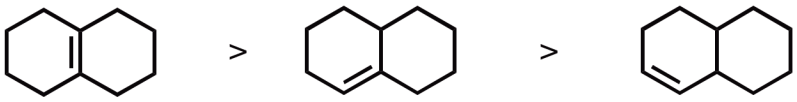
Answer Key - Alkene Exam Questions

20 Essential Alkene 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 video
https://bit.ly/3ARyniP



Most stable
(tetrasubstituted)

Least stable
(disubstituted)

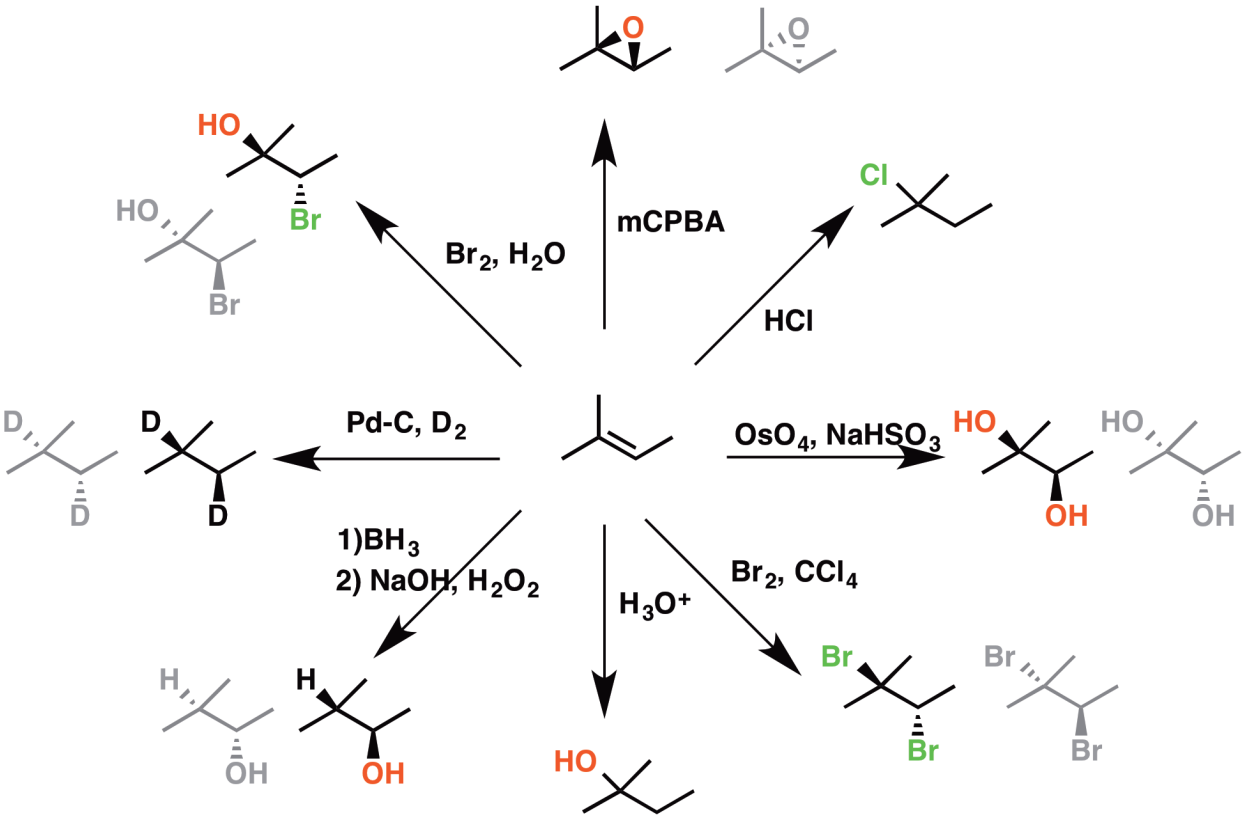
ΔH° of hydrogenation (in kcal/mol):

