

1. (10 pts.) Mark the following statements True or False

T Chiral molecules change the plane of polarization of polarized light.

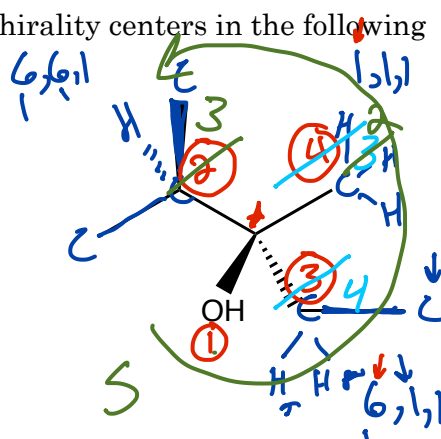
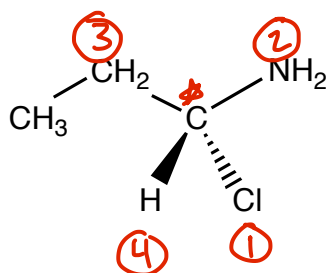
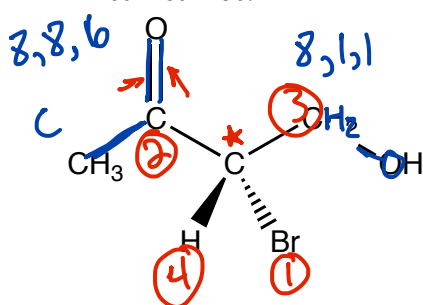
T A molecule must be chiral to have an enantiomer.

F *enantiomers*
Diastereomers are nonsuperposable mirror images of each other.

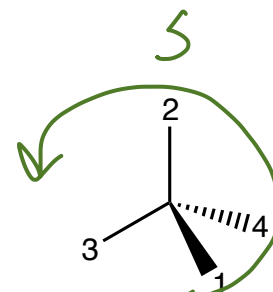
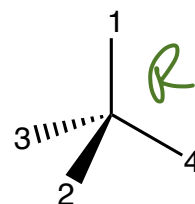
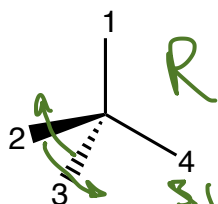
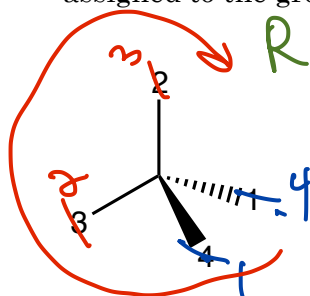
F Enantiomers typically have different melting points. *same physical properties*

T Diastereomers typically have different boiling points. *diff physical properties*

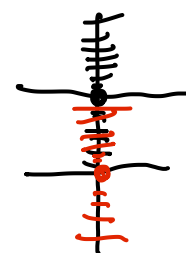
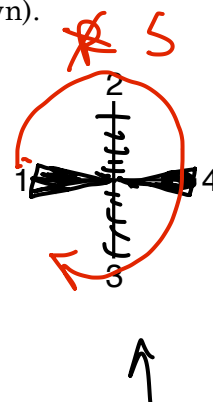
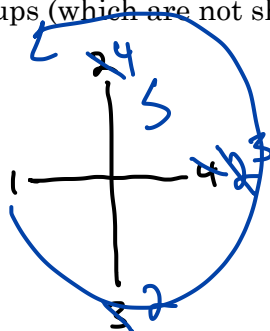
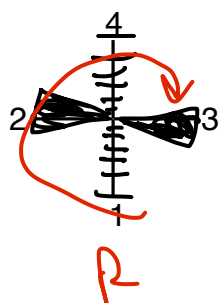
2. (12 pts.) Assign priorities to the groups/atoms bonded to the chirality centers in the following structures.



