
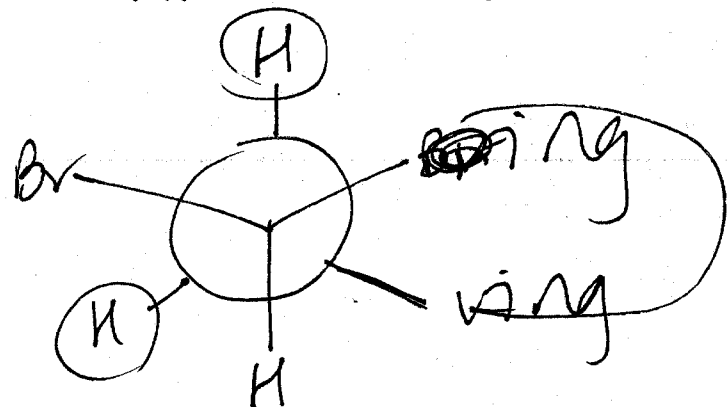


most stable
conformation

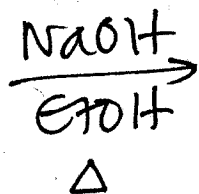
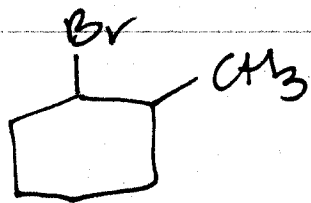
most stable
conformation
has the anti
arrangement
of H + Br
⇒ fast


 molecule
must
undergo an
unfavorable

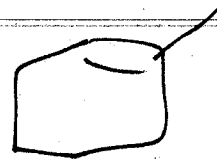


conformational change before
 Neither H is
 anti to the Br.
 it can react, elimination
 ⇒ v. slow won't go.

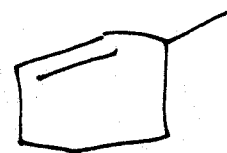
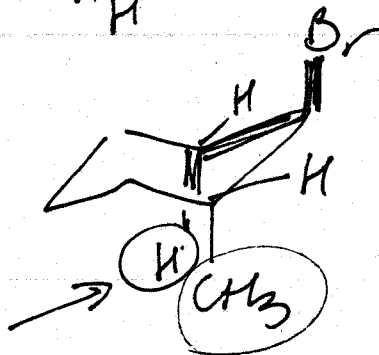
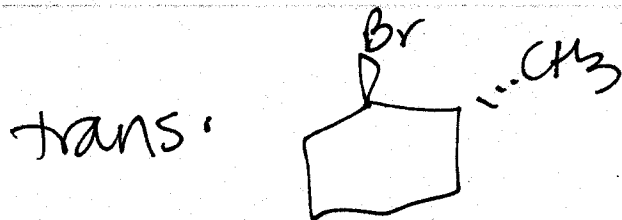
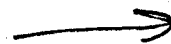
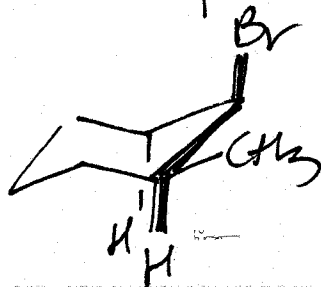
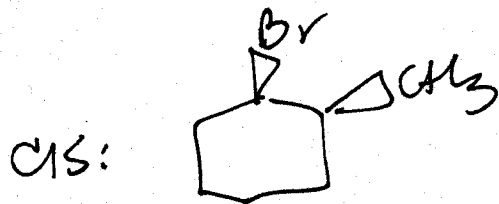
Consider: cis + trans 2-methyl-1-bromo
cyclohexane



