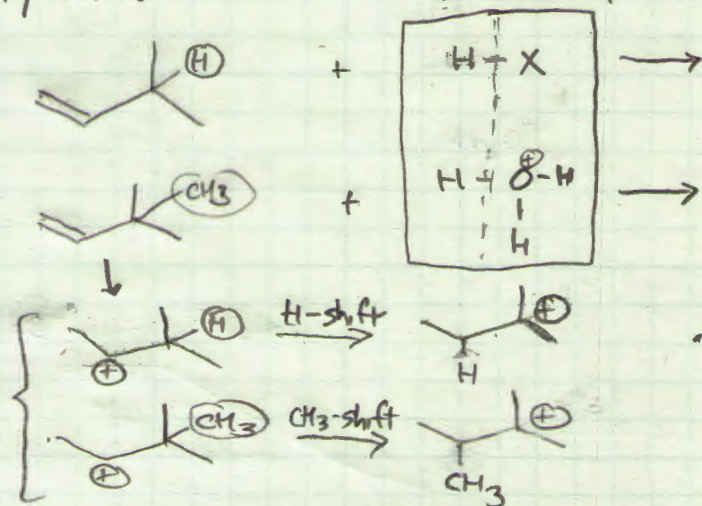


Hydrohalogenation (H-X) X = halogen
Hydration (H-OH, dil H₂SO₄)

C⁺ intermediates



Lewis Acid
H⁺

Lewis Base
:X⁻

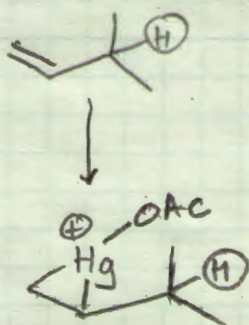
H⁺

:O-H
|
H

∴ rearrangements are possible

2° C⁺ → 3° C⁺
via hydride or CH₃ shift.

Oxymercuration - Demercuration



① Hg(OAc)₂, R-O-H

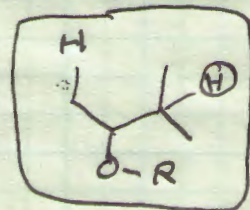
② Na⁺ BH₄⁻

provides

H:⁻ that removes Hg²⁺

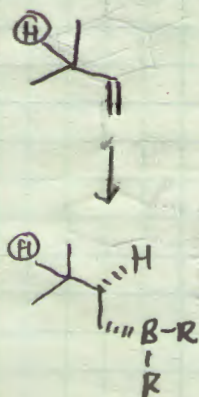
LA
:Hg²⁺

LB
R-O-H
(R = H or Alkyl)



NO C⁺ intermediates ∴ NO H-shift or CH₃-shift

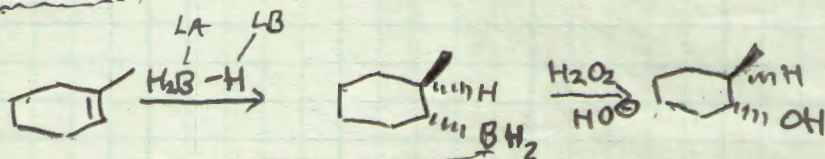
Hydroboration - Oxidation



1) BH₃
2) H₂O₂, HO⁻, H₂O

empty p → LA
C≡C

LB
"H:⁻"
(from BH₃)