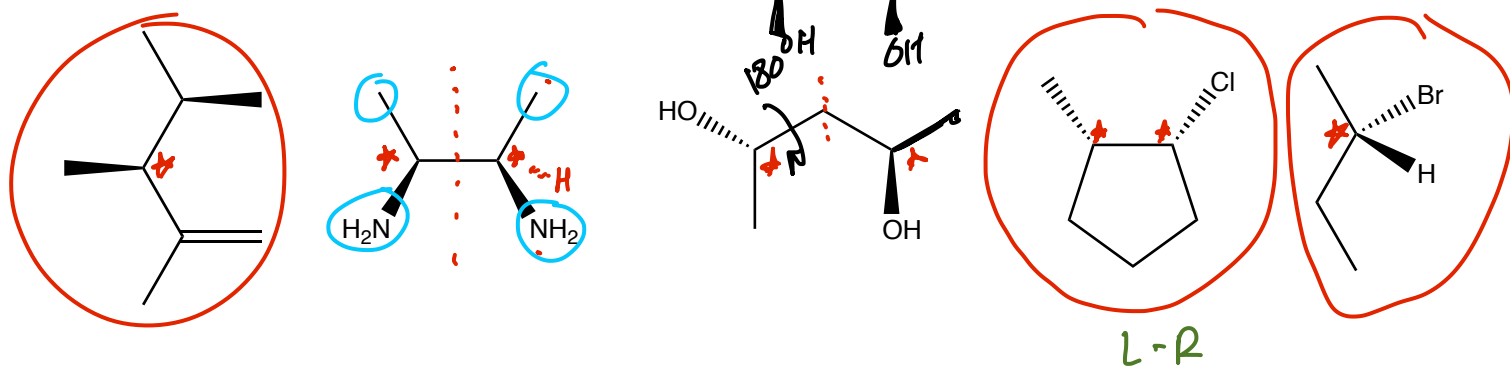
3. (8 pts.) Determine the configurations of the chiral centers drawn below. Priorities have been assigned to the groups (which are not shown).



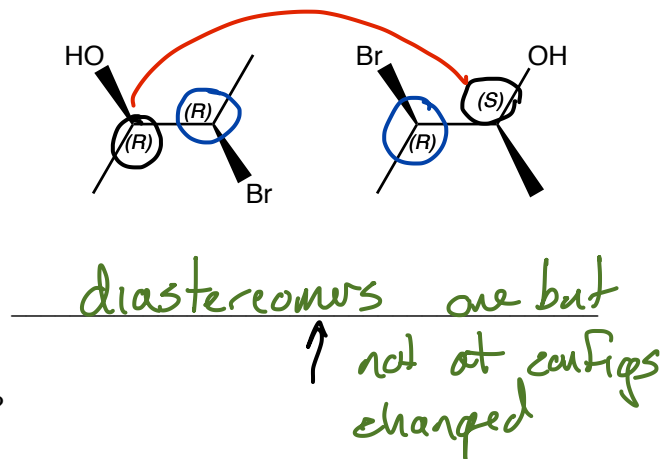
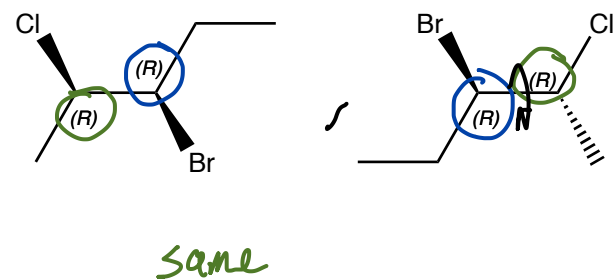
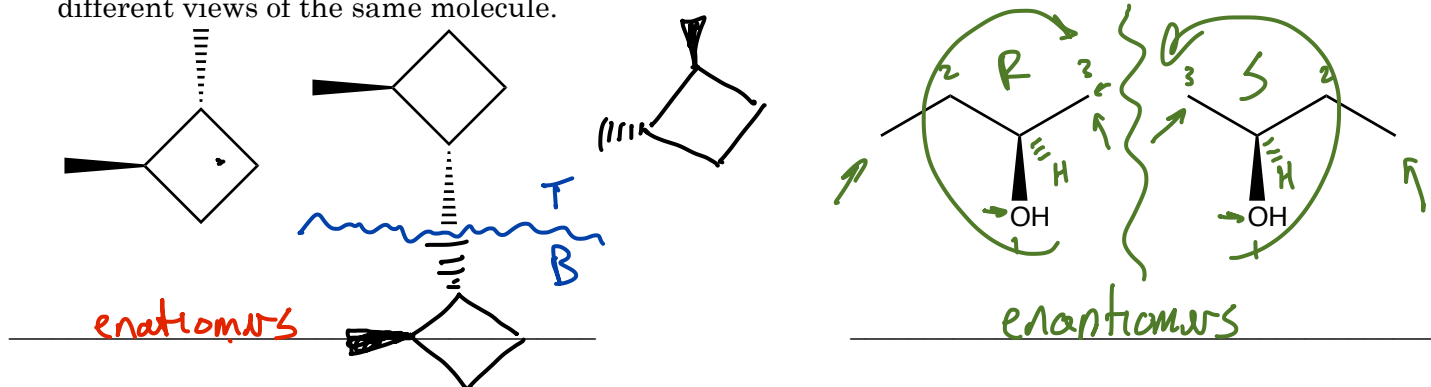
4. (4 pts.) Determine the configurations of the chiral centers on the Fischer projections drawn below. Priorities have been assigned to the groups (which are not shown).