expect



Add in stereochemistry



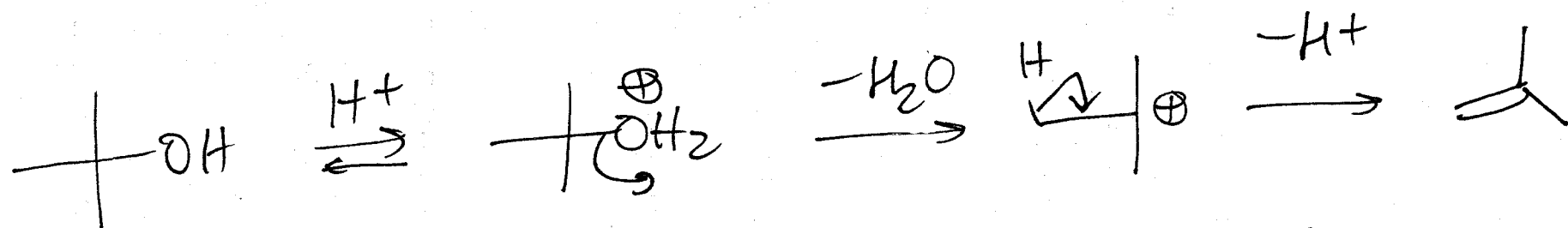
Acid-Catalyzed Dehydration of Alcohols

(loss of H_2O)

ease of dehydration: $3^\circ > 2^\circ > 1^\circ$
(85°) (180°)

mechanism: E1

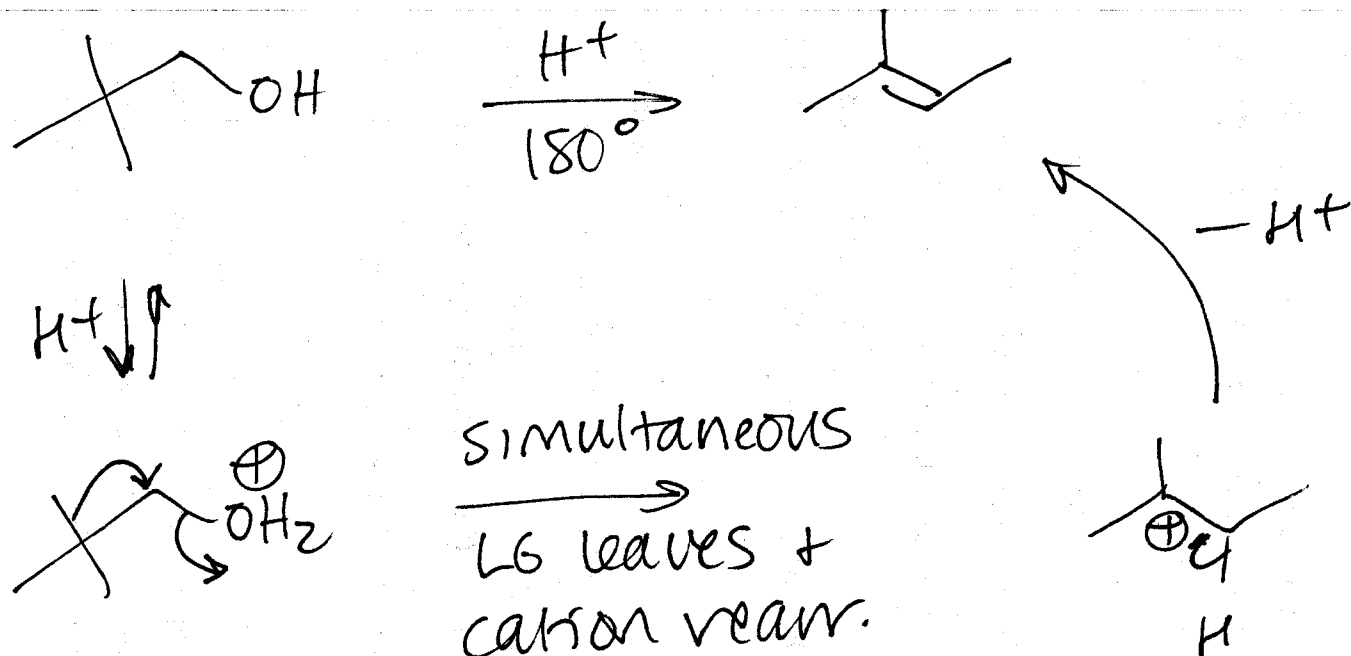
1. protonate OH (need a good LG)
2. H_2O leaves \rightarrow cation
3. lose β H \rightarrow alkene