NOTE

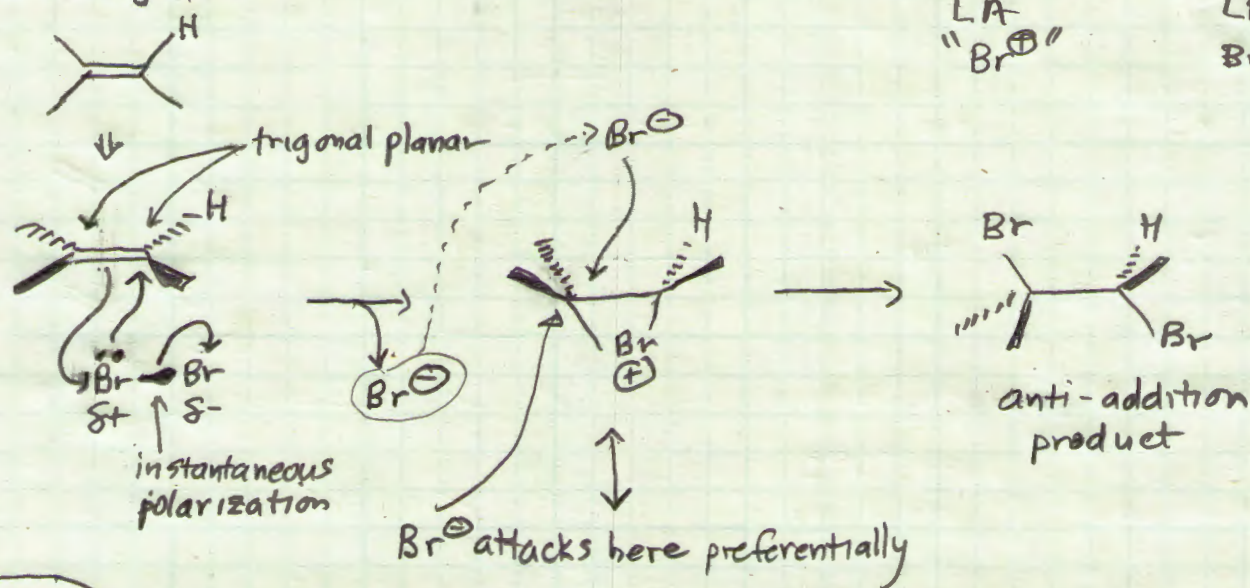
* B also binds least sterically crowded position

syn addition

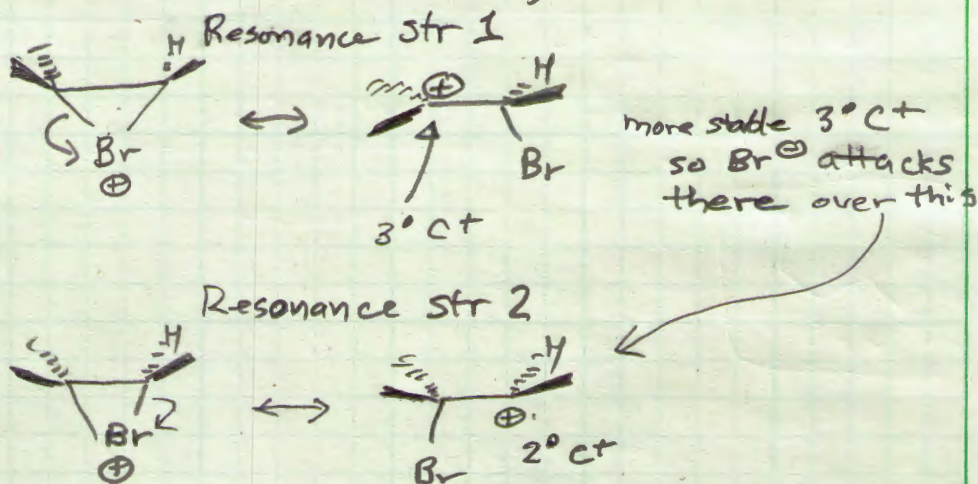
syn addⁿ product
(alcohol)

