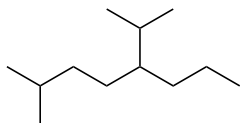
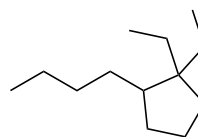


1. (10 points) Provide structures for the following compound names.

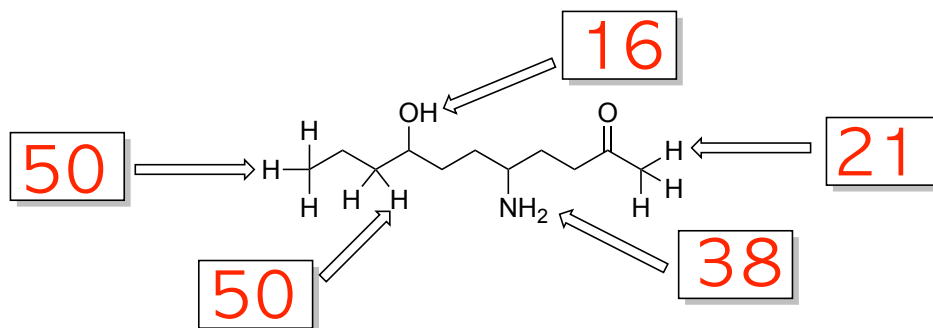


5-isopropyl-2-methyloctane

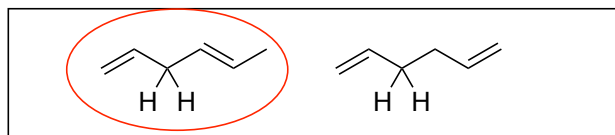
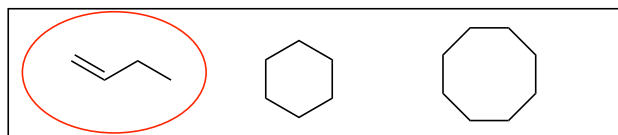
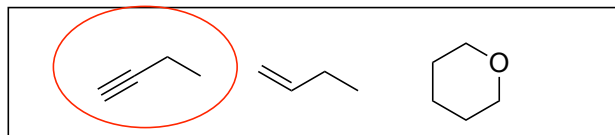
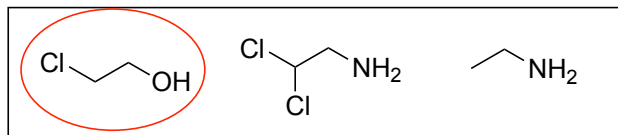


1-butyl-2,2-diethylcyclopentane

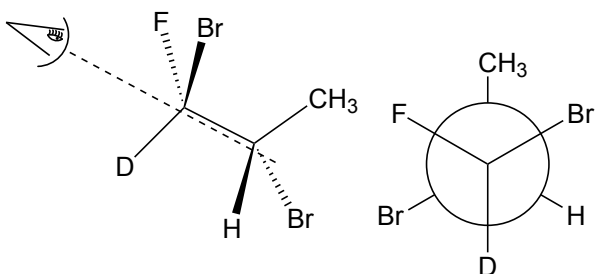
2. (5 points) Estimate the pKa values for the indicated protons in the given structure.



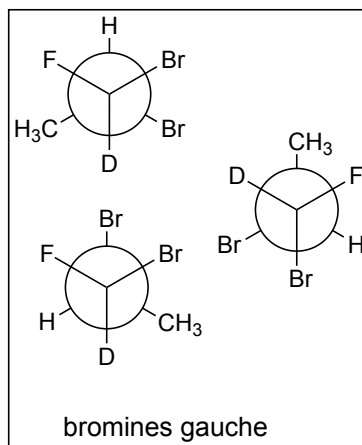
3. (4 points) Circle the most acidic compound in each box.



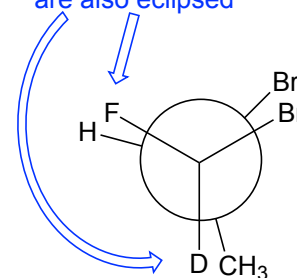
4. (9 points) **A)** Complete the Newman projection along the indicated bond for the structure given below. Then, draw Newman projections to 1) show the conformation where the bromines are gauche, and 2) a projection where the bromines are eclipsed.



