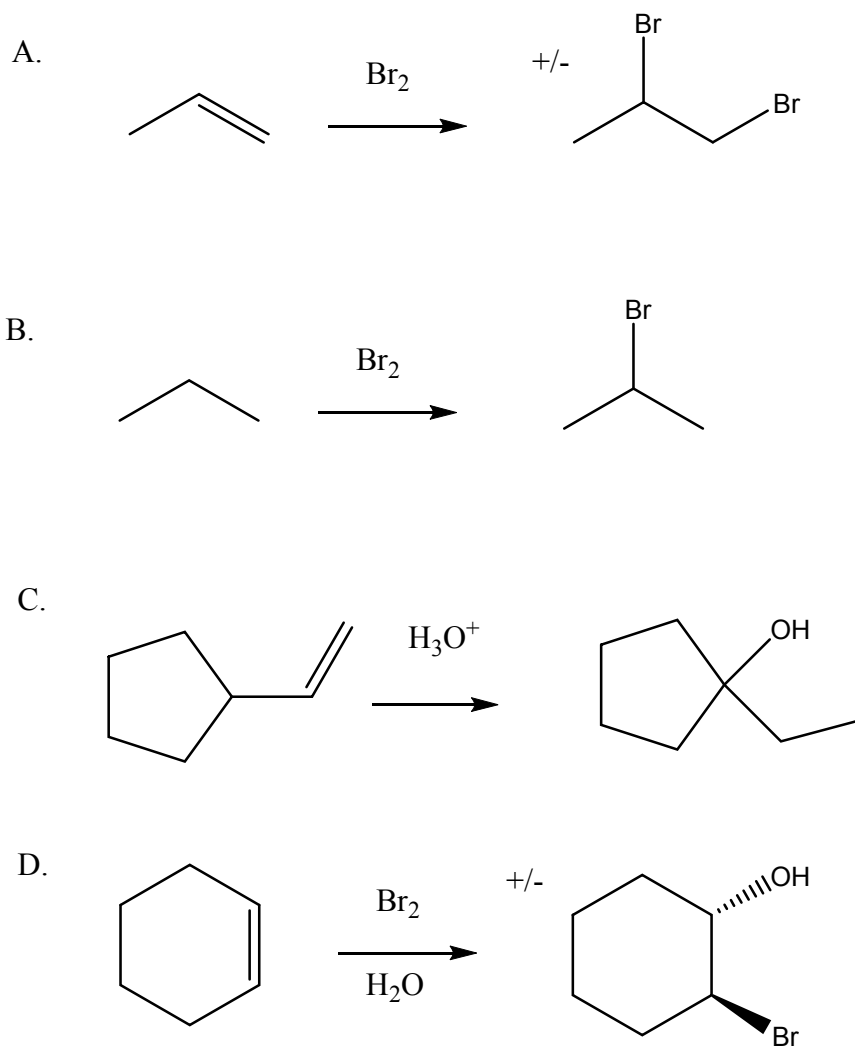


Discussion Worksheet #11 answers
Reagents, Mechanisms, Products

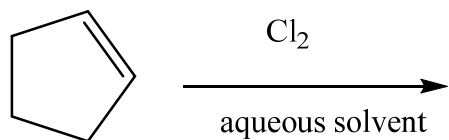
Skill 2: Propose mechanisms for a mixture of reactions

- Given starting materials and products, first determine the type of reaction (so far, this could be acid/base, radical halogenation, or electrophilic addition)
- Identify Lewis acids/Lewis bases (Nucleophiles and electrophiles)
- Apply the general mechanisms you have learned to the particular problem.

Problem 1: Propose mechanisms for these reactions.