NO C⁺ intermediates ∴ NO H- or CH₃-shifts

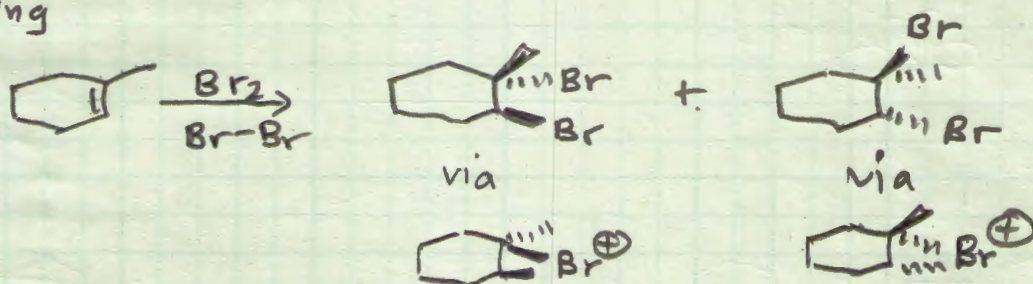
D. halogenation



NO C⁺ intermediate is formed
 ∴ NO H- or CH₃-shift

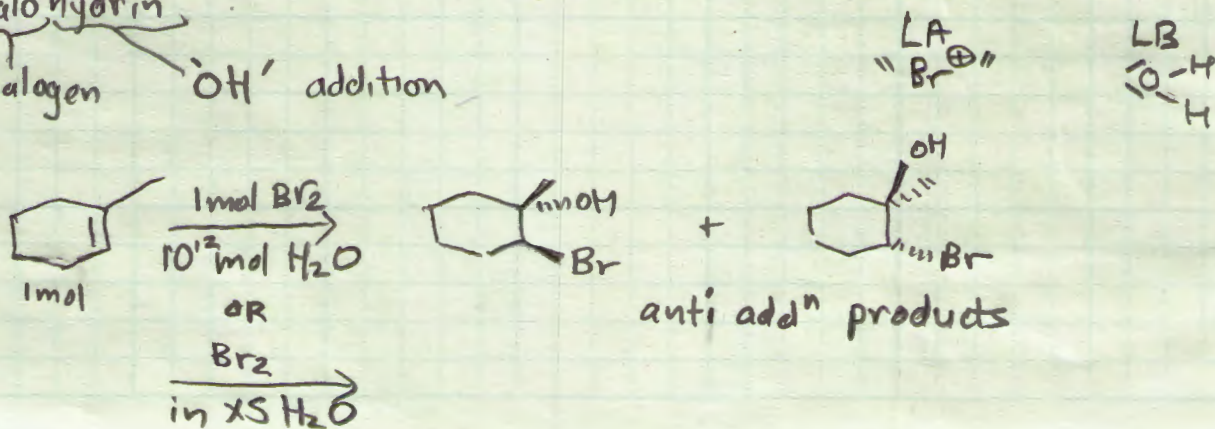


Ring

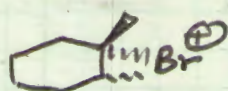
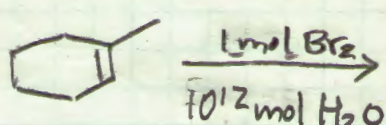


Halohydrin

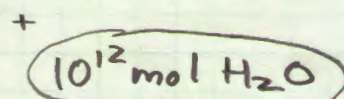
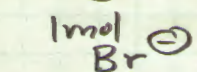
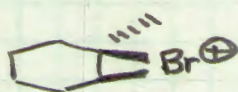
halogen 'OH' addition



Halohydrin formation continued. What is happening?

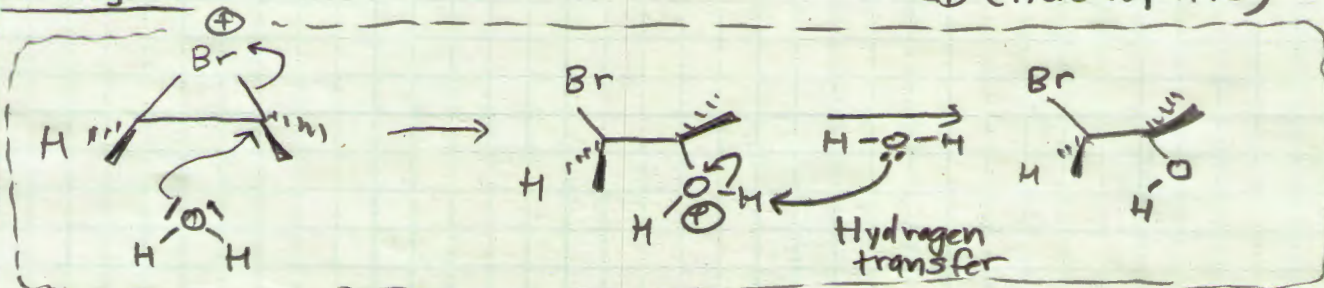


and

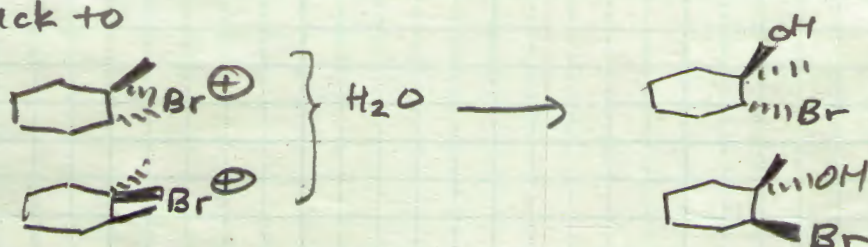


this dilutes $\text{Br}^\ominus$
 $\therefore \text{H}_2\text{O}$ functions as the
 LB (nucleophile)

