

Solutions to:

Organic Chemistry I

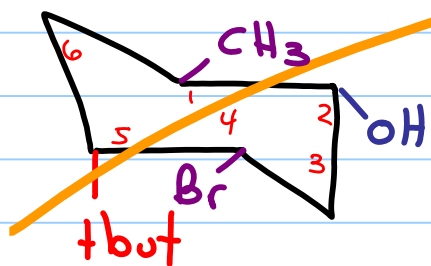
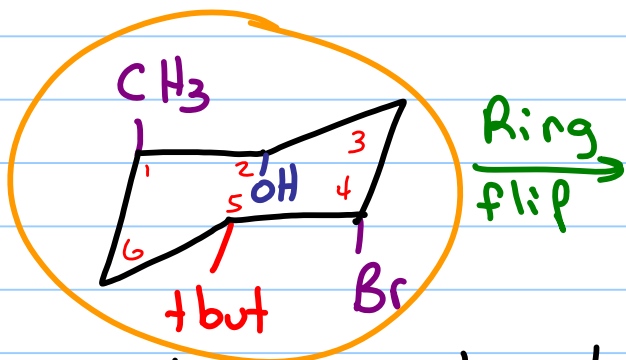
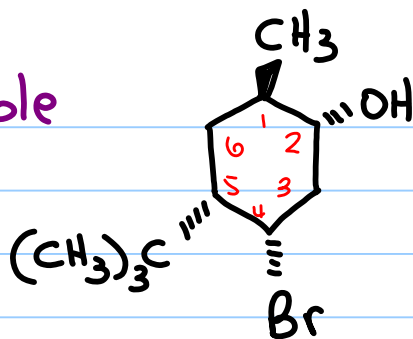
Practice Final Exam

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Video Solutions

Leah4sci.com/orgo1final

① Draw the most stable chair conformation



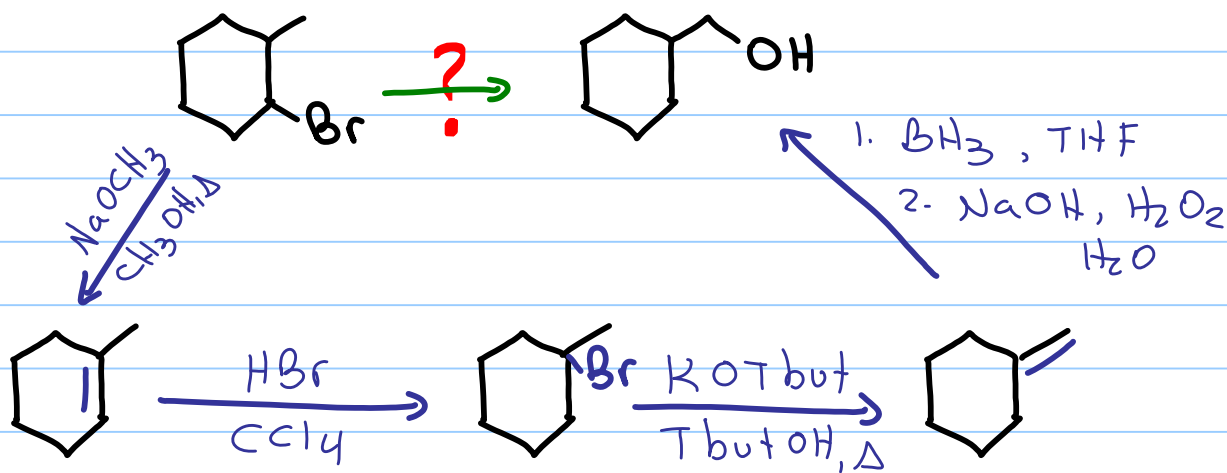
3 axial, 1 equatorial

But...

t-butyl = VERY Bulky
MUST be equatorial

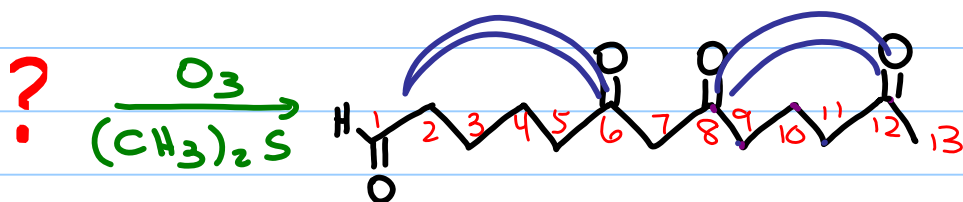
3 eq + 1 Axial
but t-but not
equatorial =
too unstable

② Fill in the missing reagents to bring about this transformation:

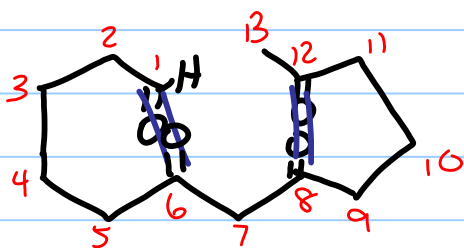


Note: Alt reagents may be used

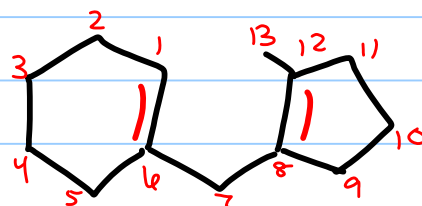
③ Identify the starting molecule



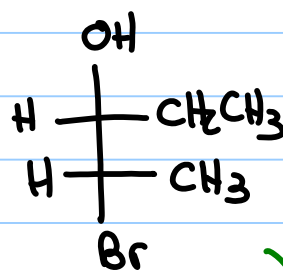
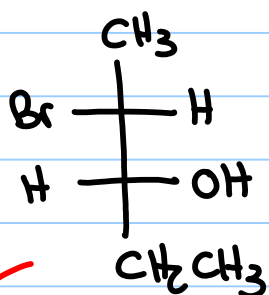
Redraw



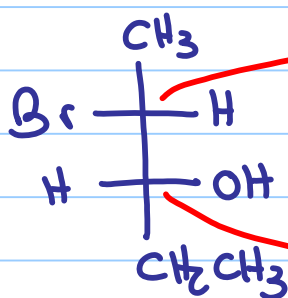
Starting Molecule



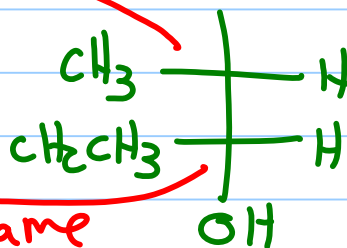
④ find the relationship between these Fischer Projections



Redraw



mirrors

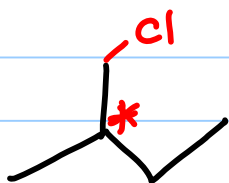
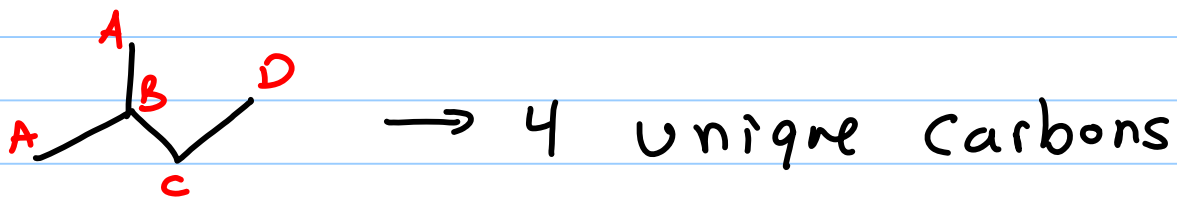


same

Rotate 180°

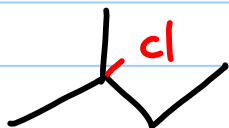
2 chiral: 1 mirror, 1 same \rightarrow Diastereomers

⑤ Draw all possible products for the monochlorination of 2-methylbutane
 Hint: Don't forget chirality

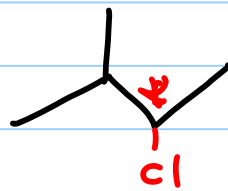


A

chiral = 2 products

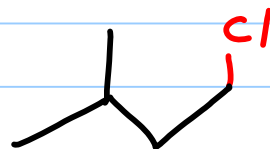


B



C

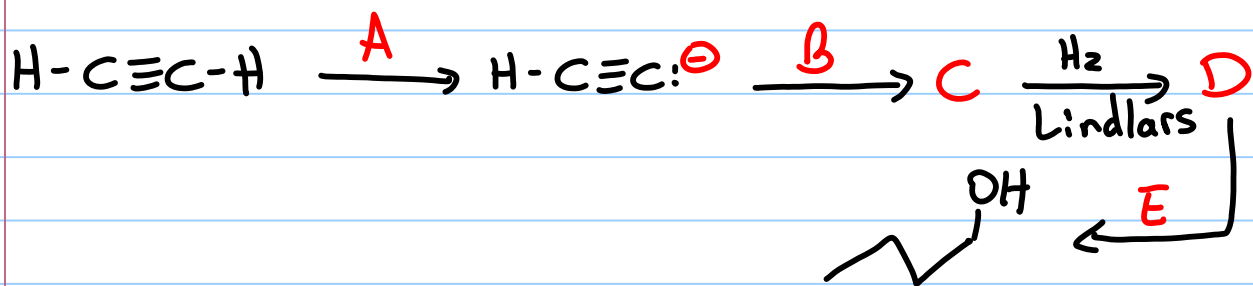
chiral = 2 products



D

6 products total

⑥ Fill in any missing reagents & intermediates



A: $\text{NaNH}_2 / \text{NH}_3 (\text{l})$

B: 