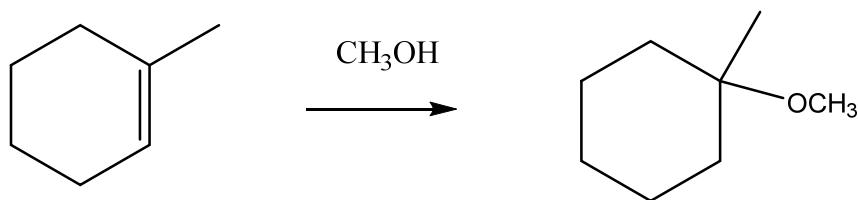
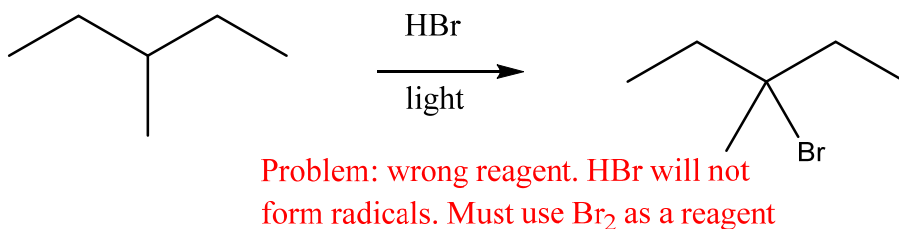
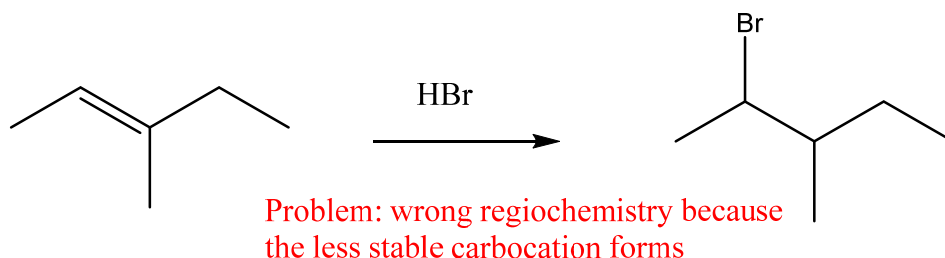
Problem 2. Propose a mechanism to explain why this reaction does not undergo radical halogenation or do a Cl_2 addition.



Draw the full mechanism according to the notes. The explanation is:

The starting material is an alkene, so the nucleophilic alkene will react with the Cl_2 before any radical reaction can take place. The dichloride is not formed because, once the chloronium ion forms, the solvent water will act as a nucleophile and make a halohydrin.

Problem 3: Why do these reactions not work as written to produce the given product?