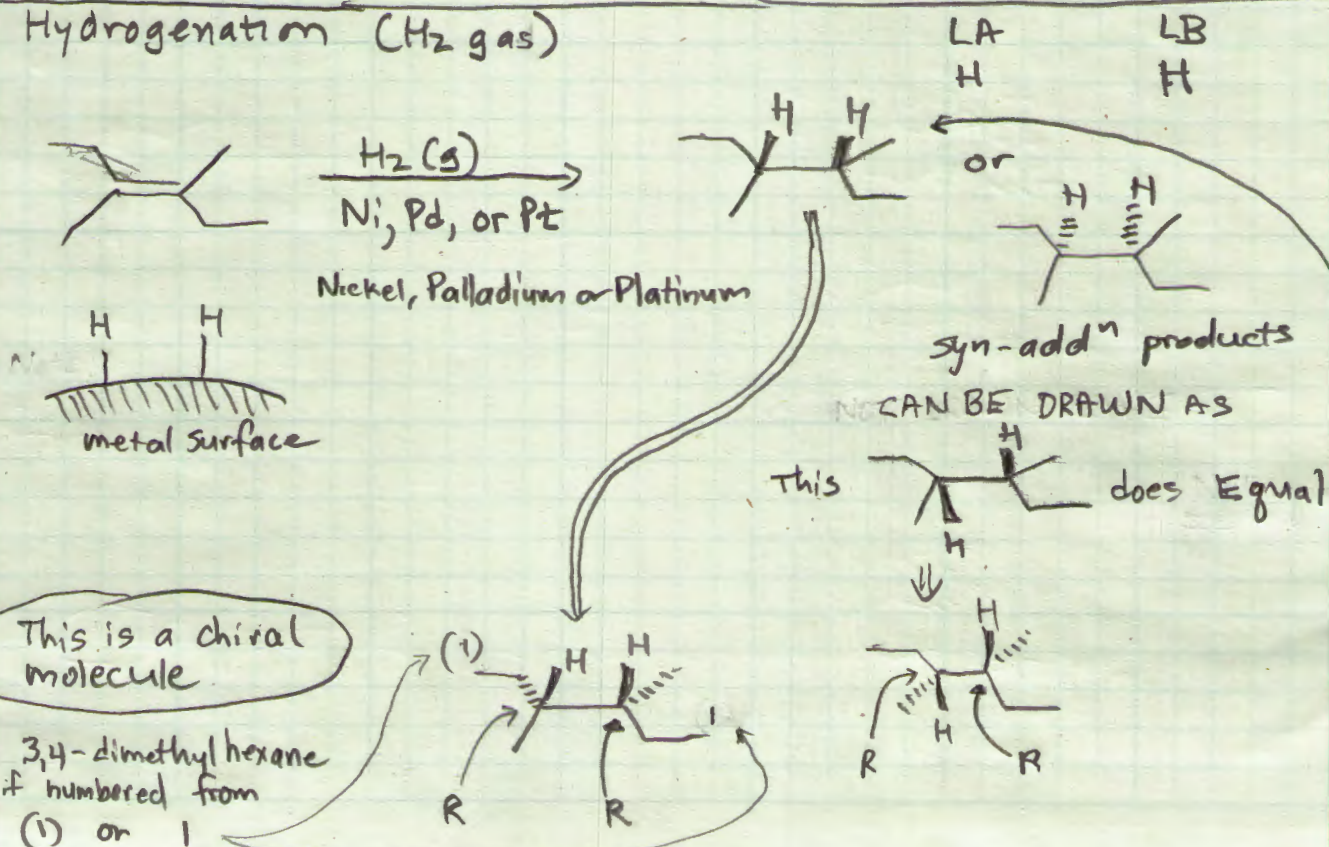
Imagine



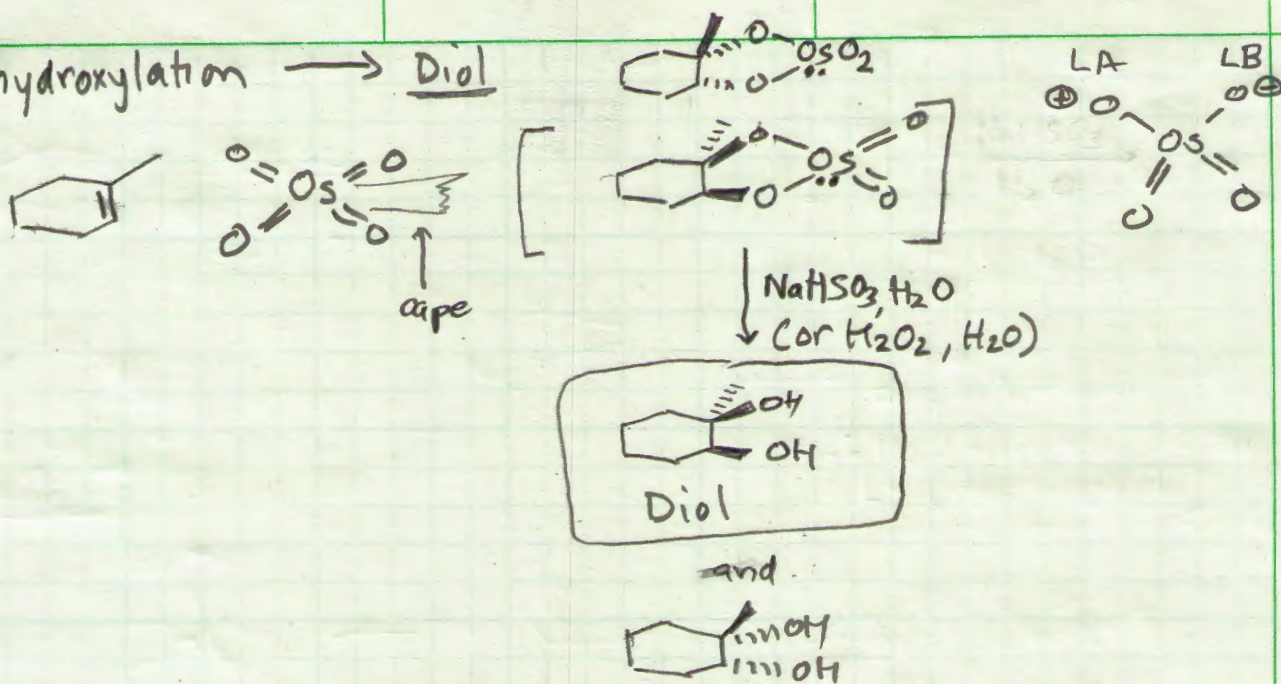
