

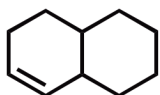
Alkene Exam Preparation Pack

20 Essential Alkene Practice Exam Problems

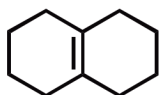
Note: all of these problems are included with MOC membership, and can be found here (link)

Problem 1: Alkene Stability

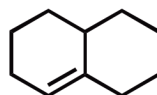
Link to answer
<https://bit.ly/3ARyniP>



A



B



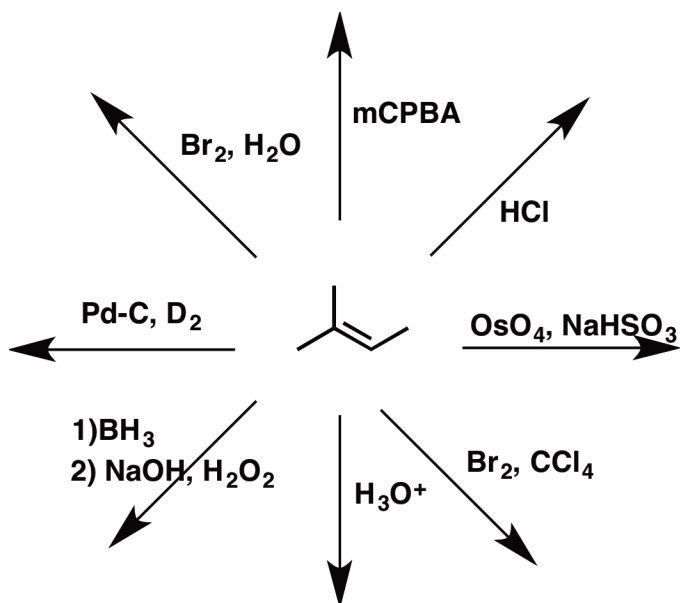
C



- Arrange these alkenes **A**, **B** and **C** from most stable to least stable
- Hydrogenation of *which alkene* would be the most exothermic?
- Given these three energies for ΔH° of hydrogenation (in kcal/mol):
-30.2, -28.4, -26.8
which one would be matched with -28.4 kcal/mol?

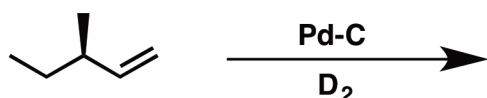
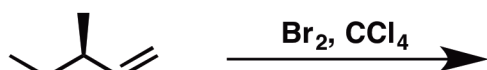
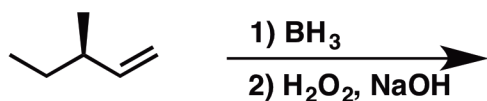
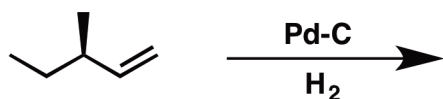
Problem 2: Draw One Product Of Each Reaction

<https://bit.ly/3oqeHz6>



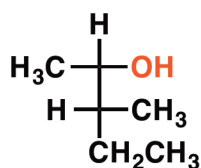
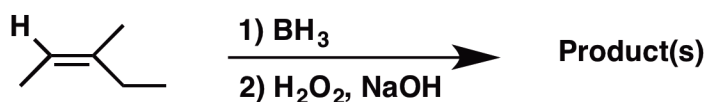
Problem 3: Provide all the products of these reactions. If there is more than one, state the relationship between the products (e.g. enantiomers, diastereomers, or constitutional isomers)

<https://bit.ly/3i8INTN>

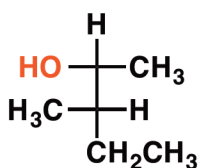


Problem 4: Pick the structure(s) which correspond to the products of the reaction below

