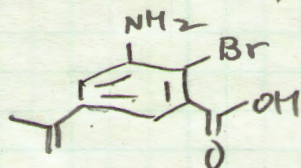
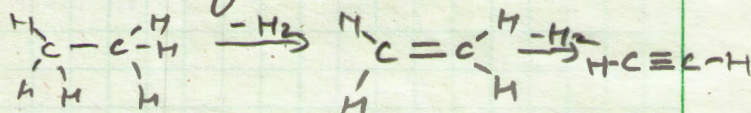


Thursday Lecture Review

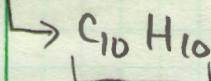
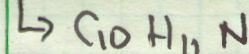
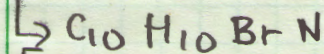
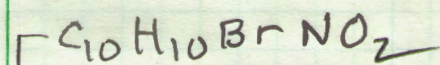
How many Indices of "H₂" Deficiency are there?



6 Because
 1 ring → lacks 1 H₂ compared to saturated equiv.
 + 5 π bonds → π bonds remove 1 H₂ from a saturated equivalent
 6



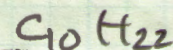
How many IHDs in this molecule, given the formula



Here is our New Formula that needs to be subtracted from the

C₁₀ saturated formula

① Write C₁₀ saturated CH formula from C_nH_{2n+2}

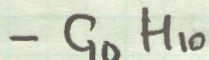
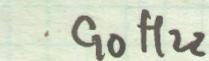


② Convert C₁₀H₁₀BrNO₂ to CH equivalent

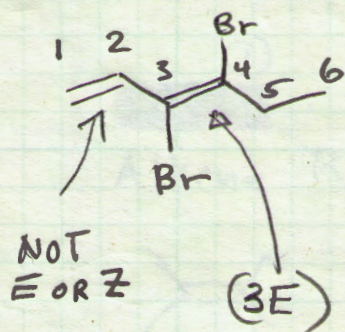
Oxygens do not affect H number when included in formula

When added to a formula Halogens remove an extra, therefore, when you remove the Halogen from the formula, you need to ADD H.

When N is added to a formula it brings (or adds) an extra H, therefore, when it's removed you need to SUBTRACT an H



$$\frac{H_{12}}{H_2} \cdot \frac{1 \text{ IHD}}{H_2} = \boxed{6}$$



systematically named

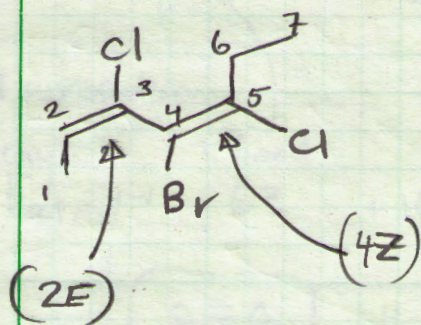
ROOT: 1,3-hexadiene

substituents

3,4-dibromo

Put together

(3E)-3,4-dibromo-1,3-hexadiene



ROOT: 2,4-heptadiene

Substituents

4-bromo

3,5-dichloro

Put together

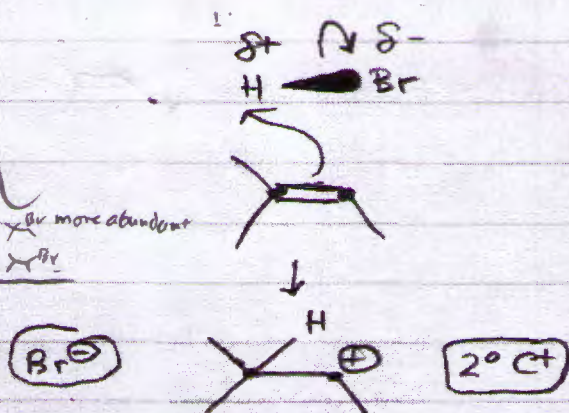
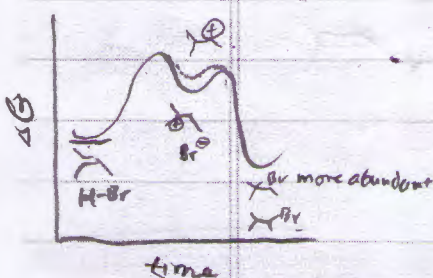
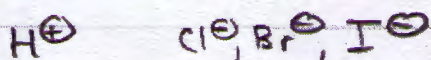
(2E,4Z)-4-bromo-3,5-dichloro-2,4-heptadiene

- ① Double bonds must get lowest numbering. If there's a tie numbering from both ends, then use substituent numbering to break the tie.

