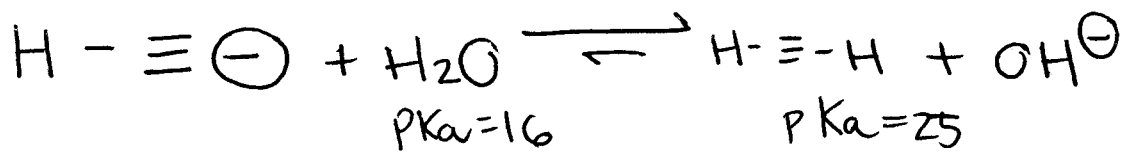


Problem Set V - KEY -

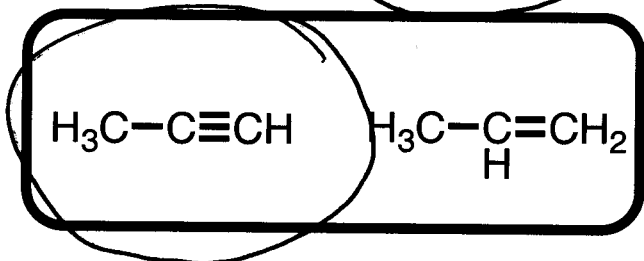
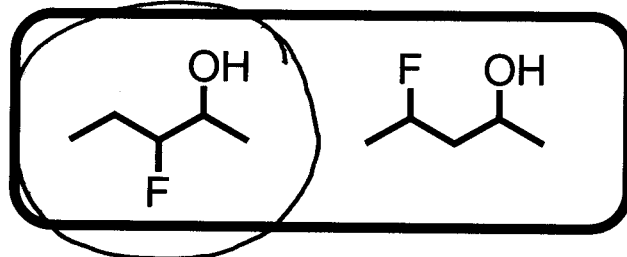
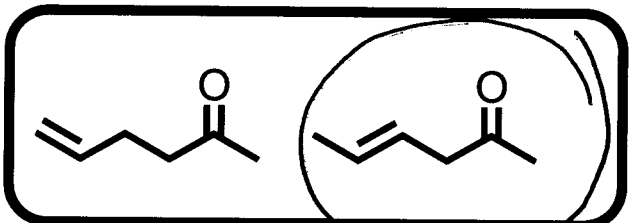
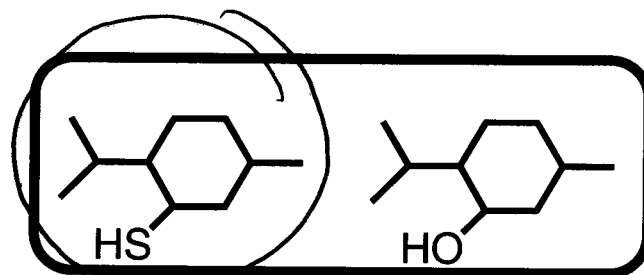
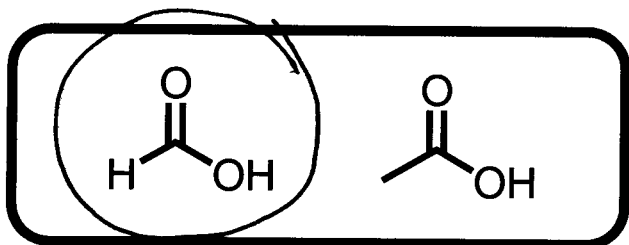
Cari Pentecost
Sections C, D, E
cari@chem.ucla.edu

1. Given that the pKa of acetylene is 25, and the pKa of water is 16, write out the reaction that occurs between the acetylide anion and water. State whether the reaction will proceed as written and why.

