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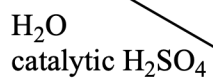
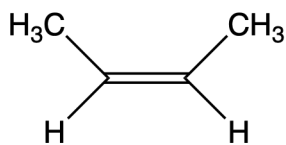
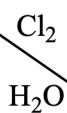
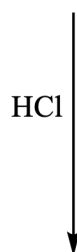
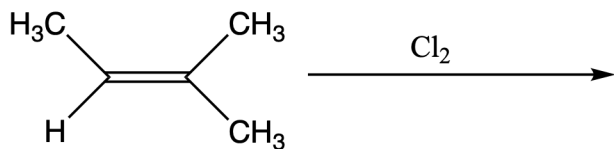
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Chemistry 320M/328M
Dr. Brent Iverson
7th Homework
October 14, 2026

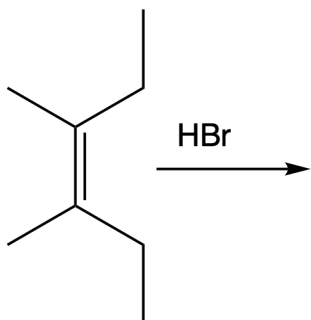
**Please print the
first three letters
of your last name
in the three boxes**

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1. For the following reactions, fill in the boxes with the predominant product or products. You must indicate stereochemistry with wedges and dashes. If a racemic mixture is created, you must write "racemic" under the structures.



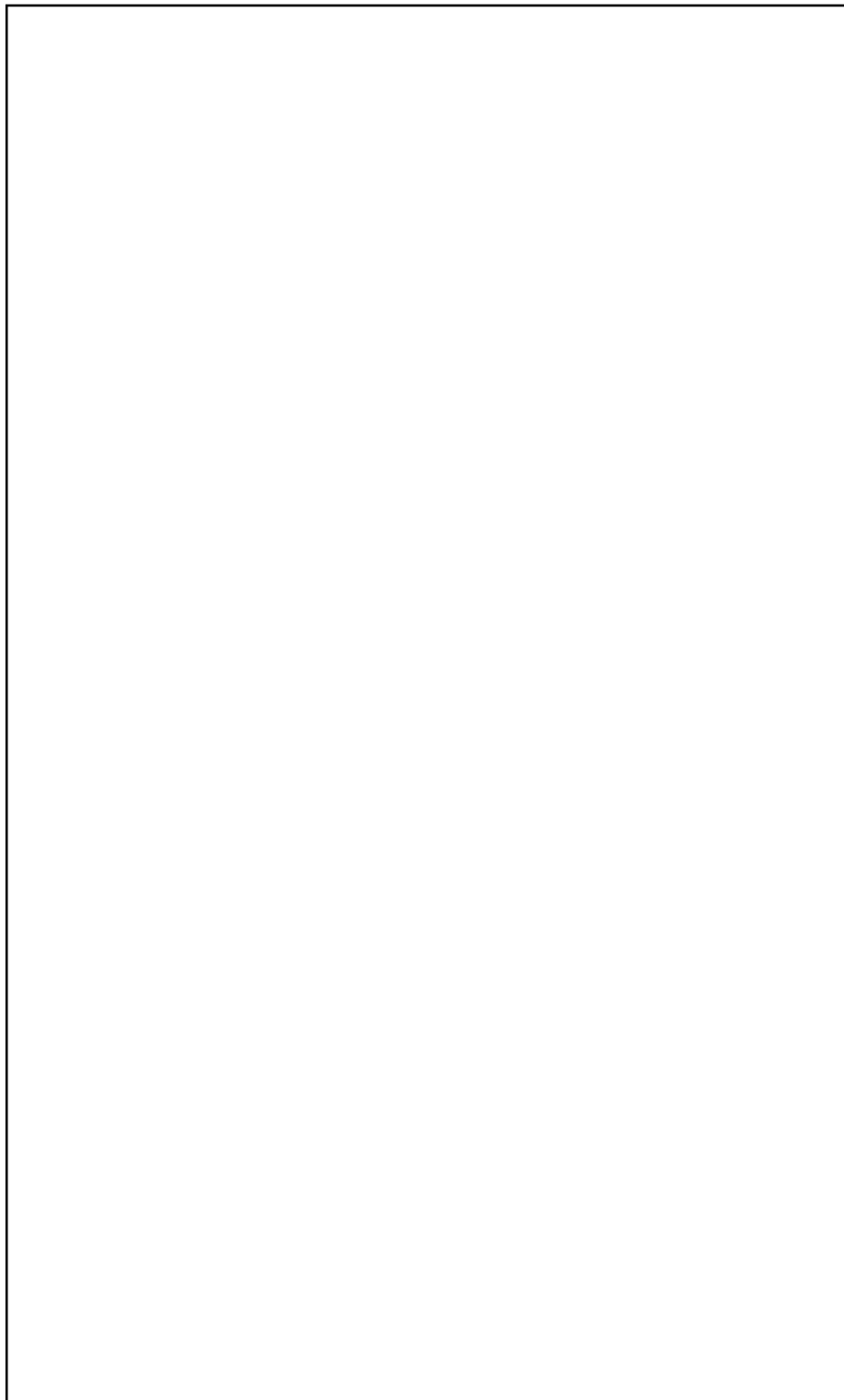
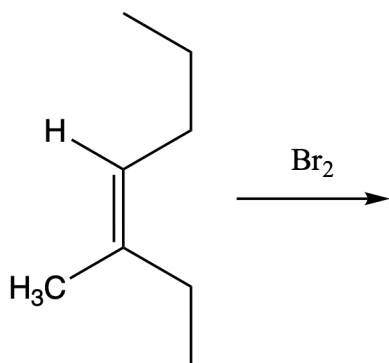
2. For the following reaction, fill in the box with the predominant product or products. You must indicate stereochemistry with wedges and dashes. If a racemic mixture is created, you must write "racemic" under the structures.