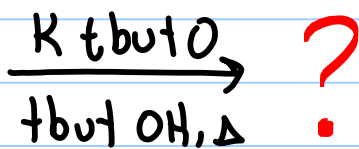
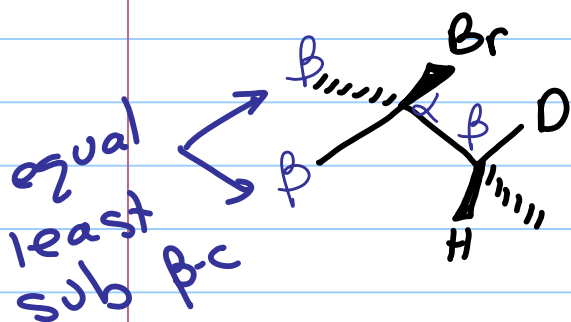
C: 

D: 

E: 1. BH_3, THF

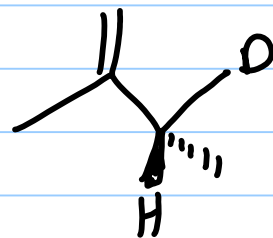
2. $\text{NaOH}, \text{H}_2\text{O}_2, \text{H}_2\text{O}$

⑦ Identify the product of this reaction

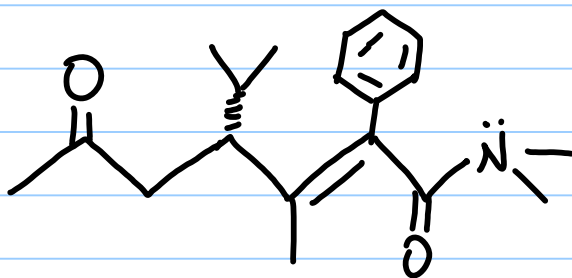


Hint: tbutO
tert butoxide

Non-Zaitsev product:



⑧ Name the following compound. Be sure to account for stereochemistry

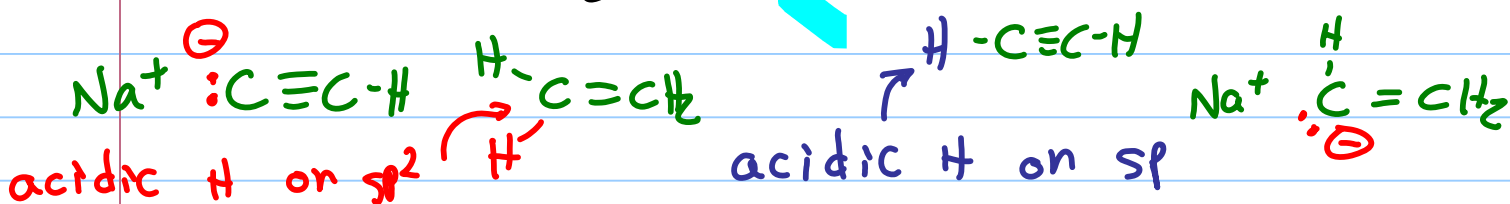


Hint: lookout for R/S
cis/trans/E/Z

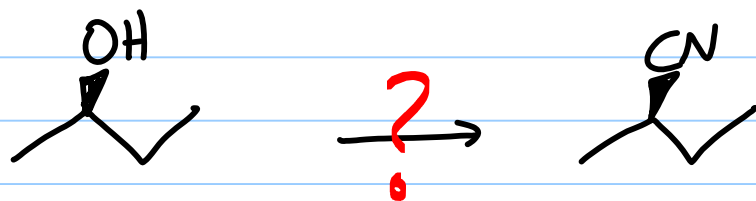
(2E, 4R)

4-isopropyl-3, N,N-trimethyl-6-oxo-2-phenyl-2-heptenamamide

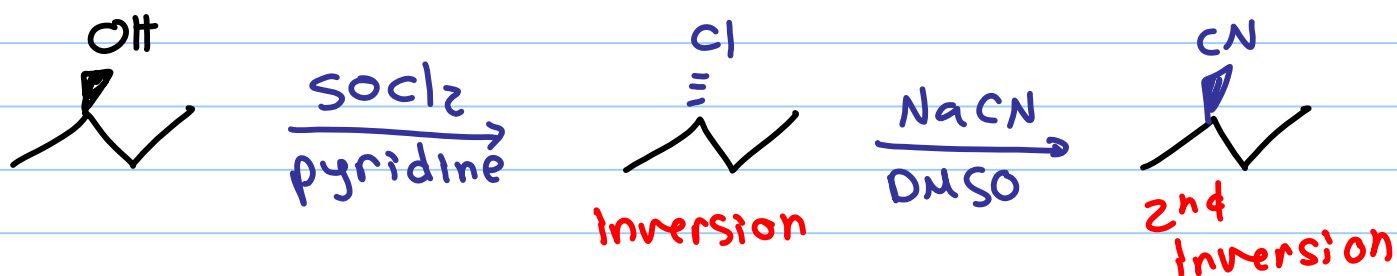
⑨ Determine if this reaction favors reactants or products



⑩ Show how to bring about the following transformation



S_N2 = inversion, here = retention ??



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Video Solutions

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