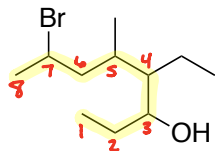
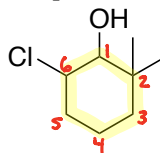


Answer Key
Chemistry 234
Chapter 17 Problem Set

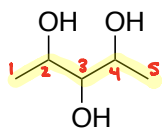
1. Determine the IUPAC name for each alcohol-containing compound shown below.



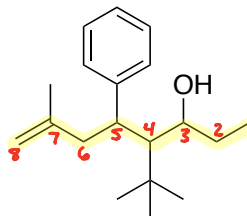
7-bromo-4-ethyl-5-methyl-3-octanol
 or
 octan-3-ol



6-chloro-2,2-dimethylcyclohexanol



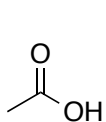
2,3,4-pentanetriol
 3 OH's
 alcohol
 keep e when using di, tri, etc



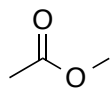
OH gets priority over alkene
 Parent = #-alken-#-ol
 or
 alk-#-en-#-ol

4-t-butyl-7-methyl-5-phenyl-7-octen-3-ol

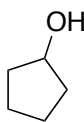
2. For each compound below, list the type(s) of intermolecular forces that are present. Hydrogen Bonding (HB); Dipole-Dipole Interactions (DD); van der Waals Interactions (VDW)



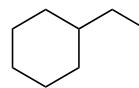
VDW
 DD
 HB



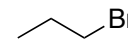
VDW
 DD



VDW
 DD
 HB

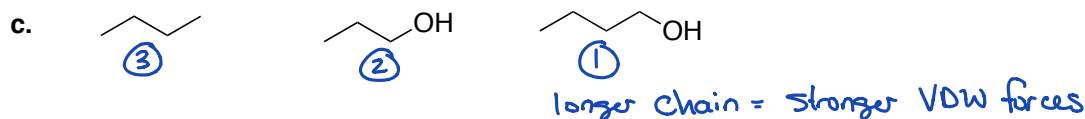
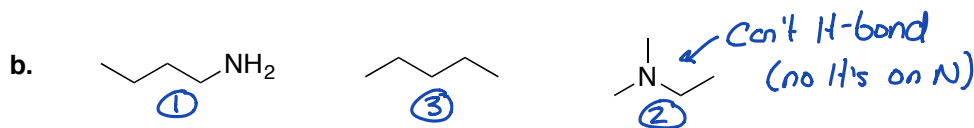
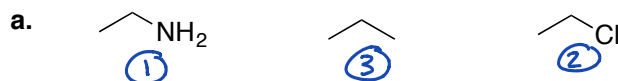


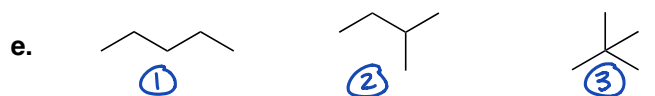
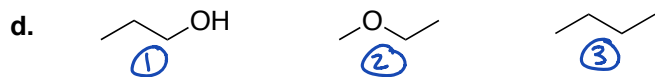
VDW