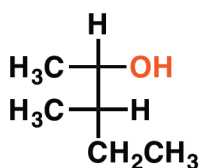
<https://bit.ly/2Y6uqsz>



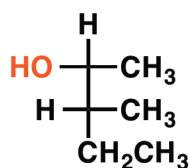
1



2

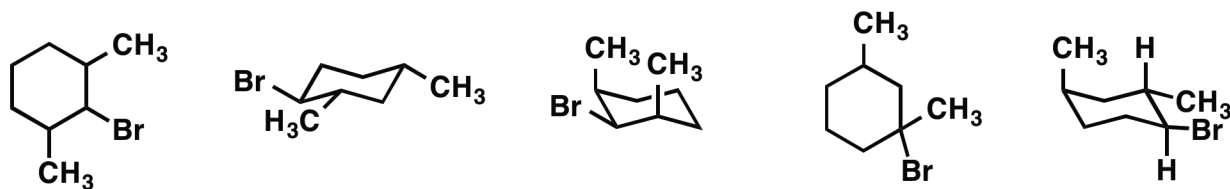


3



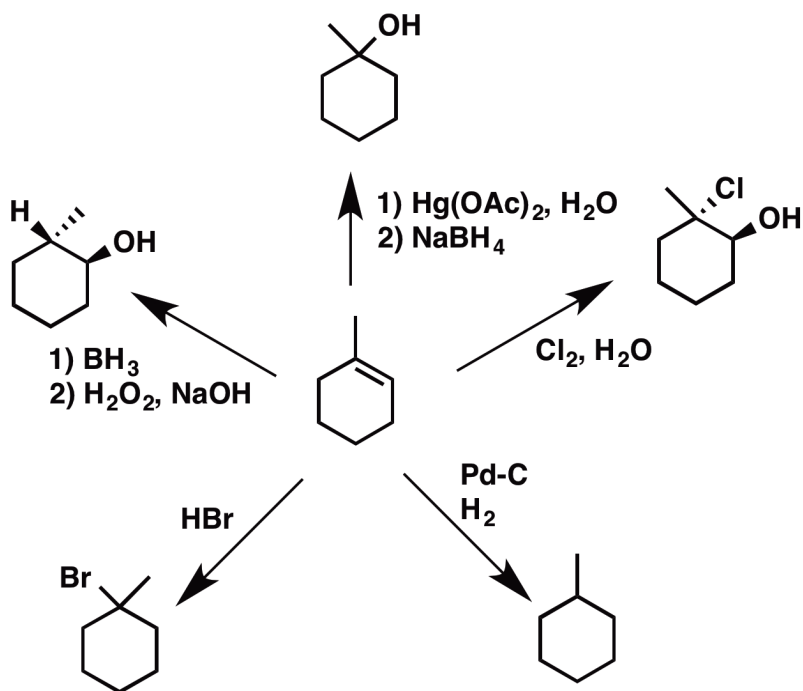
4

Problem 5: Circle the correct product of this reaction <https://bit.ly/3mmJ2fE>



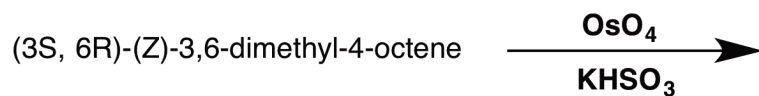
Problem 6: Which product is incorrect?

<https://bit.ly/3o8Fksp>



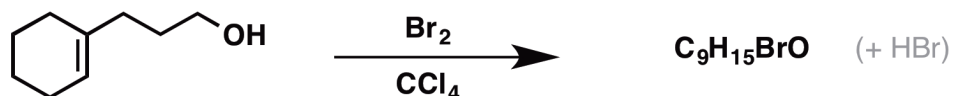
Problem 7: Draw the product(s) of the following reaction

