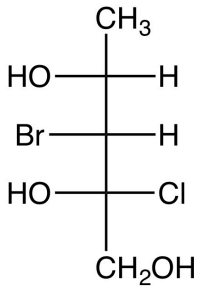




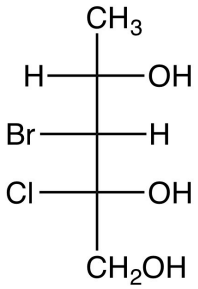
8. Convert the following molecule into a correct Fisher Projection.

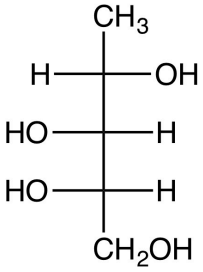


9. What is the relationship between the following pairs of molecules
(Choices: Identical, Enantiomers, Diastereomers)



vs





vs