– 26.8 – 28.4 – 30.2

Hydrogenation is most exothermic

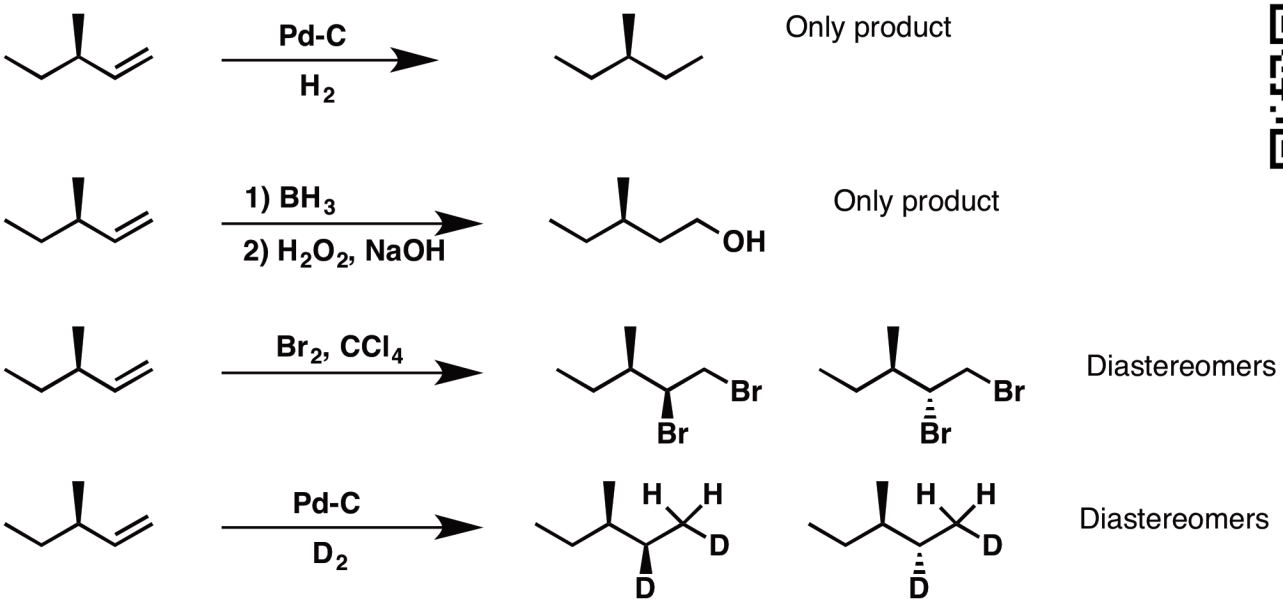
Problem 2: Draw One Product Of Each Reaction

https://bit.ly/3oqeHz6



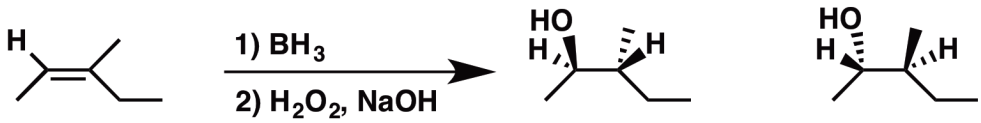
Problem 3: Provide all the products of these reactions.