5. (10 pts.) Circle the chiral molecules.

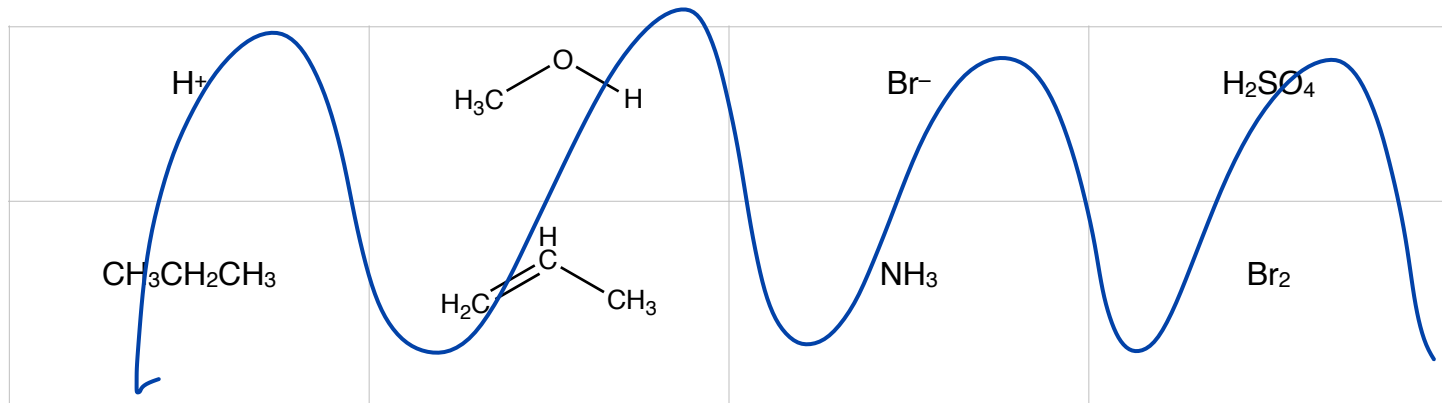


6. (12 pts.) Determine whether the following pairs of structures are enantiomers, diastereomers, or different views of the same molecule.