<https://bit.ly/3EYa9Gf>



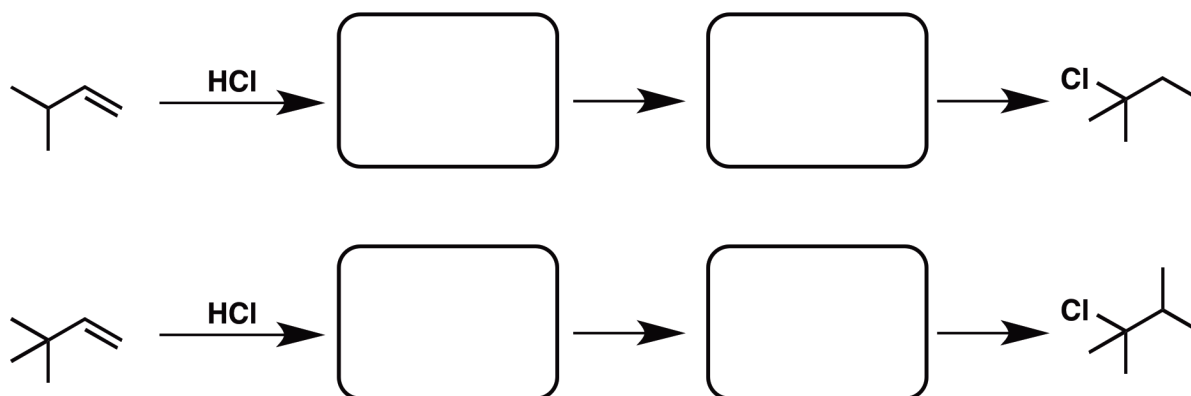
Problem 8: Draw the product of the following intramolecular reaction, and a mechanism for its formation.

<https://bit.ly/3uiifEJ>



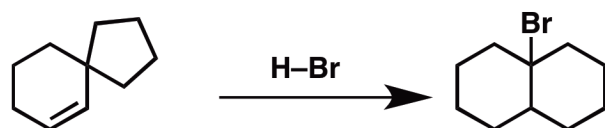
Problem 9: Draw the mechanisms for these two rearrangement reactions

<https://bit.ly/3kOqSDV>



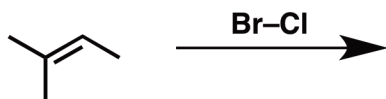
Problem 10: Draw a mechanism for this reaction

<https://bit.ly/3ouLtzT>



Problem 11: What would be the product(s) of the following reaction?

