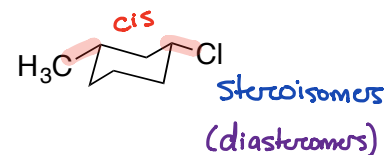
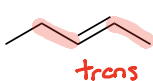
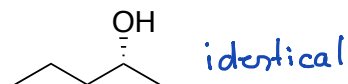
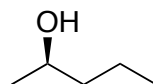
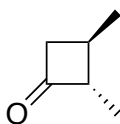
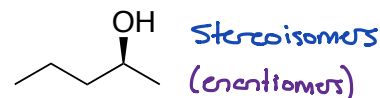
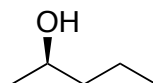
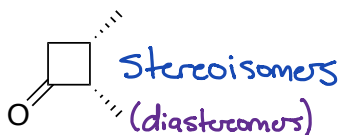
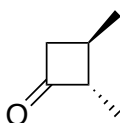
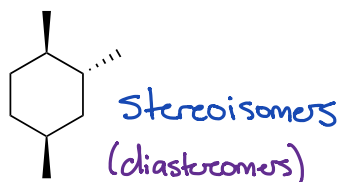
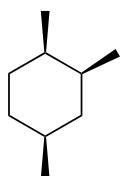


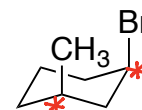
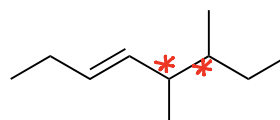
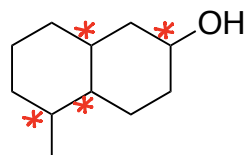
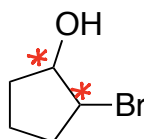
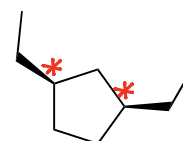
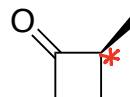
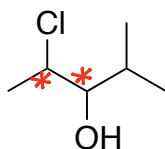
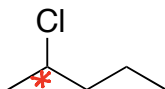
Answer Key