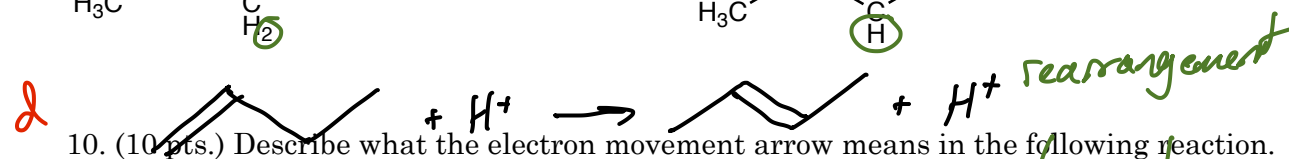
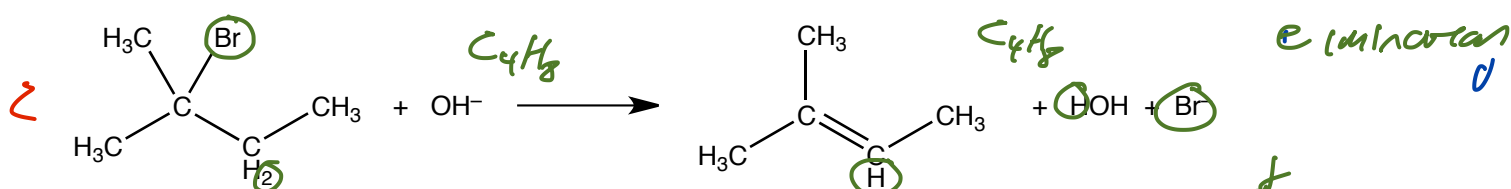
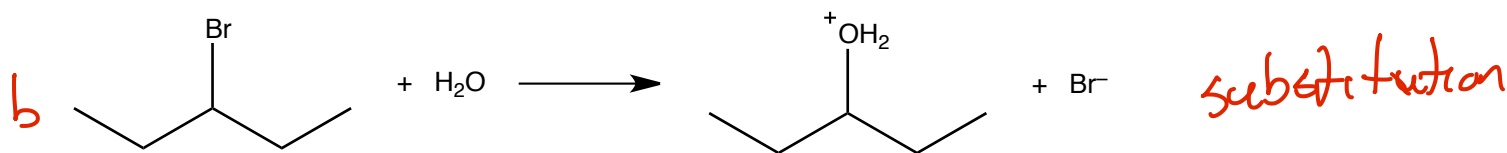
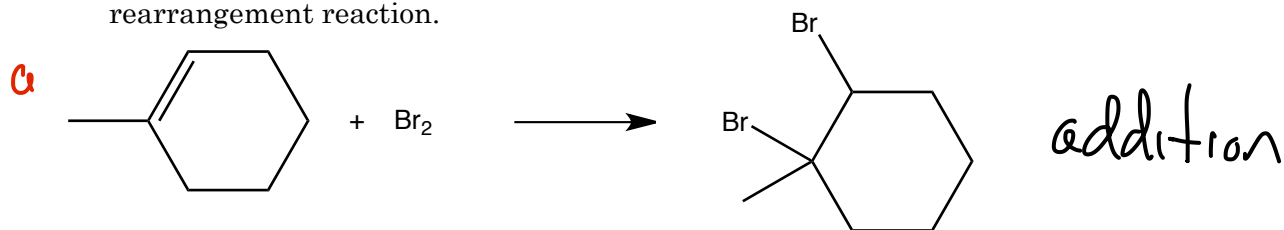


7. (6 pts.) Electrophiles are electron rich or electron deficient?

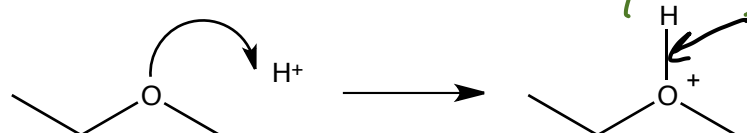
8. (12 pts.) Determine whether the following molecules/ions are likely to act as nucleophiles, electrophiles, or neither.



9. (9 pts.) Classify the following reactions as a substitution, an addition, an elimination, or a rearrangement reaction.



10. (10 pts.) Describe what the electron movement arrow means in the following reaction.



lone pair e^- 's on O are being used to form an O to H bond

11. (9 pts.) Draw electron movement arrow(s) for the following reactions.