VDW
 DD

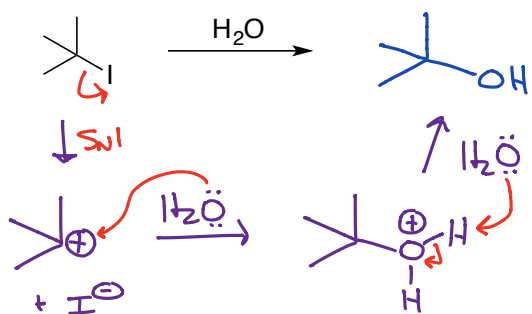
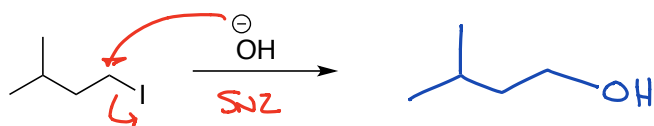
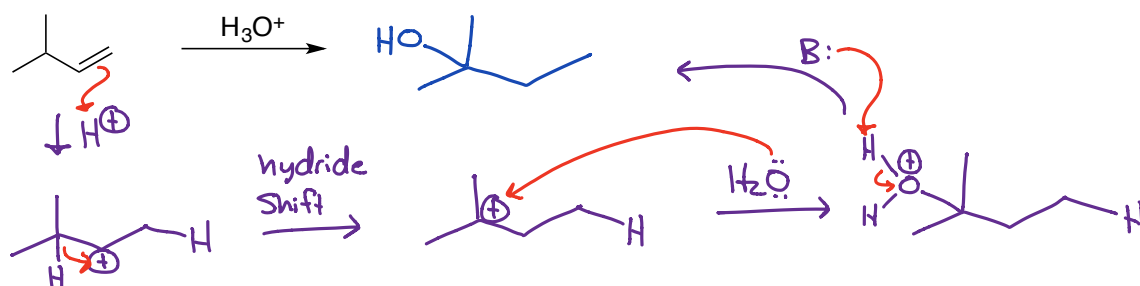
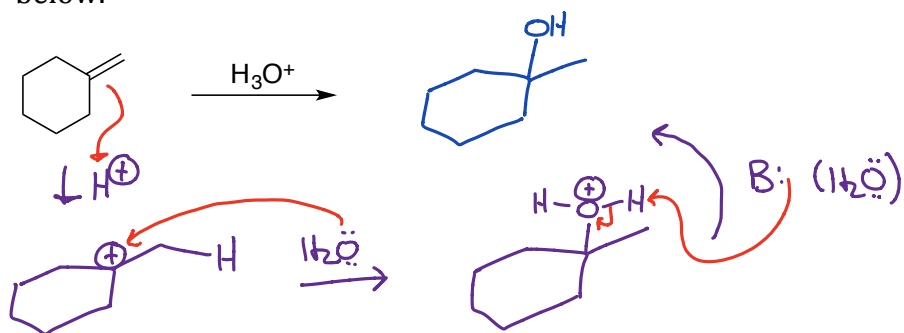
3. For each series of compounds below, rank the compounds in order of increasing boiling point. Label the compound with the highest bp as "1" and the lowest bp as "3."



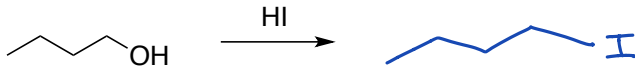
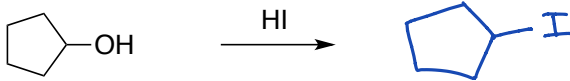
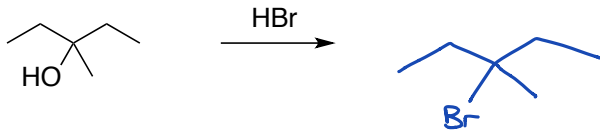


Surface area \rightarrow VDW forces \downarrow
with increased branching

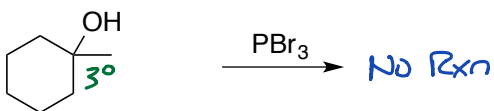
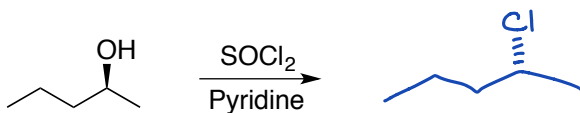
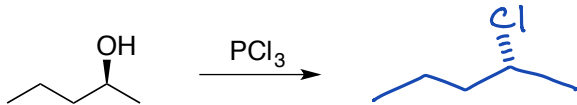
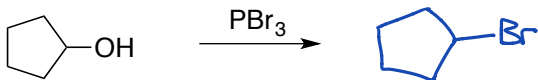
4. Write the major organic product and the complete reaction mechanism for each reaction shown below.