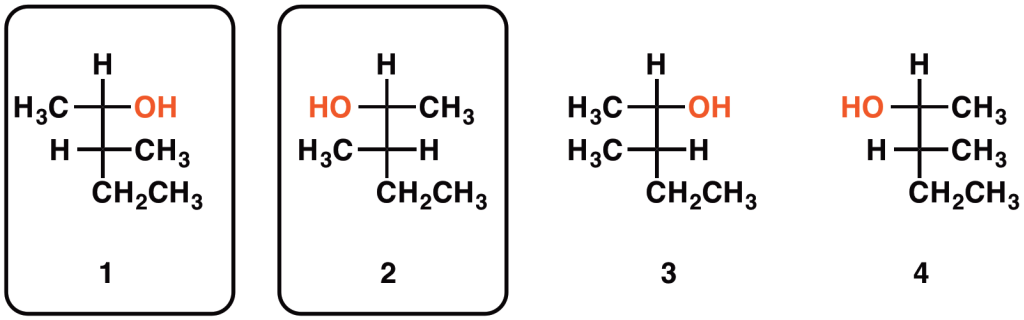
https://bit.ly/3i8INTN



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

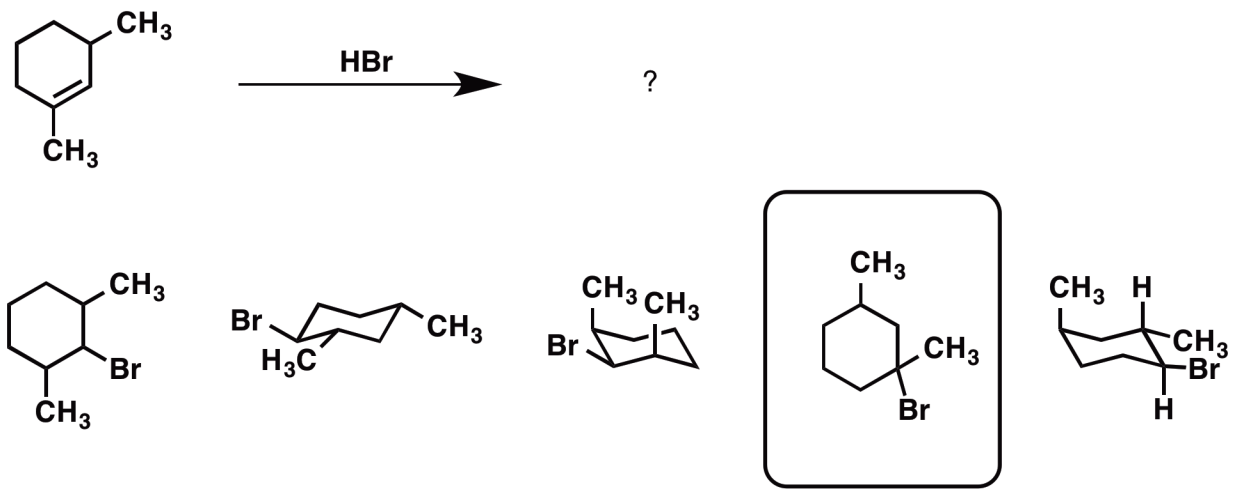
https://bit.ly/2Y6uqsz





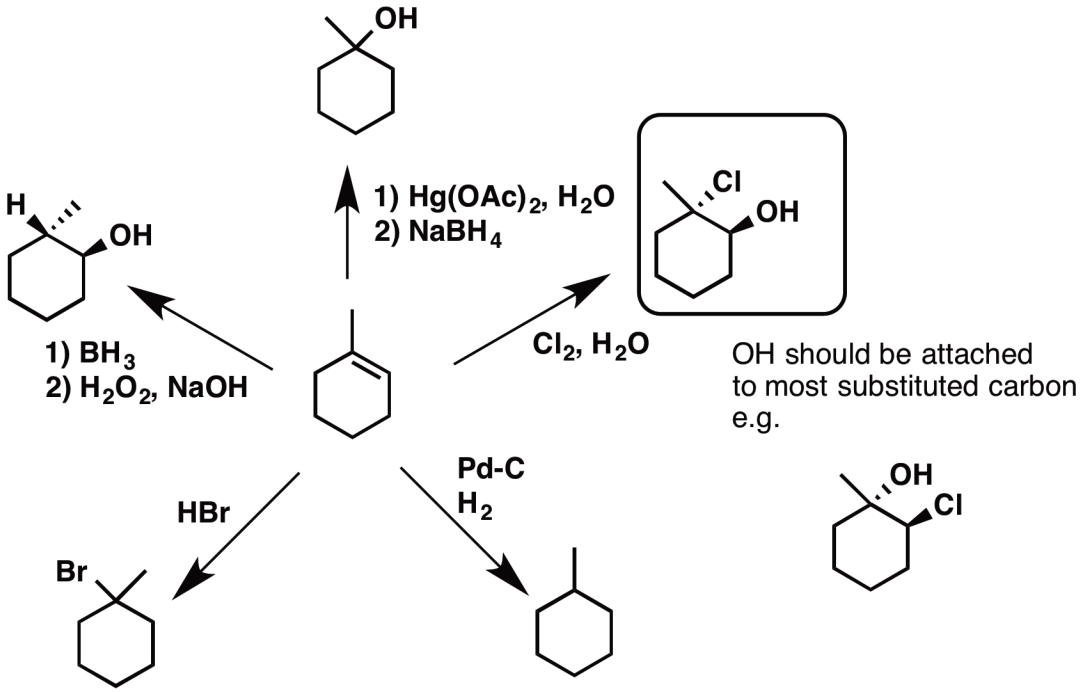
Problem 5: Circle the correct product of this reaction