Chemistry 233 Chapter 5 Problem Set

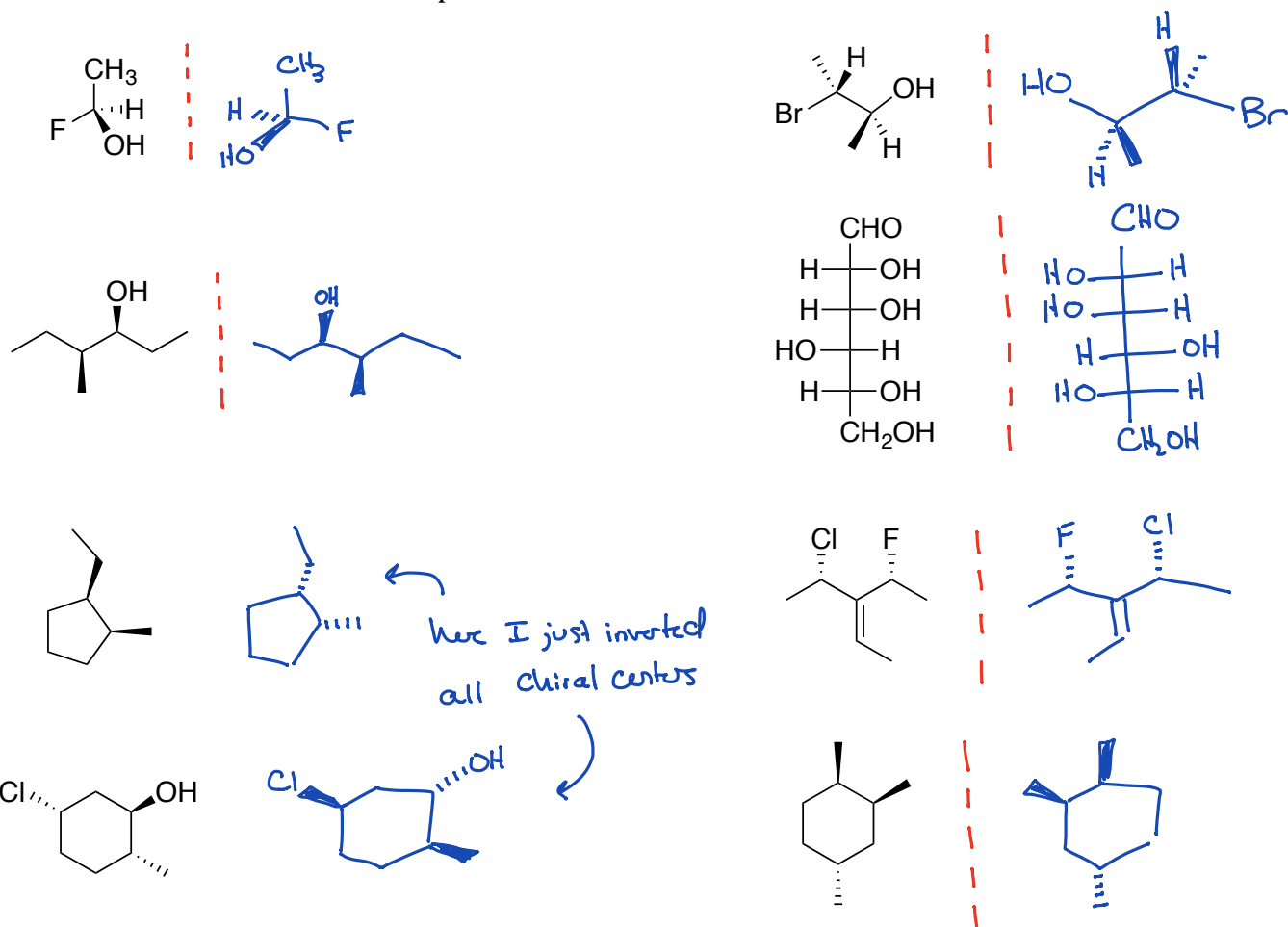
- 1) For each of the following pairs of compounds, determine whether they are identical, constitutional isomers, or stereoisomers. If stereoisomers – specify whether they are enantiomers or diastereomers.



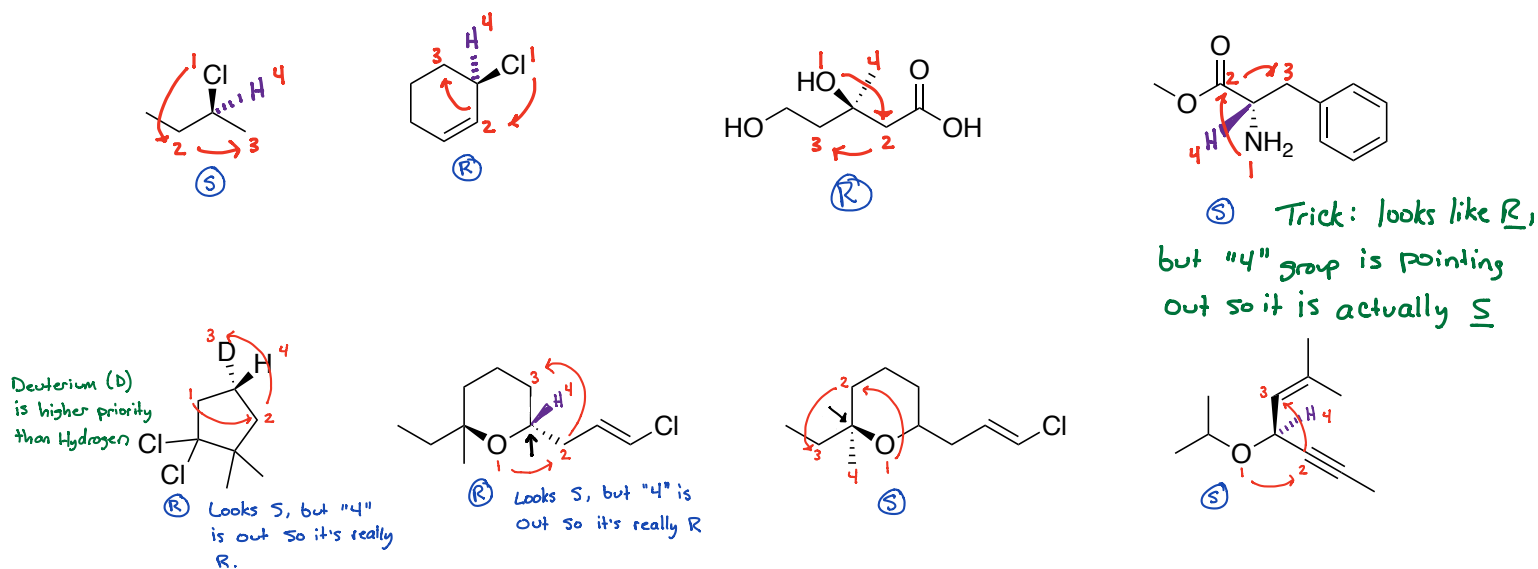
- 2) For each compound below, identify all chirality (asymmetric) centers with an asterisk (*).