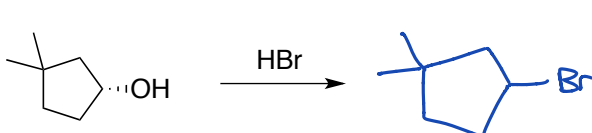
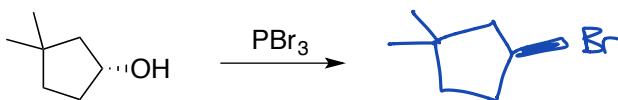
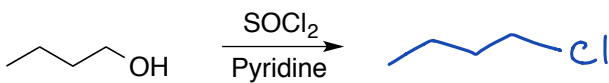
5. Draw the major organic product for the reaction of each alcohol below with the given acid.



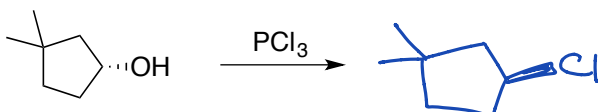
6. Predict the major organic product for each reaction below. If the reaction does not proceed under the specified conditions, write No Reaction.



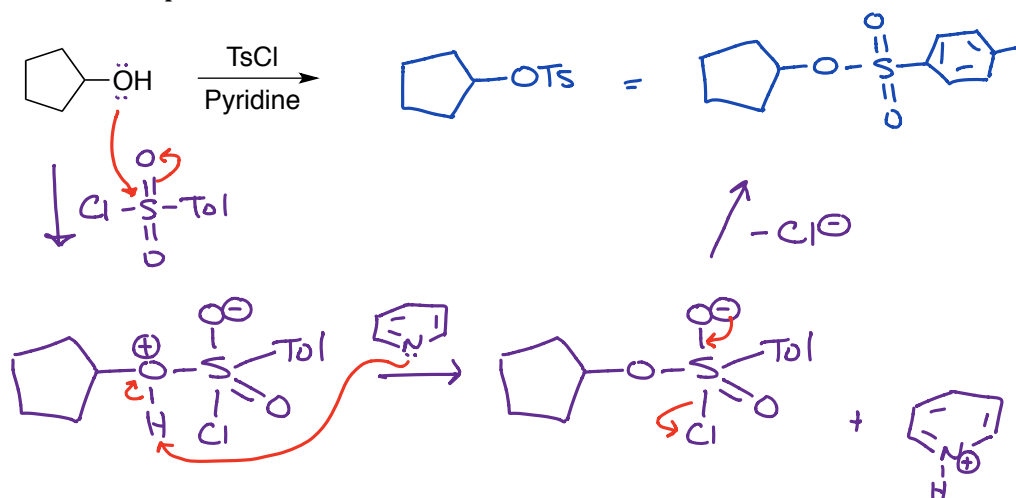
PBr₃ mechanism is S_N2. 3° substrates don't undergo S_N2 reactions



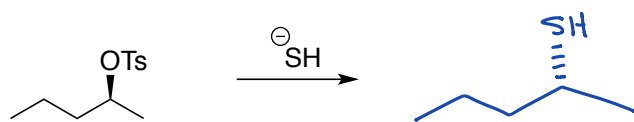
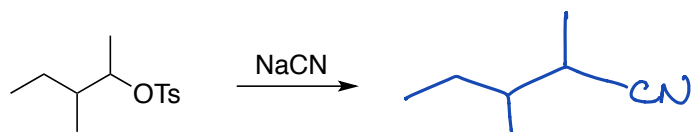
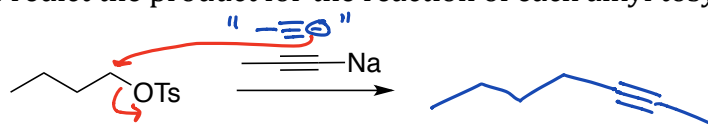
acidic conditions → Complete retention of stereochem. Get a mix of inversion + retention



