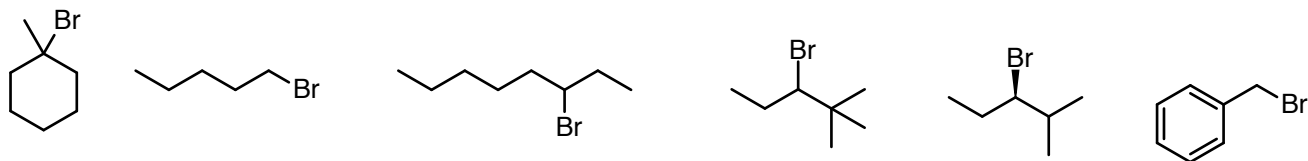


Worksheet 9

Elimination Reactions

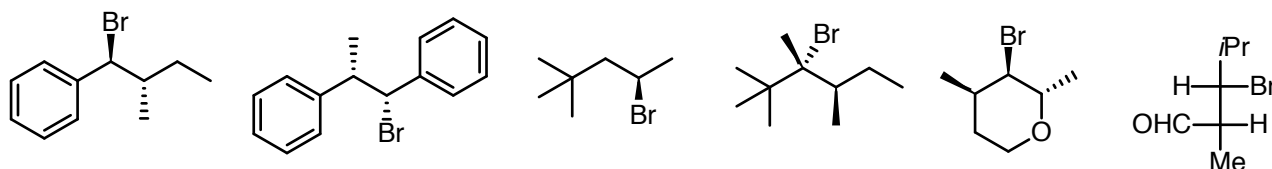
1. Identify all of the β -protons of the following molecules. Show all the potential products associated with each elimination reaction.



2. For each of the above molecules, what would be the expected alkene product associated with a strong, bulky base (*ie*, *t*-BuOH, LiN(*i*-Pr)₂).

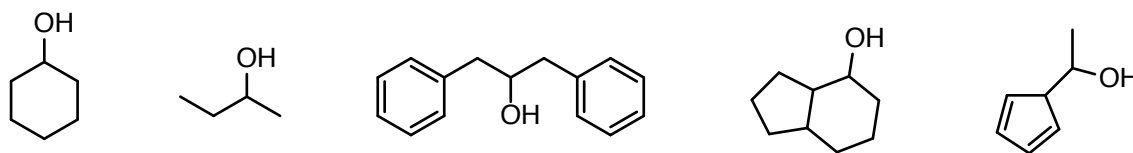
3. For each of the above molecules, what would be the expected product associated with a strong, small base (*ie*, LiOMe, NaNH₂).

4. For each of the following molecules, redraw the compounds in the Newman projection that illustrates anti-relationship between the proton and the leaving group. What is the stereochemistry of the product, assuming a strong, small base.



5. For each of the above molecules, what would be the stereochemistry if instead the elimination was carried out with proton solvents and heat to facilitate an E1 elimination?

6. Elimination of alcohols can be carried out using heat and acid through an E1-type elimination. Predict the products if one were to treat the following alcohols to H₃PO₄ and heat, using a mechanism to support your answer.



6. All reactions are in principle reversible. The addition across alkenes is the opposite of an elimination, and is a perfect example of this concept. Show a mechanism for the following addition reactions (left). Then predict intermediate of the 2nd reaction, and show a mechanism for the overall process