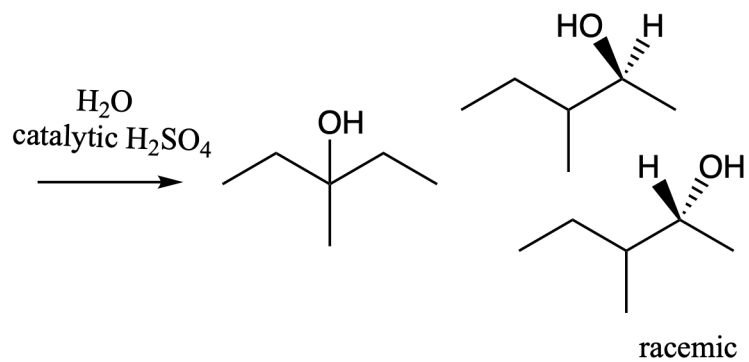
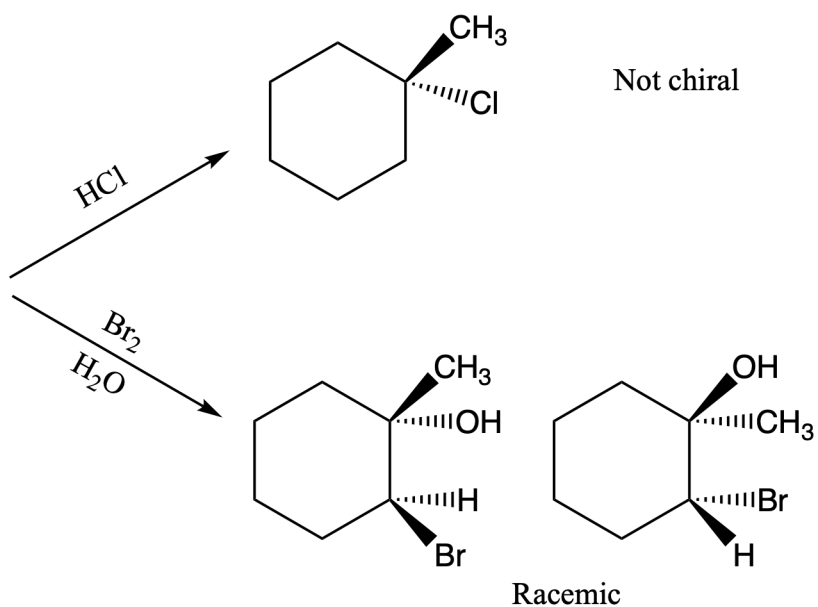
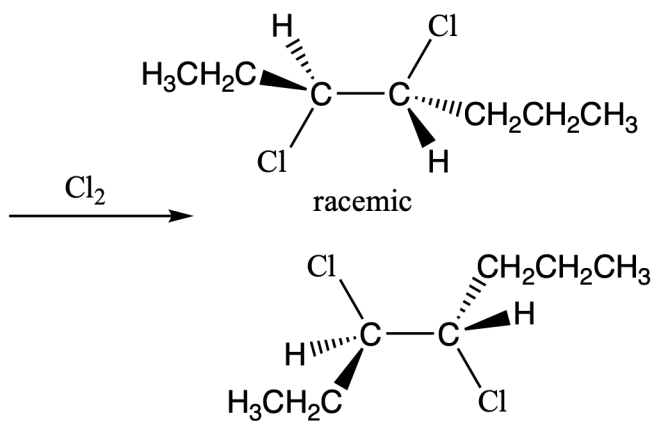
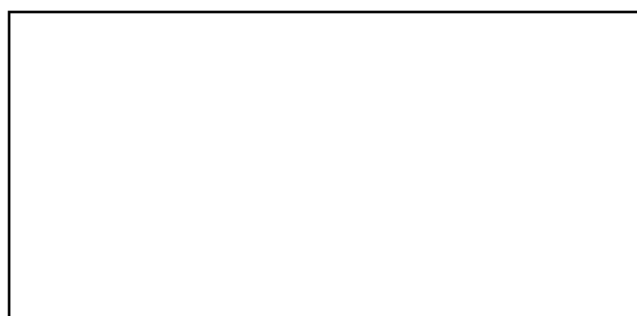
Let's try something new. It will take you about 30 minutes, but I think it will help tie all the pieces together in your mind in time to help you crush the second midterm. **Consider the reaction on the previous page (Problem 2). I would like you to write a detailed narrative of exactly how each of the products you drew is formed. Describe what is reacting, the intermediates that are created along the way and how each product forms. Write like you are narrating a movie.** The goal is to have you observe the reaction in your mind's eye and think through the mechanism details. Uncover features of the process you might have missed until now. Do not cheat yourself and use AI. Do this on your own, **in your own handwriting** (no pasting AI generated text allowed!!). I will start you off:

The first thing that happens when (Z)-3,4-dimethyl-3-hexene reacts with HBr is

3. For the following reaction, fill in the box with the predominant product or products. You must indicate stereochemistry with wedges and dashes. If a racemic mixture is created, you must write "racemic" under the structures.

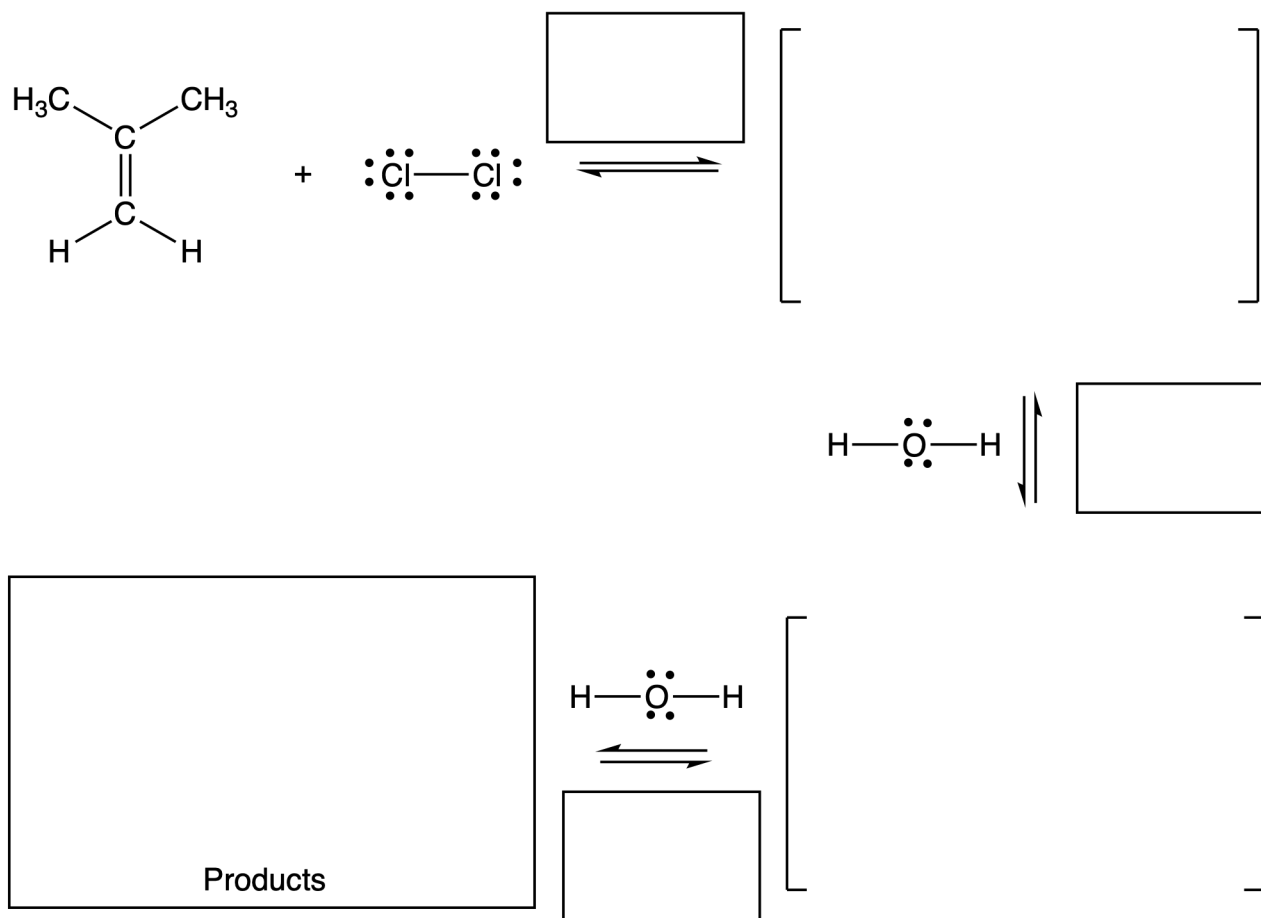


4. For the following reactions, fill in the boxes with the starting material that leads to the predominant product or products.