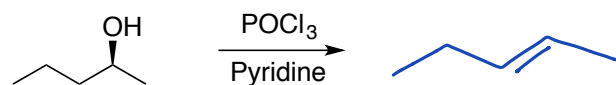
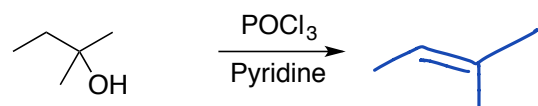
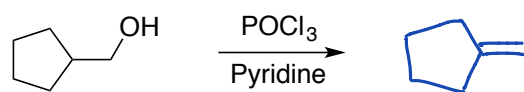
7. Predict the products and show the mechanism for the reaction below.



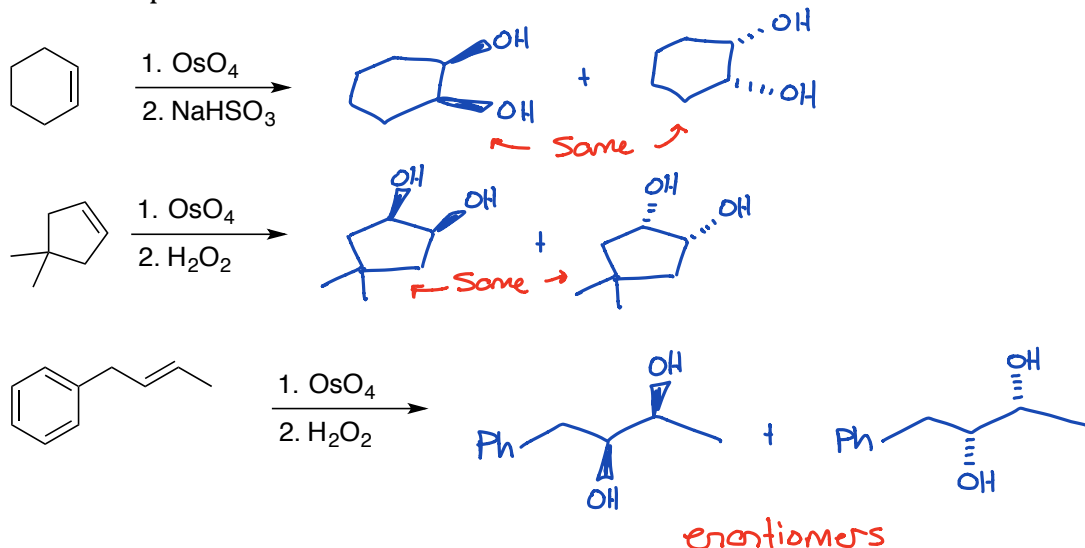
8. Predict the product for the reaction of each alkyl tosylate below.



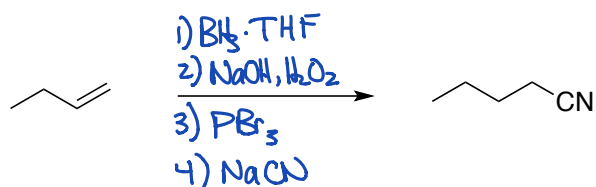
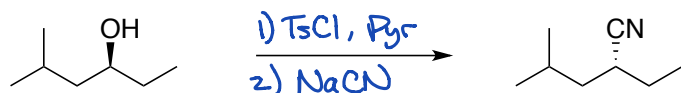
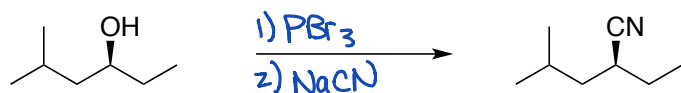
9. Predict the major organic product for each dehydration reaction shown below.



10. Predict the product for each of the reactions below.



11. Provide the necessary reagents to accomplish the following transformations.



12. Explain the different products that you get by varying the reaction conditions below.