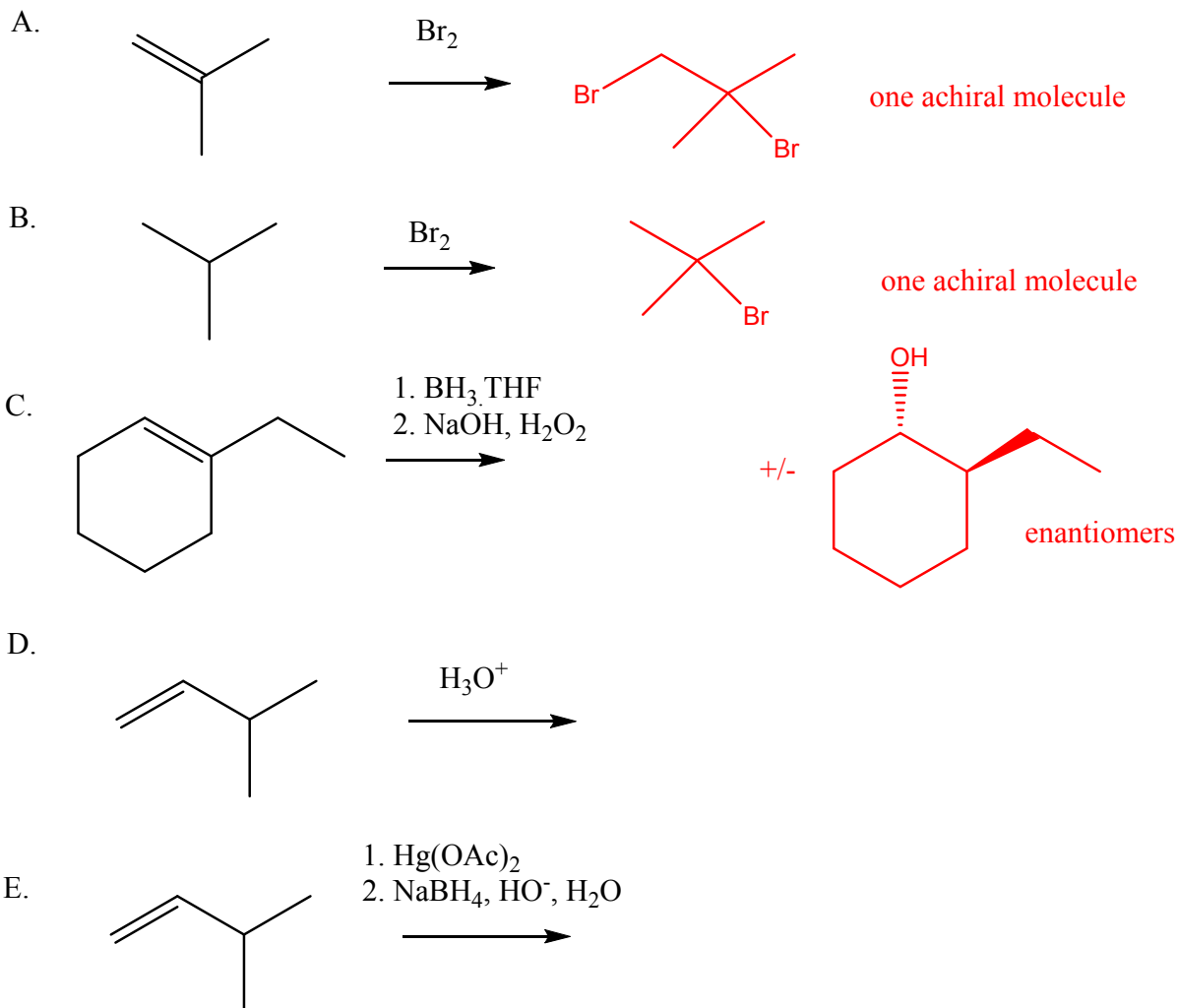


Problem: Too slow. This reaction requires a strong acid catalyst because the alkene is too weak of a base to deprotonate an alcohol

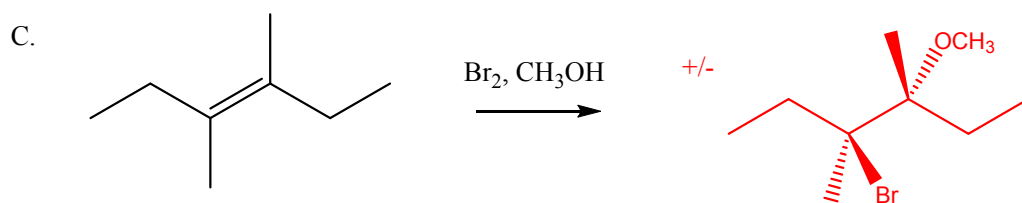
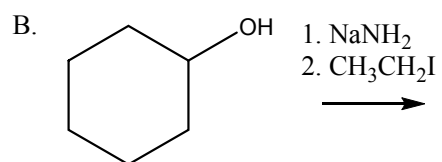
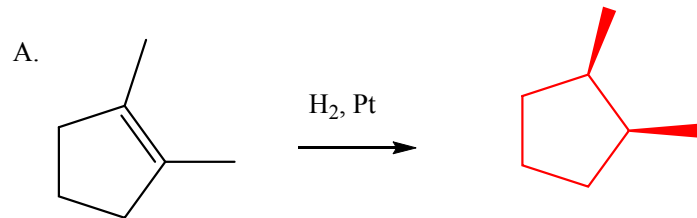
Skill 2: Predict the products for a mixture of reactions

- First, consider the starting material and reagents to determine the type of reaction (radical halogenation, electrophilic addition, etc.)
- Based on the mechanism, determine regiochemistry if necessary.
- Based on the mechanism, determine if a rearrangement occurs.
- Based on the mechanism, determine stereochemistry if necessary.

Problem 4. Predict the major product of these reactions. Include all stereochemistry.



Problem 5. Predict the major product of these reactions. Include all stereochemistry.



Skill 3: Provide reagents for a mixture of reactions

- First, consider the starting material and products to determine the type of reaction (radical halogenation, electrophilic addition, etc.)
- Consider whether or not there is a stereochemical requirement.
- Consider whether or not a rearrangement happened.

Problem 6. Provide the reagents necessary for the following transformations.