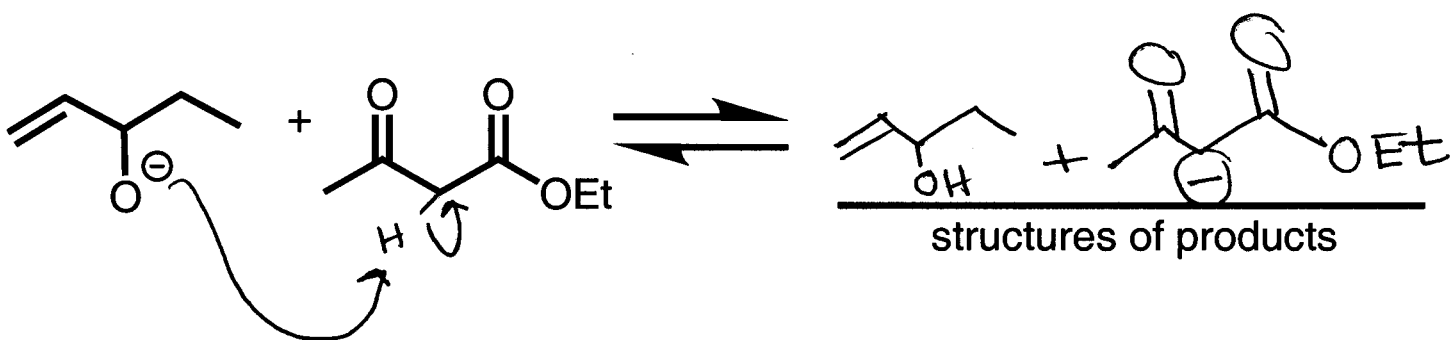


yes... equilibrium lies in the direction of greater pKa
 $p(K_{eq}) = 10^{-(16-25)} \Rightarrow 10^9$

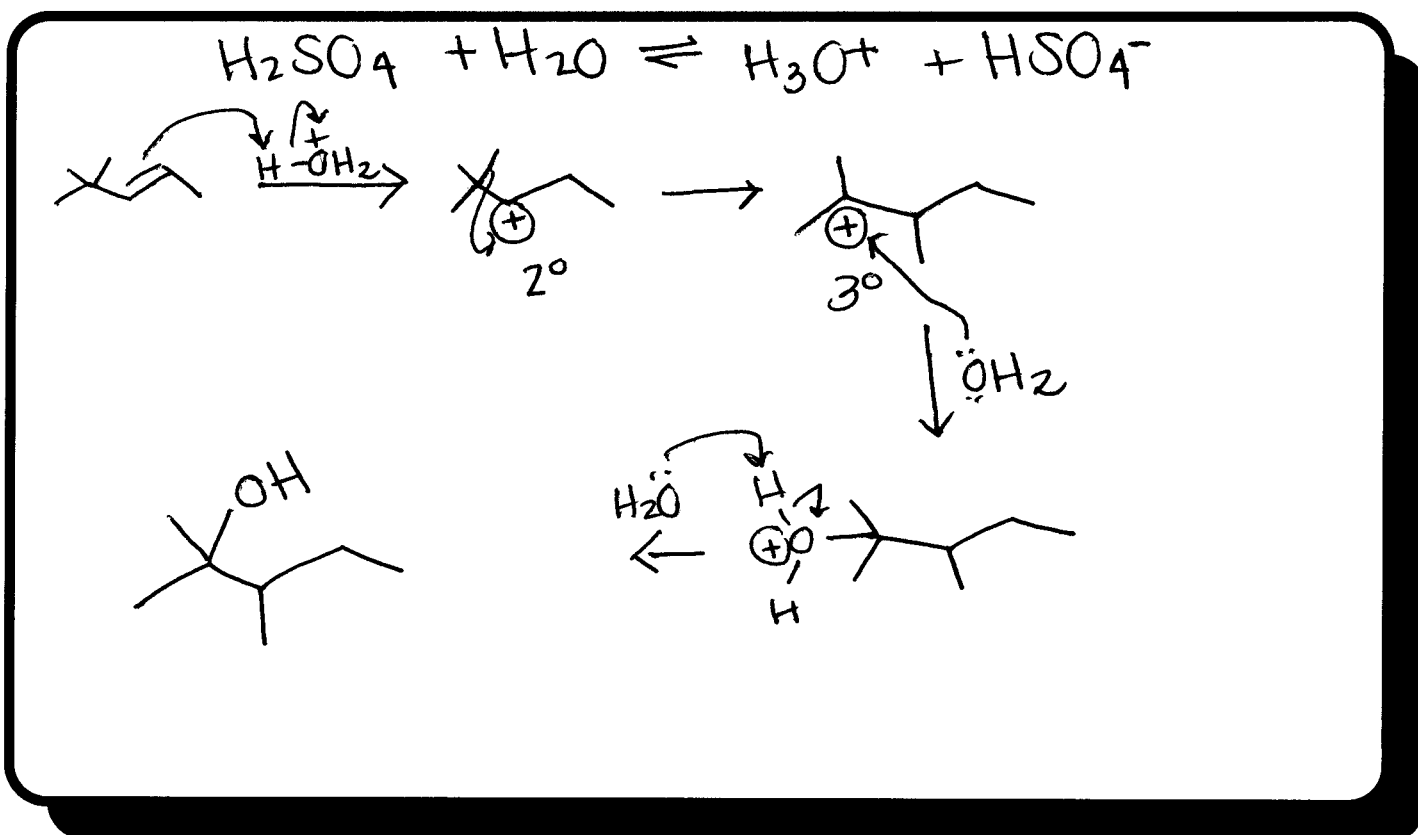
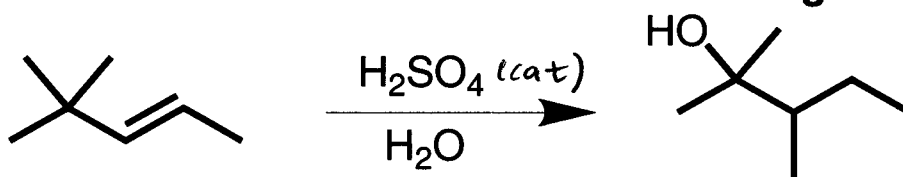
2. Circle the strongest acid of each pair.