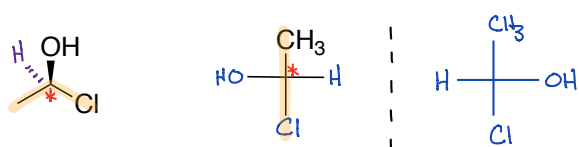
3) Draw the enantiomer of each compound below. → either draw the mirror image or invert all chiral centers



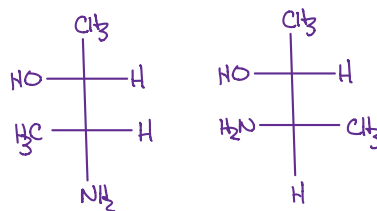
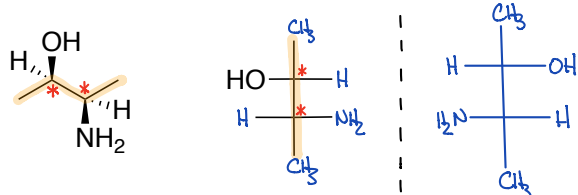
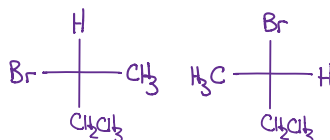
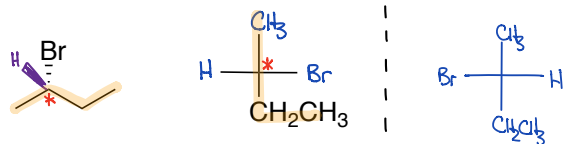
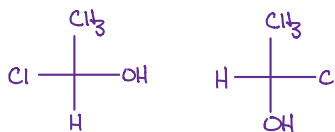
4) Assign an R/S configuration to each chiral center in the compounds below.