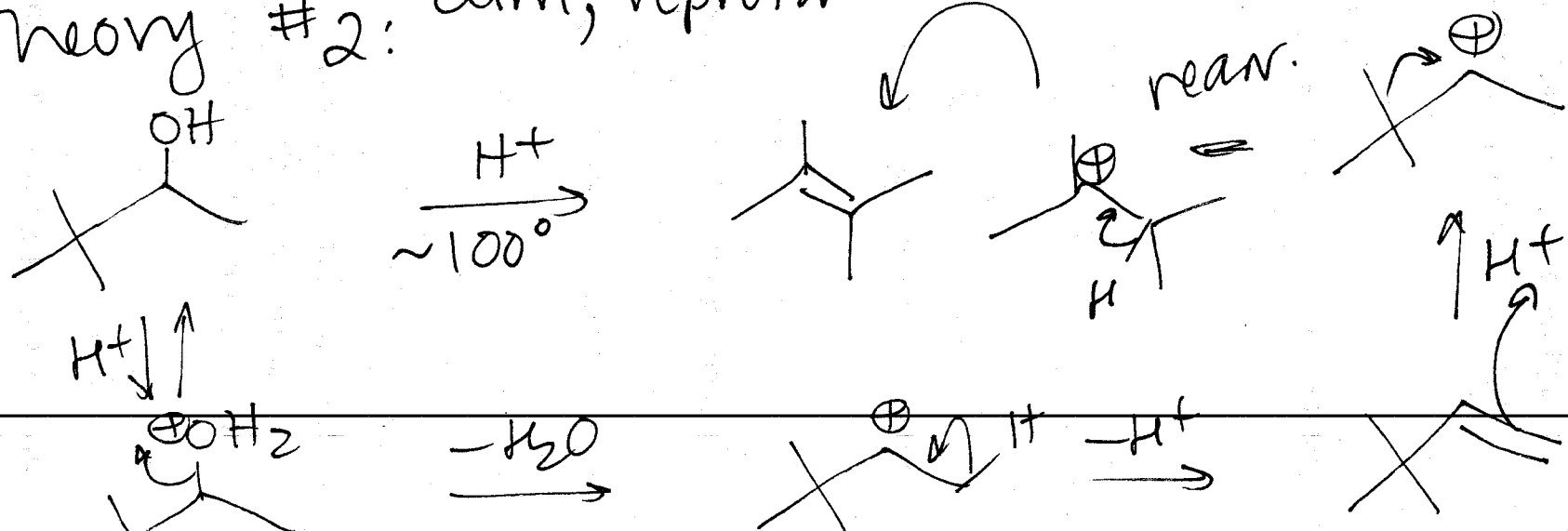
(don't forget
about rearrangement)

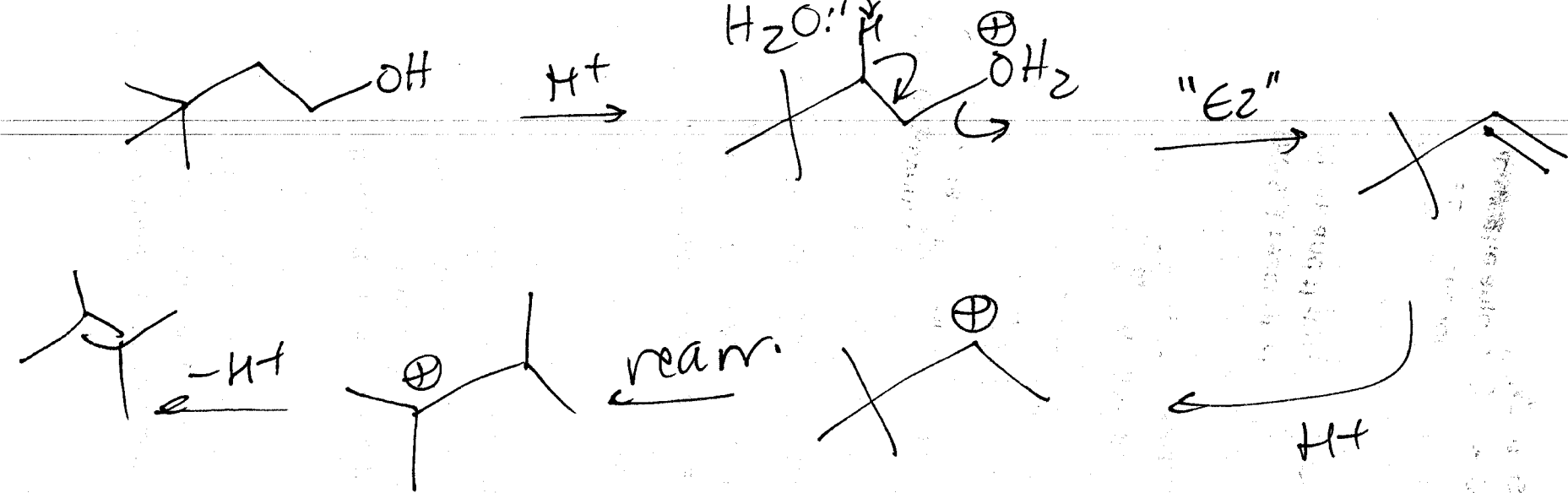
* this is the way
that $3^\circ + 2^\circ$ alcohols
react.