<https://bit.ly/3ASfX1l>

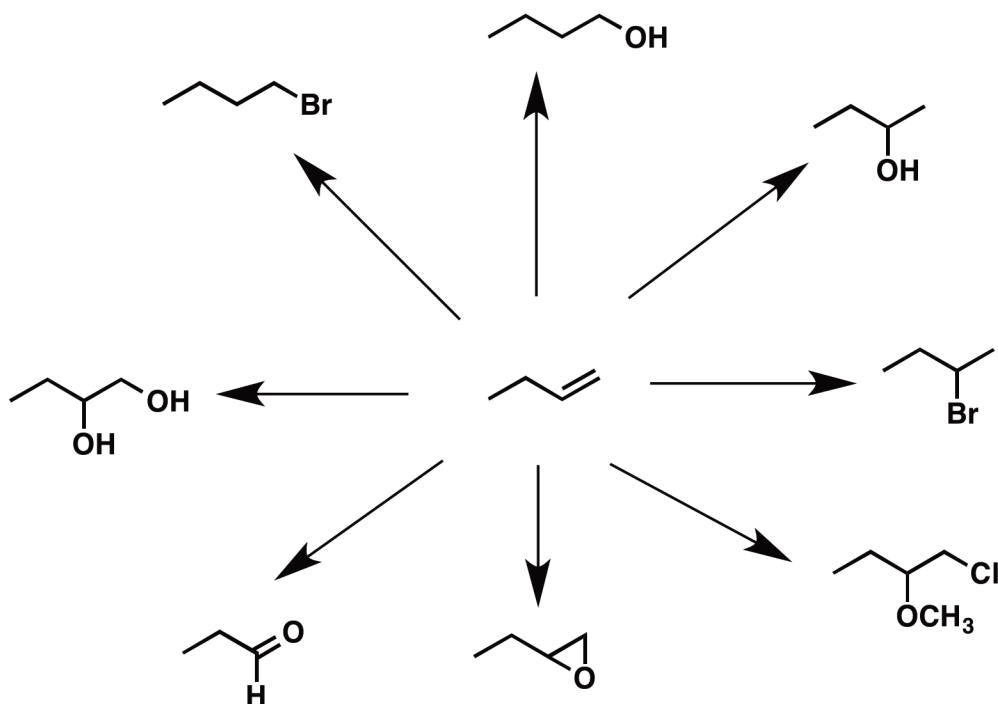


(Hint: you may not have seen this reagent before. Use electronegativity differences to figure out which atom is more electrophilic)



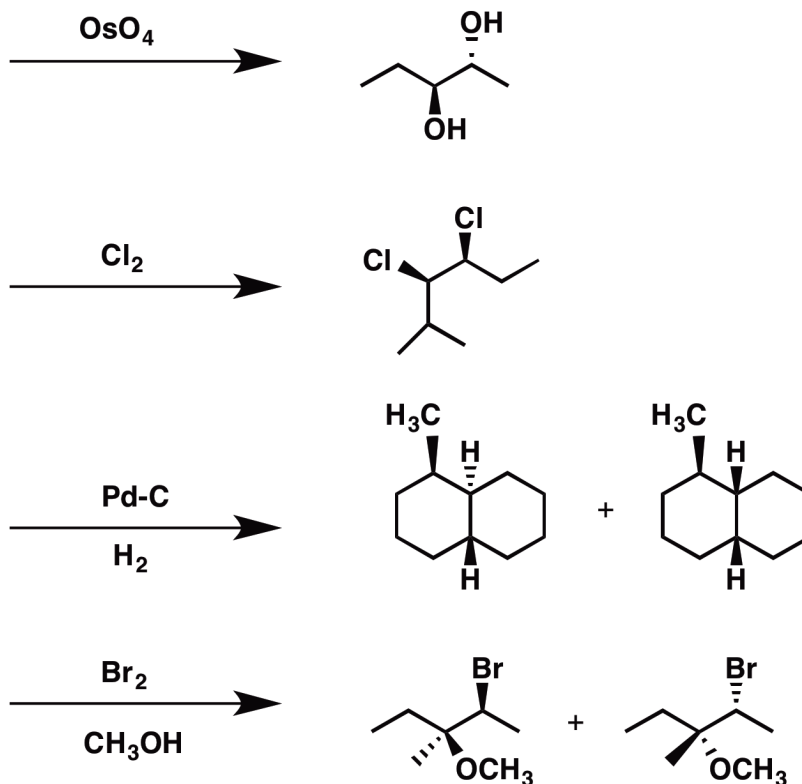
Problem 12: Give the reagents for each of the following transformations

<https://bit.ly/3m4UHiN>



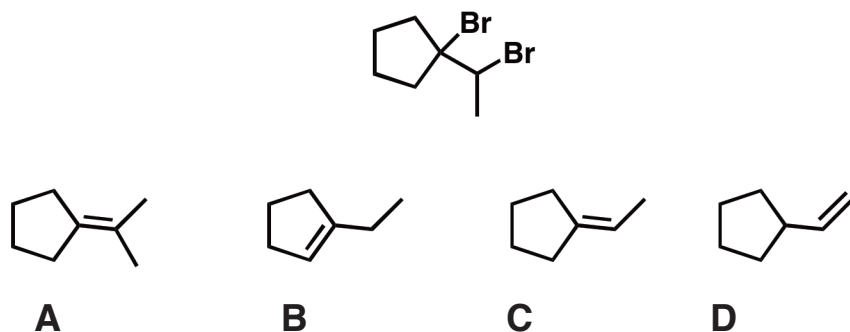
Problem 13: Draw a suitable alkene for each of the following reactions

<https://bit.ly/3m7N2QT>



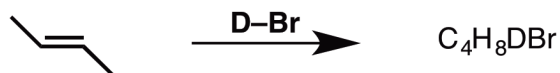
Problem 14: Which alkene (A, B, C or D) would give this dibromide product upon treatment with Br_2 and CCl_4 ?