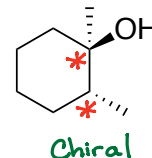
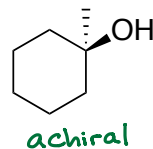
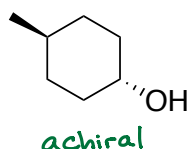
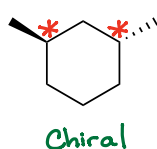
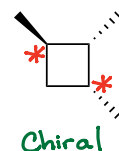
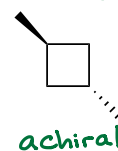
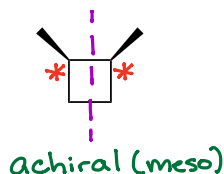
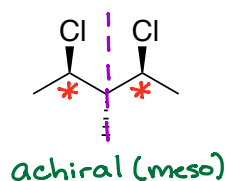
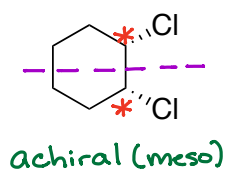
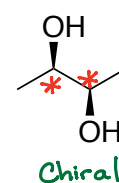
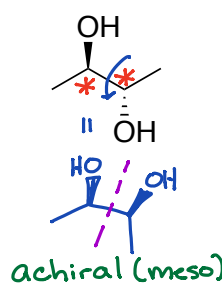
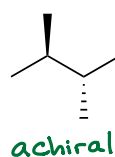
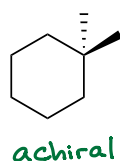
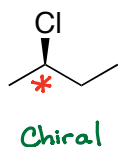
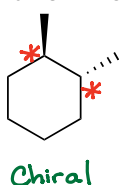
- 5) Convert each compound below to a Fischer Projection using the templates provided. Then, identify each chiral center with an asterisk (*) and draw the enantiomer.



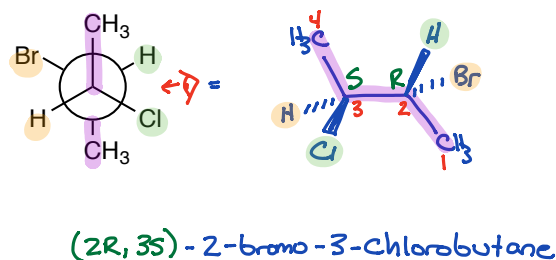
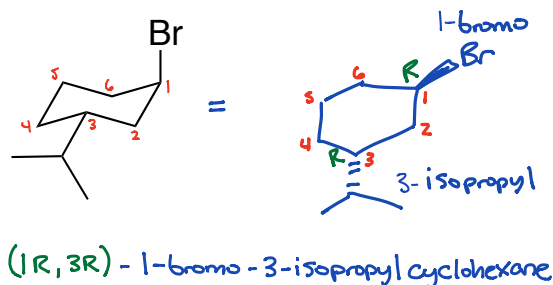
Other Acceptable answers for 1st Structure:

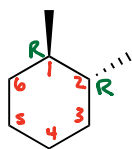


- 6) Identify all asymmetric centers in the molecules below and classify the molecule as chiral, achiral or meso-achiral.

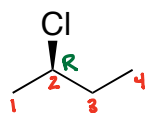
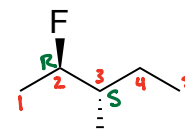


- 7) Give an IUPAC name for each of the compounds below. Make sure to include R/S designations.

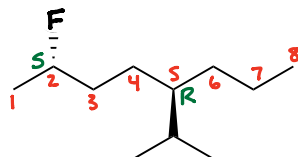




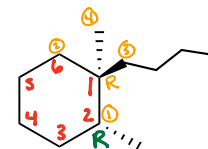
(1R,2R)-1,2-dimethylcyclohexane

(R)-2-chlorobutane
or
(2R)