https://bit.ly/3mmJ2fE



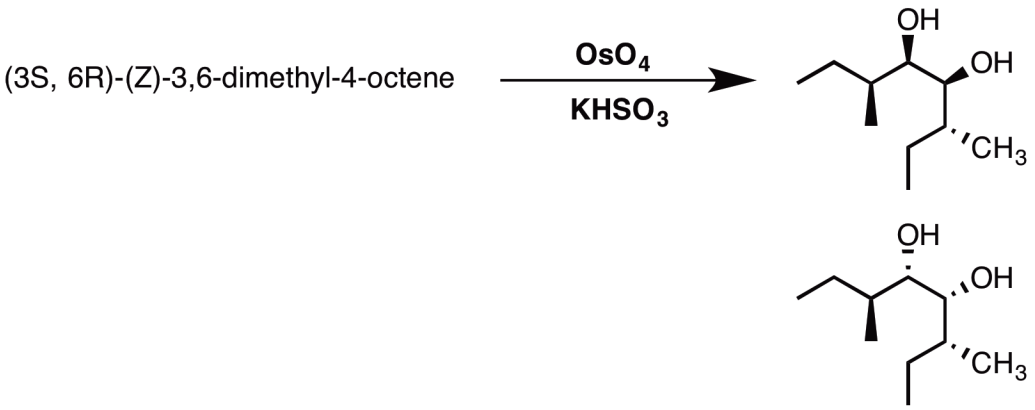
Problem 6: Which product is incorrect?

https://bit.ly/3o8Fksp



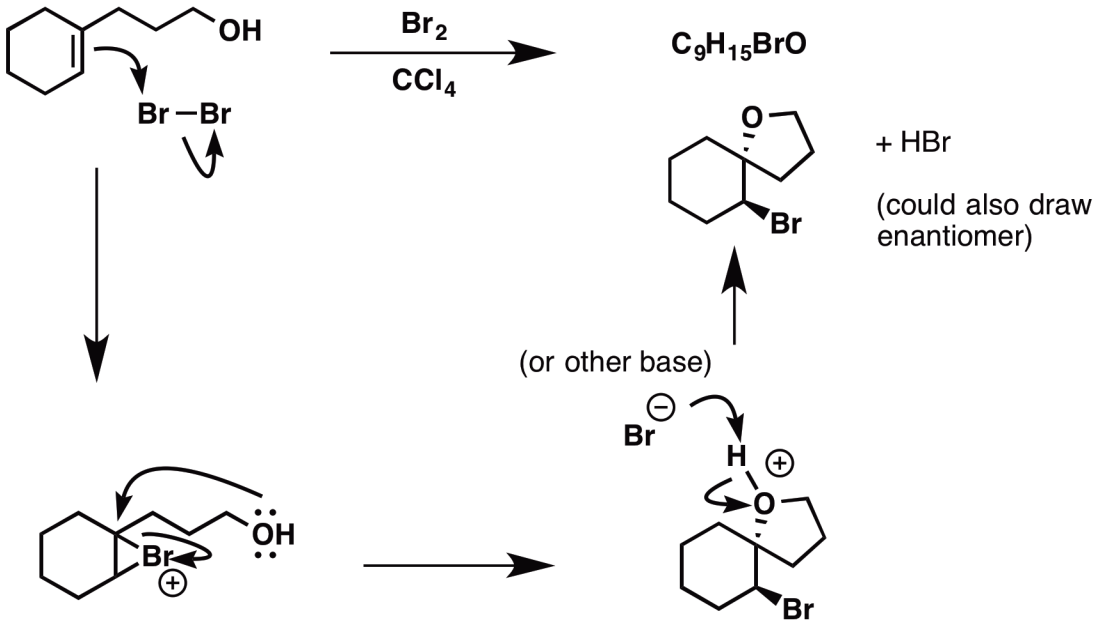
Problem 7: Draw the product(s) of the following reaction