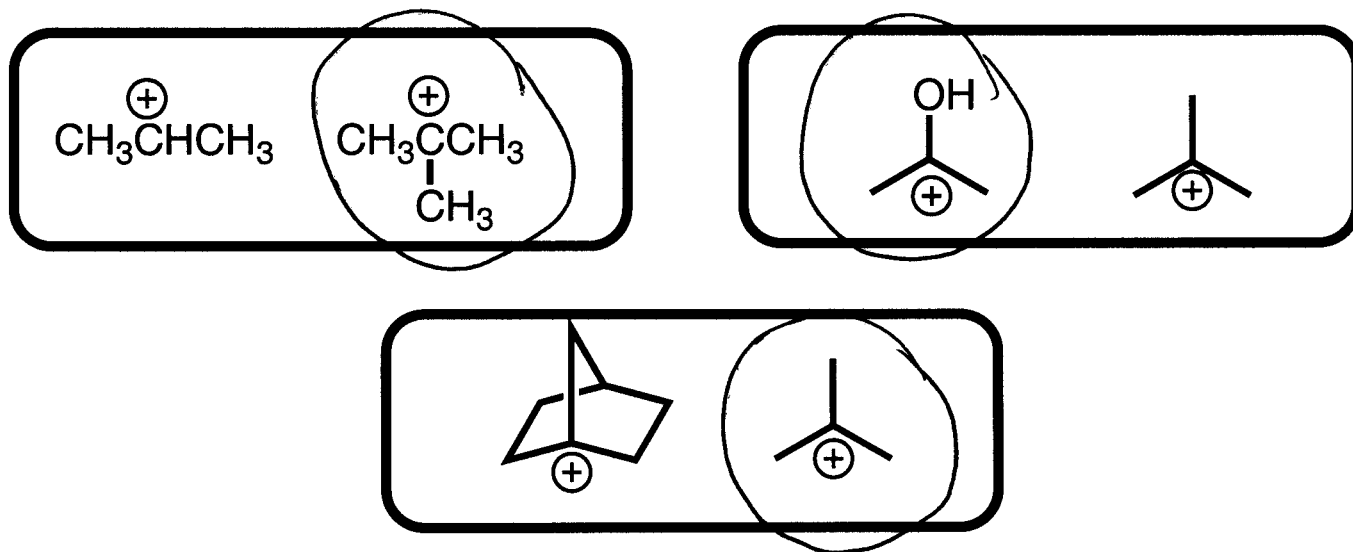
3. Draw the structures of the major products of the following acid-base reaction. Use arrow notation to show the flow of electrons in the reaction mechanism.



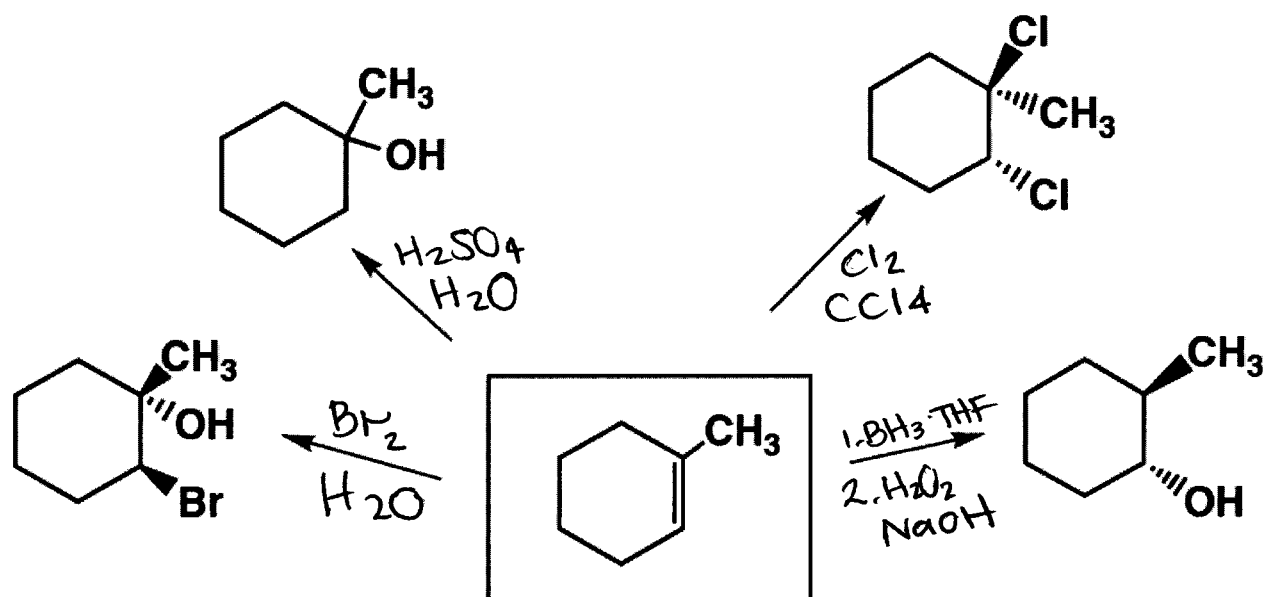
4. Write out a detailed mechanism for the following reaction:



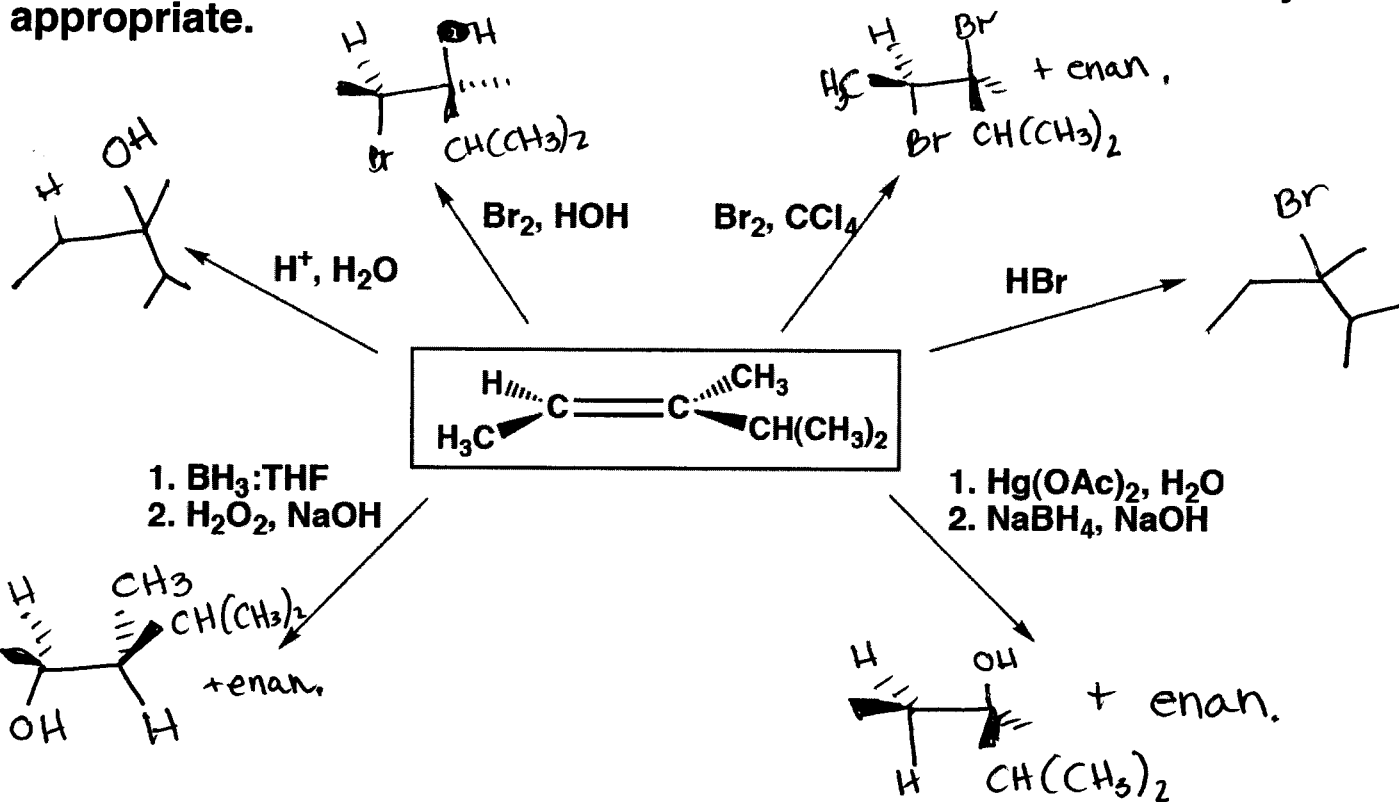
5. Circle the most stable carbocation of each pair.



6. Provide the reagents for each transformation (assume racemic mixtures when the stereochemistry is shown).



7. Predict the product of each reaction. Include stereochemistry where appropriate.



8. Provide the missing reagent, starting material or product in the boxes provided.