Back to



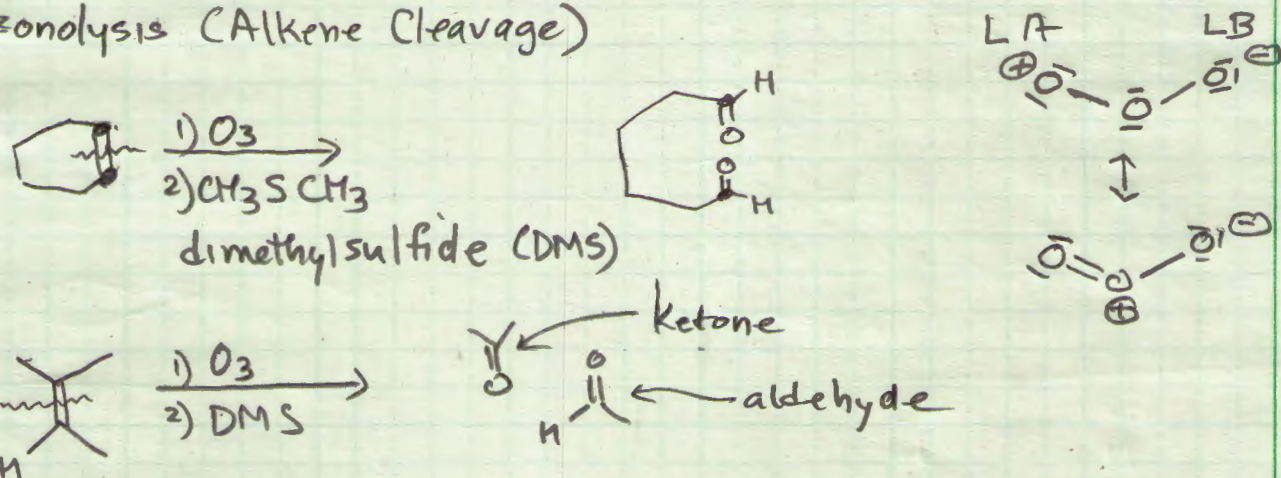
Hydrogenation (H_2 gas)