https://bit.ly/3EYa9Gf



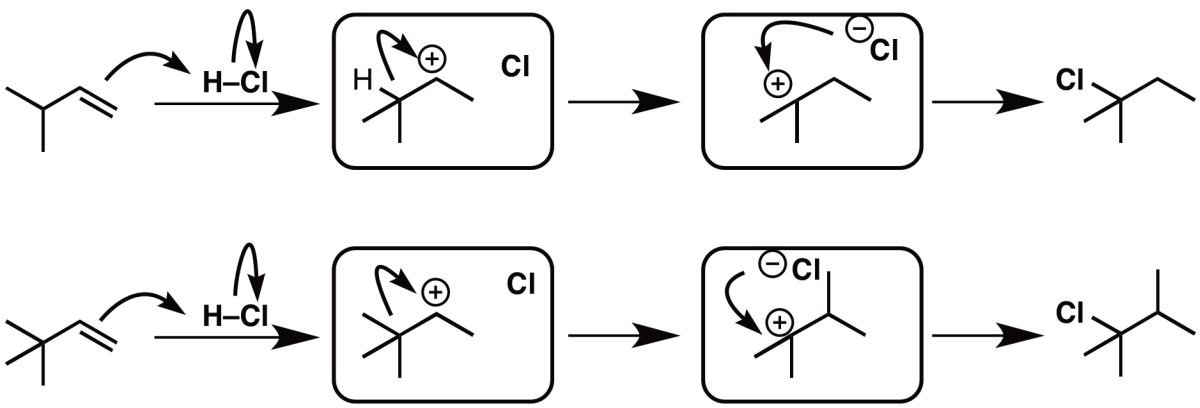
Problem 8: Draw the product of the following intramolecular reaction, and a mechanism for its formation.