What about 1° alcohols? Theory #1: modified E1



Theory #2: elim, reprotonation, H^+ another elimination





For alcohols:

$3^\circ + 2^\circ$ - use E1 - cation intermediates rearr. possible.

1° - often call it E2 but then reprotanate alkene. Alternative - modified E1

For alkyl halides: Prefer E2 - need strong base

- concerted rxn
- anti elimination

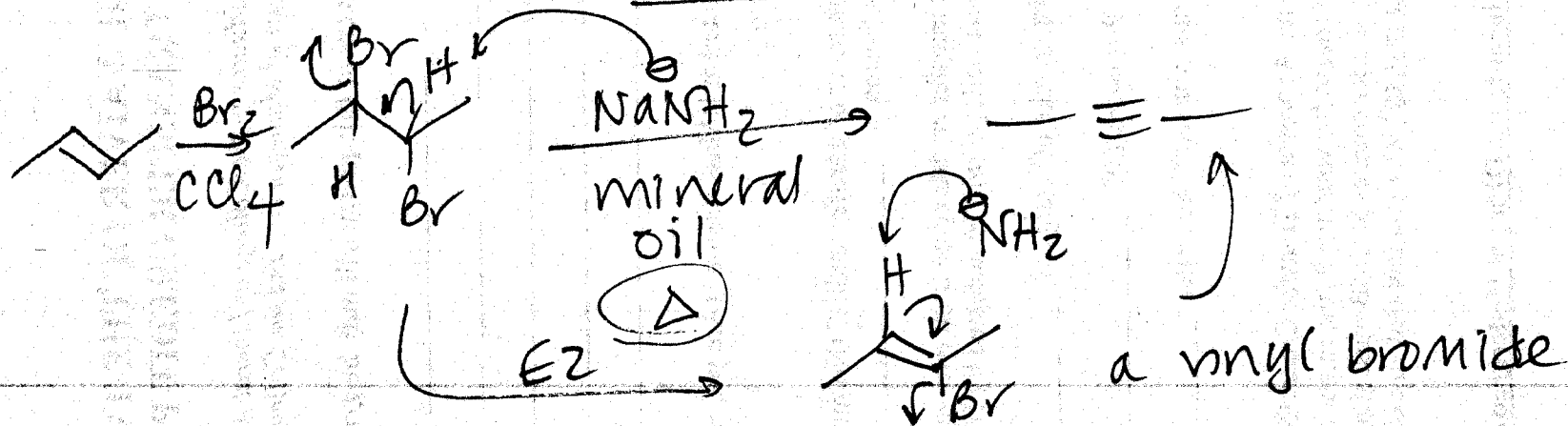
Synthesis of Alkynes:

1. Double dehydrohalogenation

(loss of two equiv. of HX)

a. from a vicinal dibromide

vic = adjacent



b. from a geminal dichloride

gem - "twins"
- on same C