<https://bit.ly/3m7eONI>



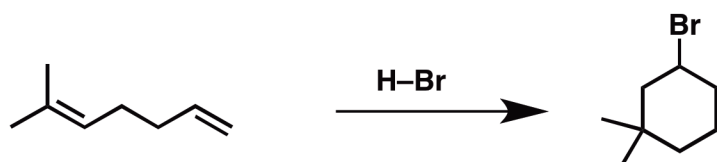
Problem 15: Draw all products resulting from this reaction and indicate how they are related to each other.

<https://bit.ly/3FaHuxV>



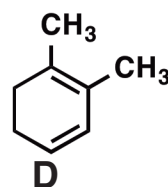
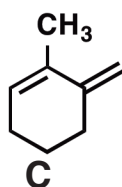
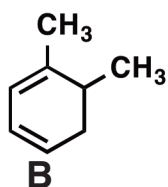
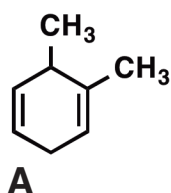
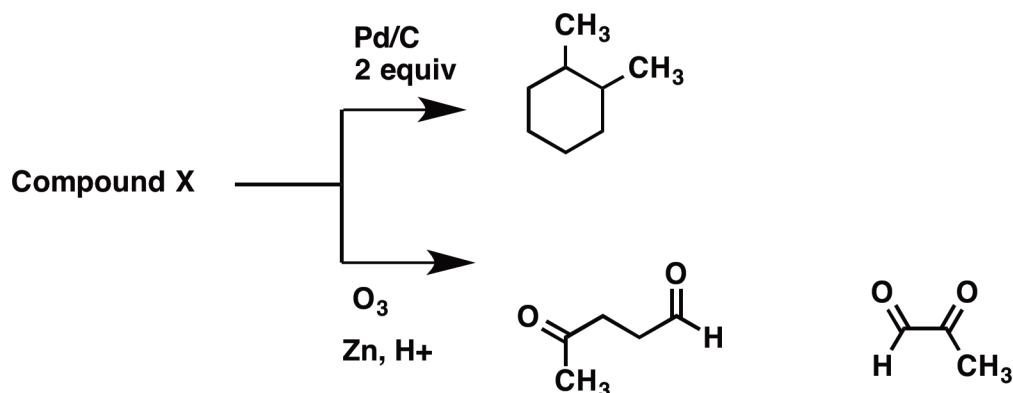
Problem 16: Draw a mechanism for this reaction:

<https://bit.ly/3kMEQWD>



Problem 17: Compound X absorbs 2 equivalents of hydrogen gas during hydrogenation with $Pd-C/H_2$. When treated with O_3 (and reductive workup) it gives the two products shown. What is compound X?

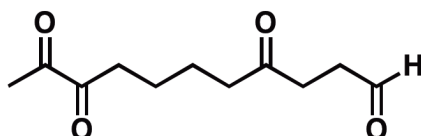
<https://bit.ly/3ireLep>



Problem 18: MYSTERY COMPOUND X was found to absorb 2 equivalents of H_2 gas under catalytic hydrogenation conditions. Ozonolysis of X gave the molecule shown. Draw the structure of the mystery compound

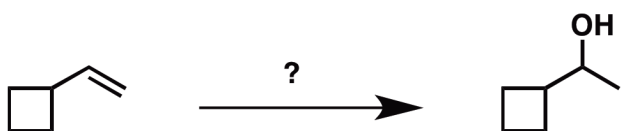


<https://bit.ly/3FaCqtk>



Problem 19: What reagent(s) would you use for the following transformation?

<https://bit.ly/3EYbQDB>



Problem 20: Draw a mechanism for the following reaction

<https://bit.ly/3B4oGhn>