https://bit.ly/3uiifEJ

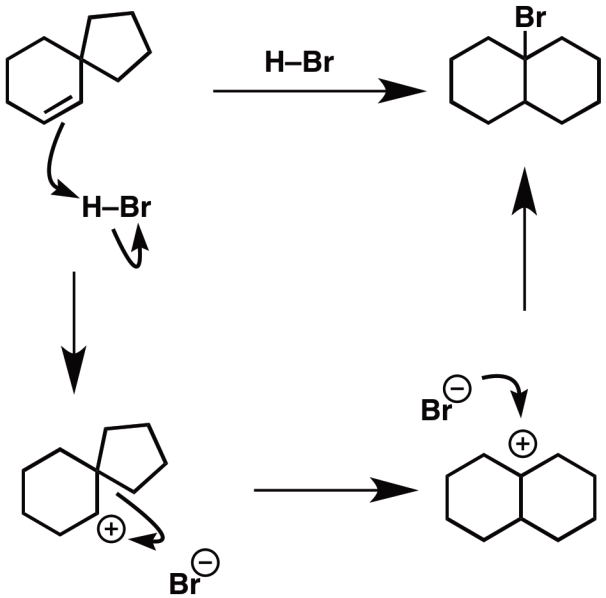


Problem 9: Draw the mechanisms for these two rearrangement reactions

https://bit.ly/3kOqSDV



Problem 10: Draw a mechanism for this reaction https://bit.ly/3ouLtzt



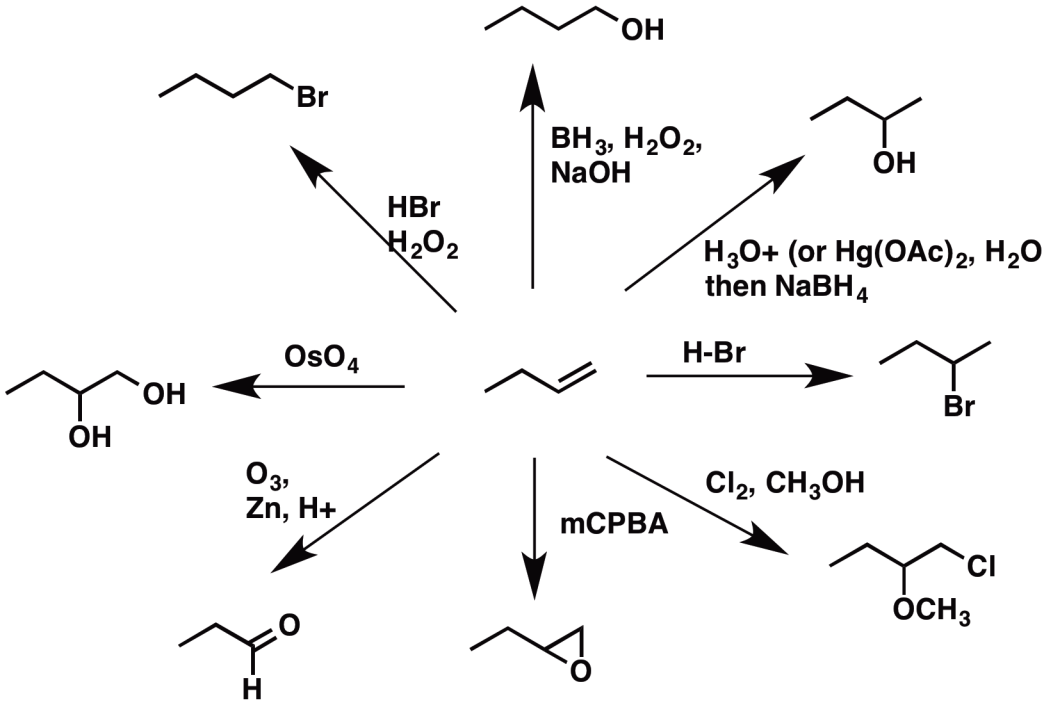
Problem 11: What would be the product(s) of the following reaction?

https://bit.ly/3ASfX1I

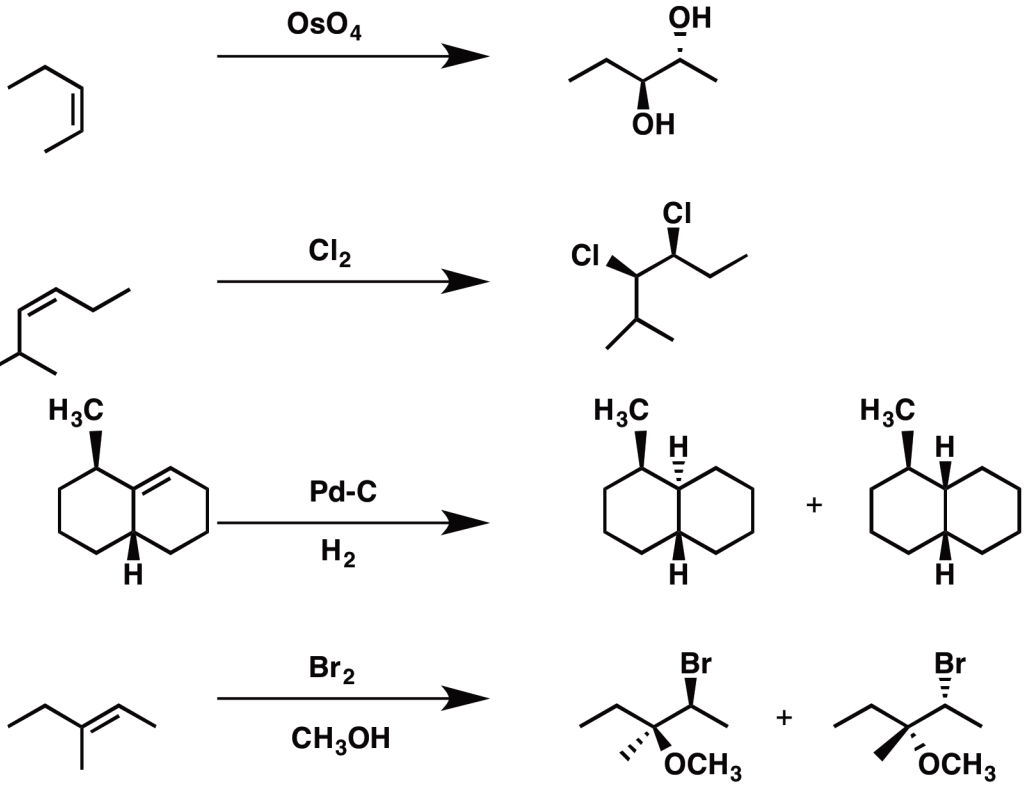
(enantiomers)