(2R,3S)-2-fluoro-3-methylpentane



(2S,5R)-2-fluoro-5-isopropyloctane

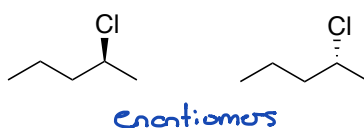


(1R,2R)-1-butyl-1,2-dimethylcyclohexane

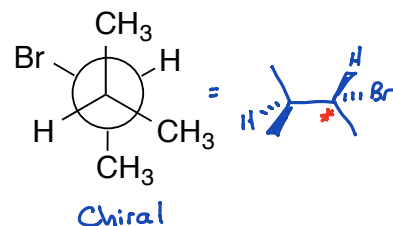
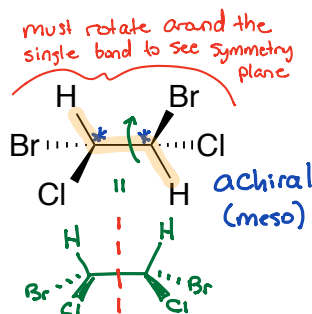
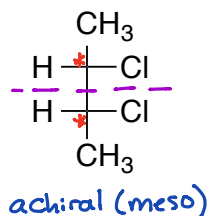
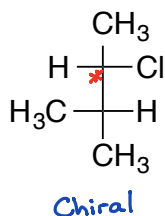
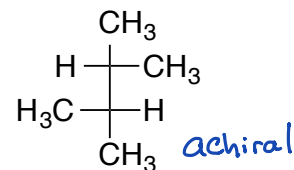
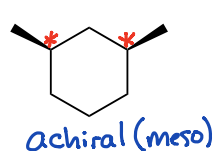
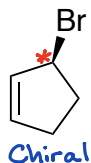
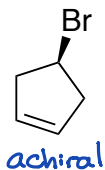
8) Indicate the relationship between each of the compound pairs below. Are they enantiomers, diastereomers, constitutional isomers, or identical compounds?



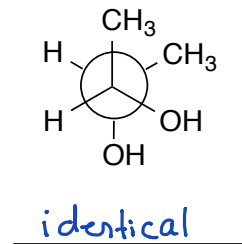
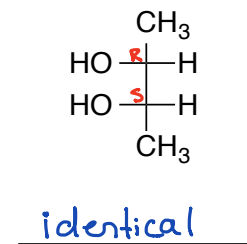
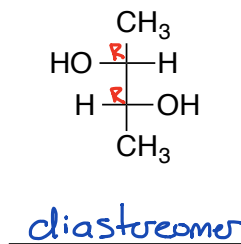
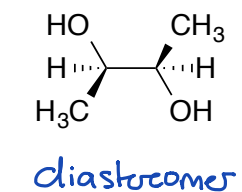
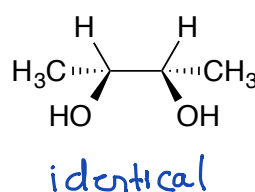
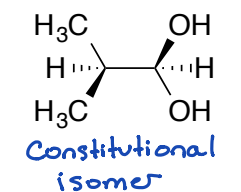
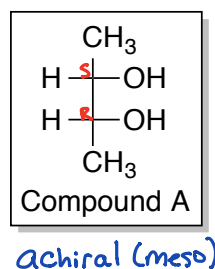
These are two different conformations



9) Label each of the following as chiral, achiral, or meso-achiral.

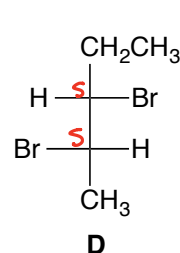
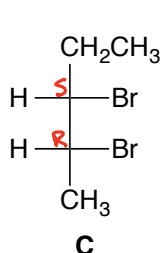
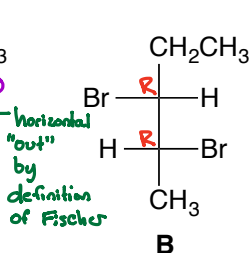
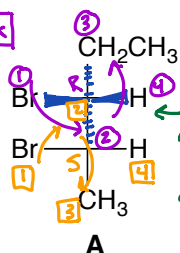


10) Give the relationship between Compound A and each the six compounds shown below.



11) Answer each of the following questions using the Fischer projections below.

Use trick
looks like
S, but "4"
is out so
really R



- Identify the asymmetric centers in each.
- Label the R/S configurations at each asymmetric center.
- Identify a pair of enantiomers A+C B+D
- Identify a pair of diastereomers A+B, B+C, A+D, C+D
- Which if any of the above compounds are meso compounds?

None