reproduce the structure at left



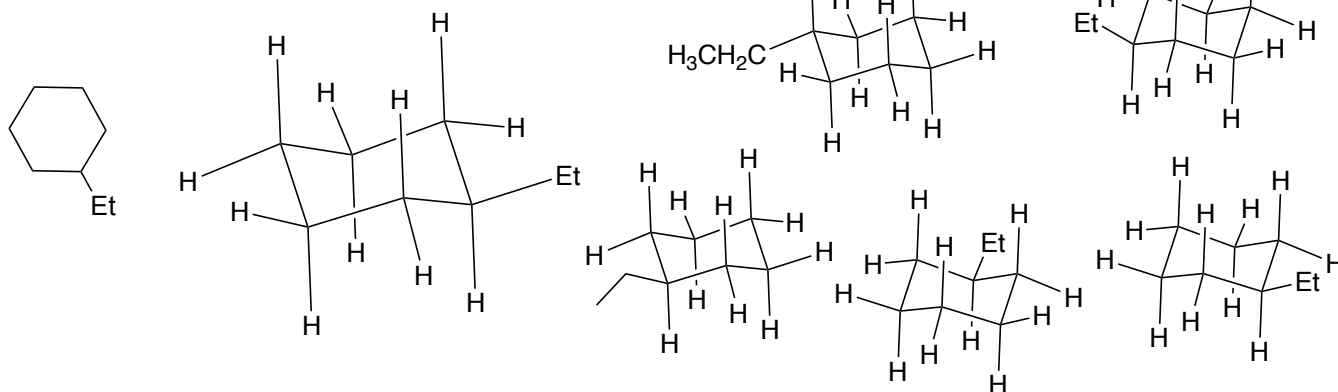
Note: the H/F and D/CH₃ are also eclipsed



bromines eclipsed

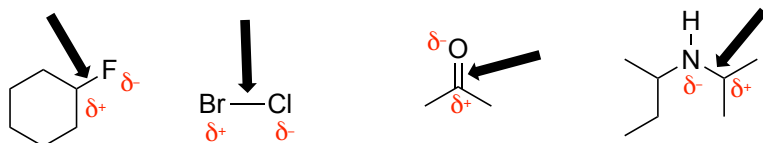
5. (8 points) Draw your very best rendition of the structure below as a chair conformation. Being sure to:

1. Draw in all bonds to all hydrogens on the cyclohexane ring.
2. Place the ethyl group (Et) in an equatorial position.

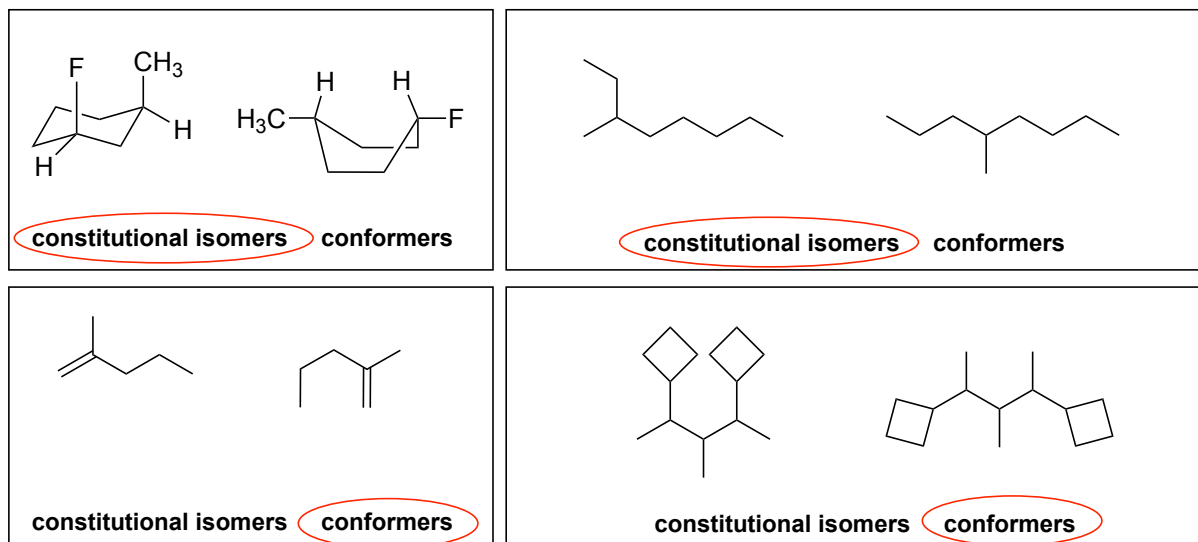


These are all the same structure

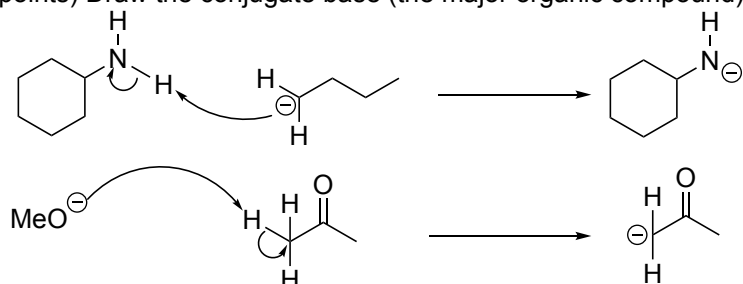
6. (4 points) Indicate the polarity of the indicated bonds using δ^+ and δ^-



7. (4 points) Identify (circle the term) if the compounds in each box are: constitutional isomers or conformational isomers.



8. (4 points) Draw the conjugate base (the major organic compound) of the of the reaction arrows shown.



These are the major organic compounds.
How could you know that?

Well, the other products are small organic organic compounds (MeOH and butane) that are generally classified as solvents.

This knowledge takes some time to acquire