Problem 12: Give the reagents

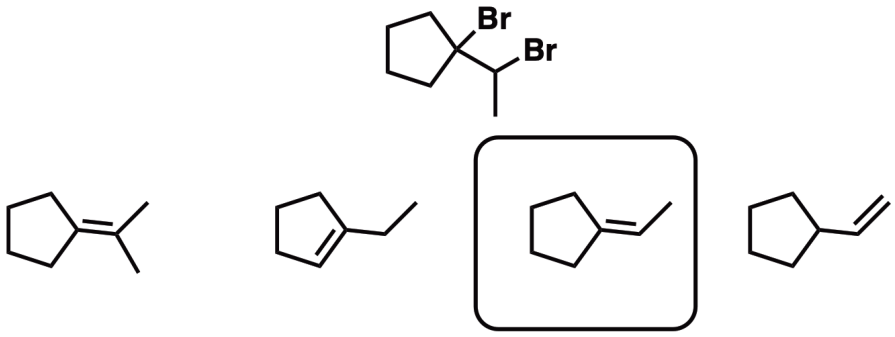
https://bit.ly/3m4UHiN



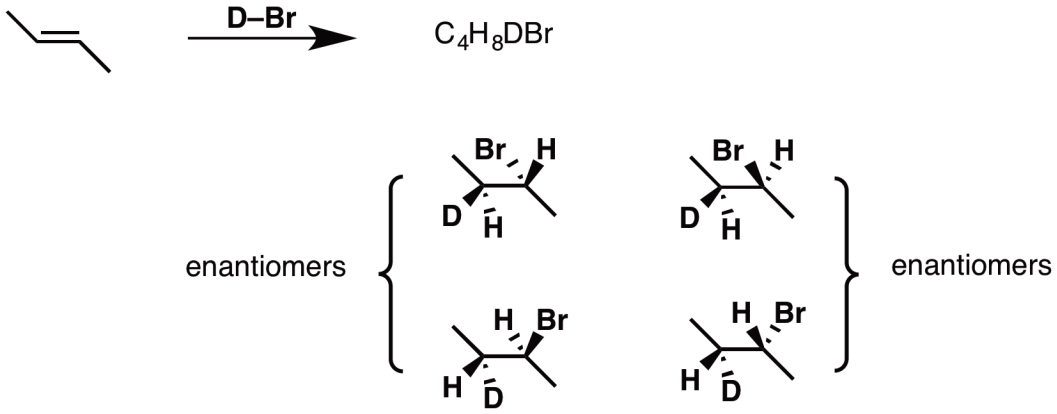
Problem 13: Draw a suitable alkene for each of the following reactions https://bit.ly/3m7N2QT



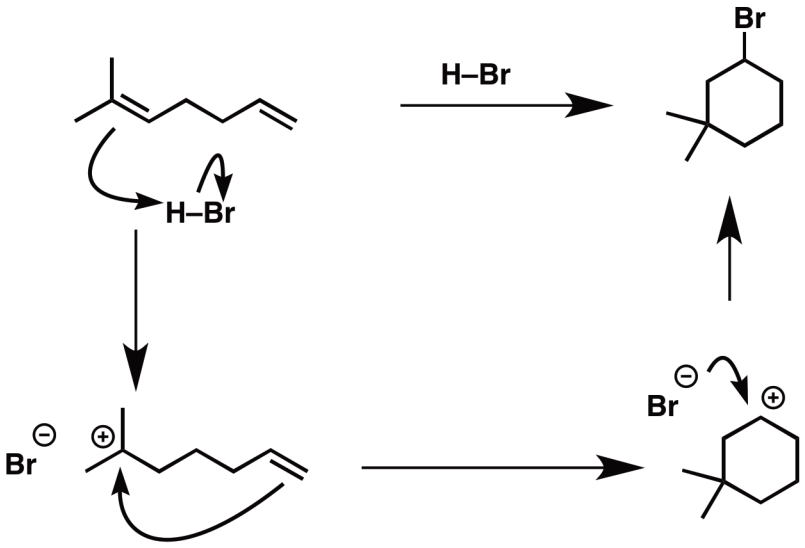
Problem 14: Which alkene (A, B, C or D) would give this dibromide product upon treatment with Br_2 and CCl_4 ? https://bit.ly/3m7eONI