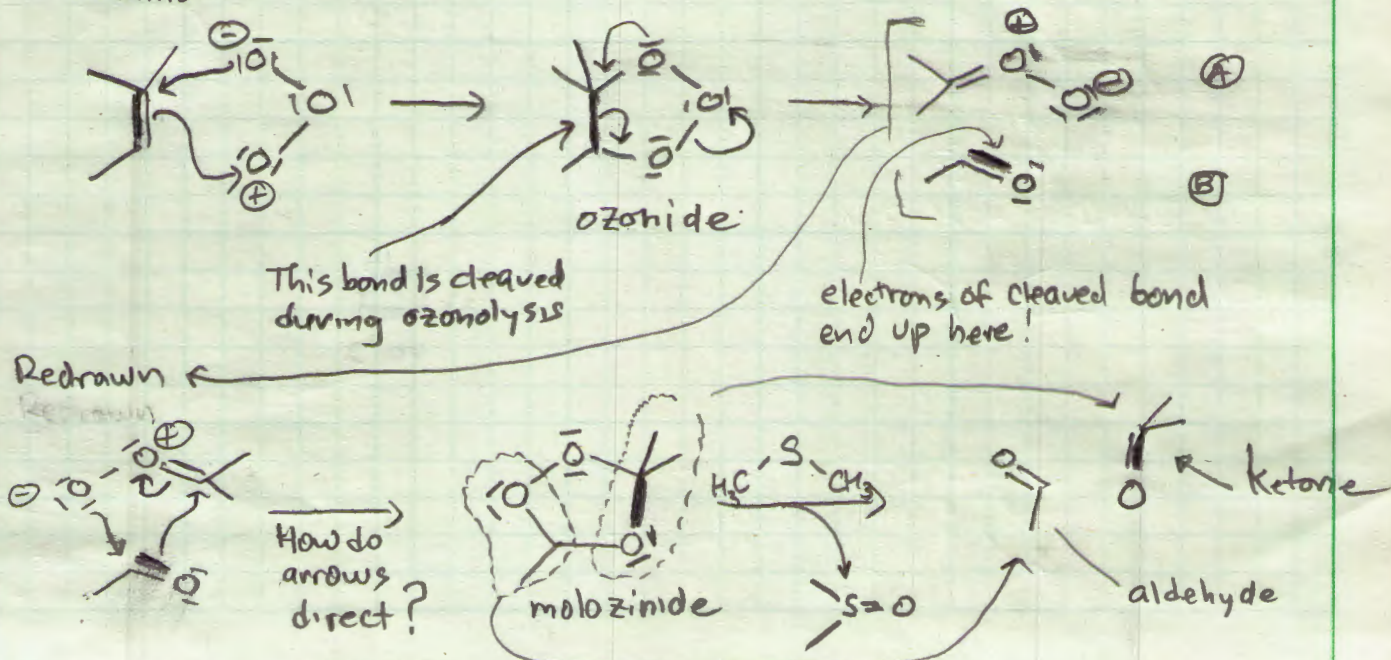
Dihydroxylation $\rightarrow$ Diol



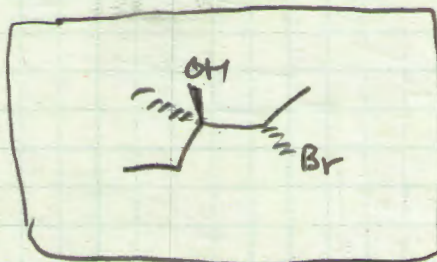
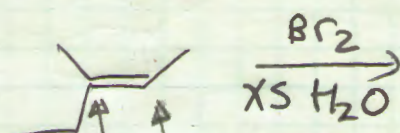
Ozonolysis (Alkene Cleavage)



Mechanism



Practice



Draw one stereoisomer

Br goes here
 Lewis Acid
 "OH" goes here
 Lewis Base

→ Anti-addition product!

Variations of drawing

YOU GET
THE IDEA