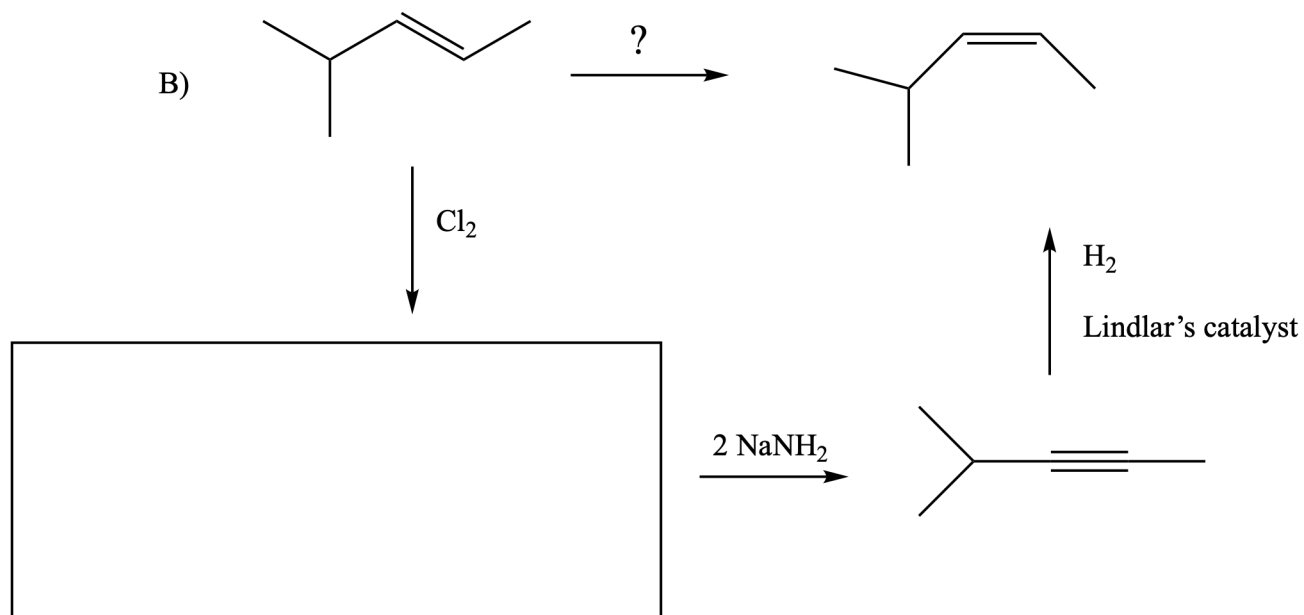
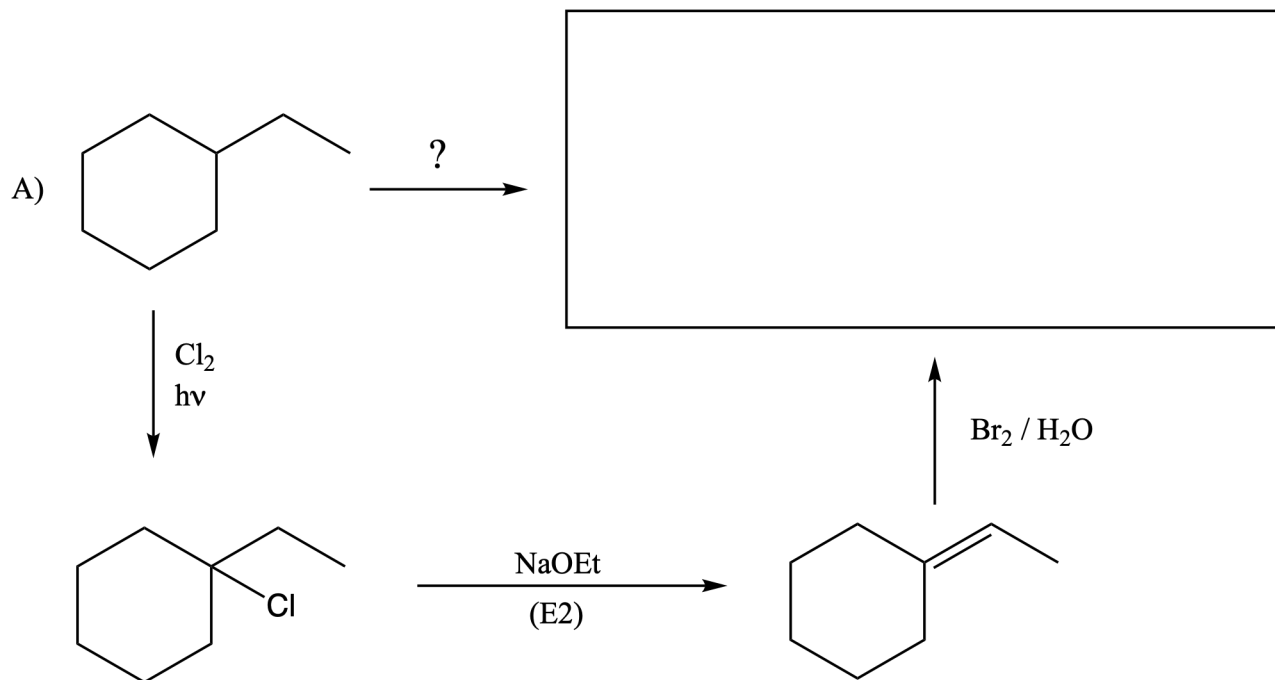


5. Read these directions carefully. **For the reaction of 3-methyl-1-propene with Cl_2 and H_2O shown below, fill in the details of the mechanism. Draw the appropriate chemical structures and use an arrow to show how pairs of electrons are moved to make and break bonds during the reaction. Be sure to write all lone pairs of electrons and all formal charges. Finally, in the boxes provided by the arrows, write which kind of mechanistic element is being indicated, such as "make a bond", "add a proton", etc.**

Alkene Hydrohalogenation



6. For the following synthesis schemes, fill in the missing molecules. Note, you do not understand all of this chemistry yet, but soon you will and then you will be responsible for the entire sequence of synthetic reactions! Even if you have not seen all the chemistry, please take a moment to see what kind of transformations are occurring in each step of the synthesis.



7. For the following synthesis scheme, fill in the missing molecules. Note, you do not understand all of this chemistry yet, but soon you will and then you will be responsible for the entire sequence of synthetic reactions! Even if you have not seen all the chemistry, please take a moment to see what kind of transformations are occurring in each step of the synthesis.