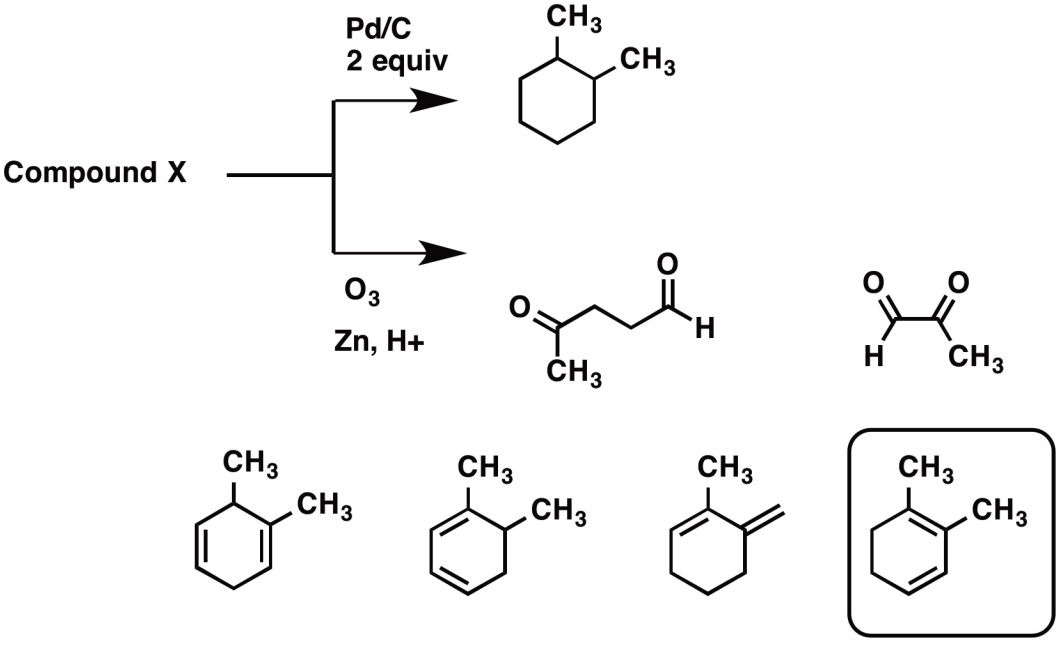
Problem 15: Draw all products resulting from this reaction and indicate how they are related to each other. https://bit.ly/3FaHuxV



Problem 16: Draw a mechanism for this reaction: https://bit.ly/3kMEQWD

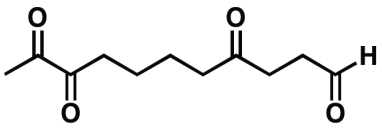


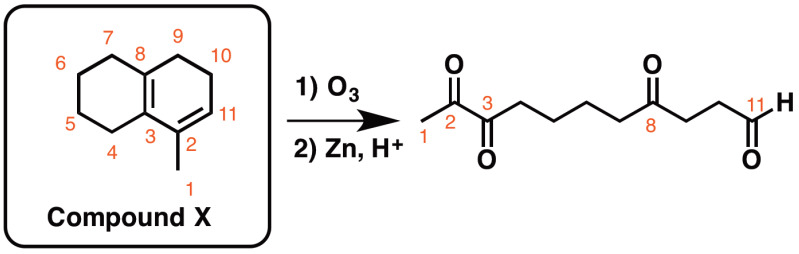
Problem 17: What is compound X? https://bit.ly/3ireLep



Problem 18: What is compound X?

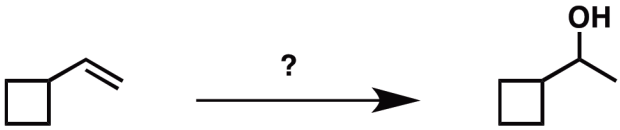
https://bit.ly/3FaCqtk





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

https://bit.ly/3EYbQDB



1) $Hg(OAc)_2$, H_2O
2) $NaBH_4$

Problem 20: Draw a mechanism for the following reaction

https://bit.ly/3B4oGhn