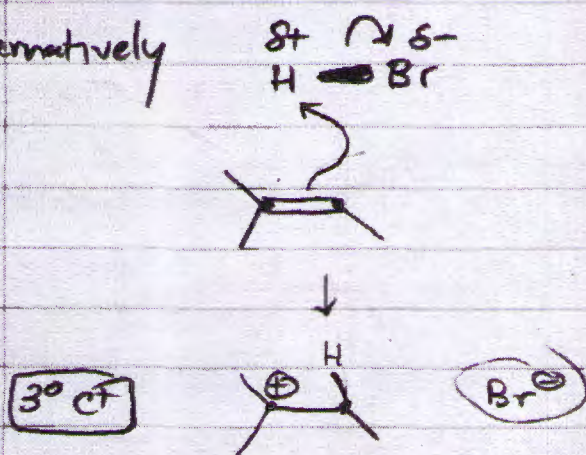
Here* numbering is shown based on alkene #ing.

②

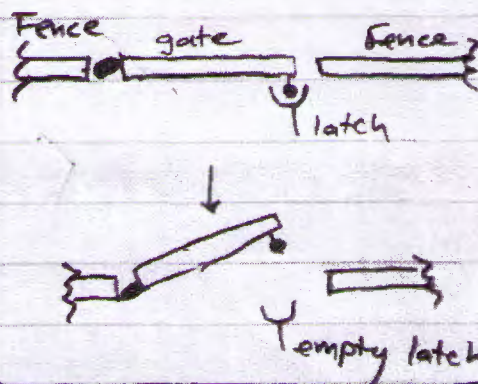
Alkene Addⁿ Rxns. Hydrohalogenation.



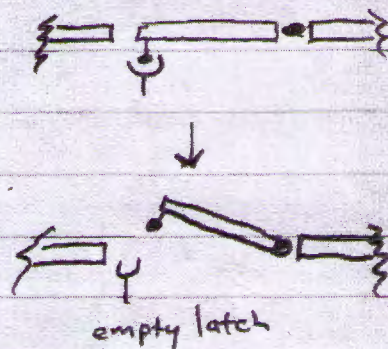
Alternatively



Imagine a gate opening and leaving an empty latch



Alternatively, gate opens other way

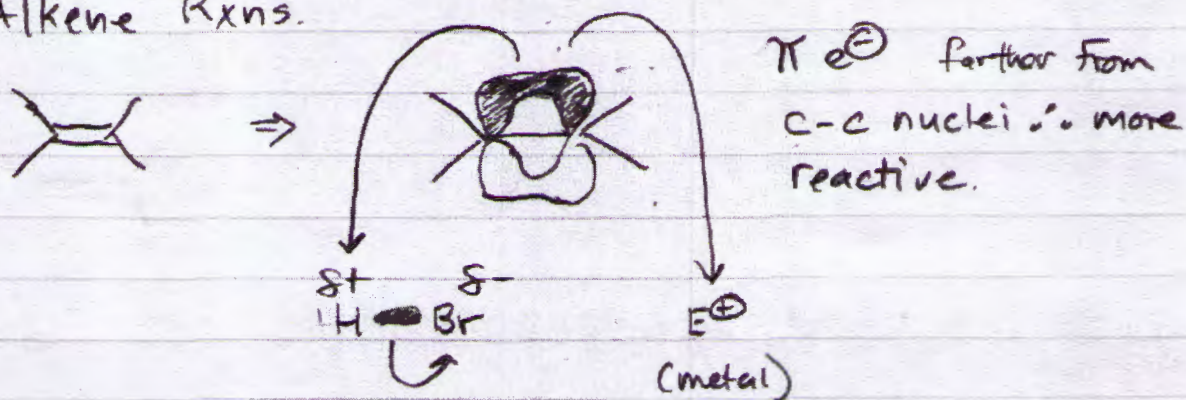


Now look at alkene above.

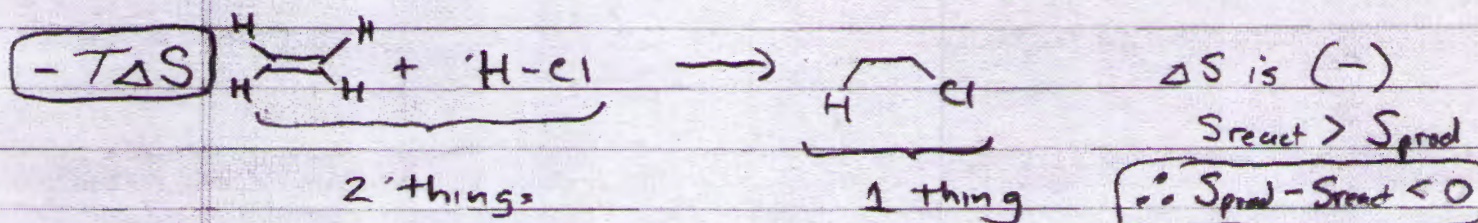
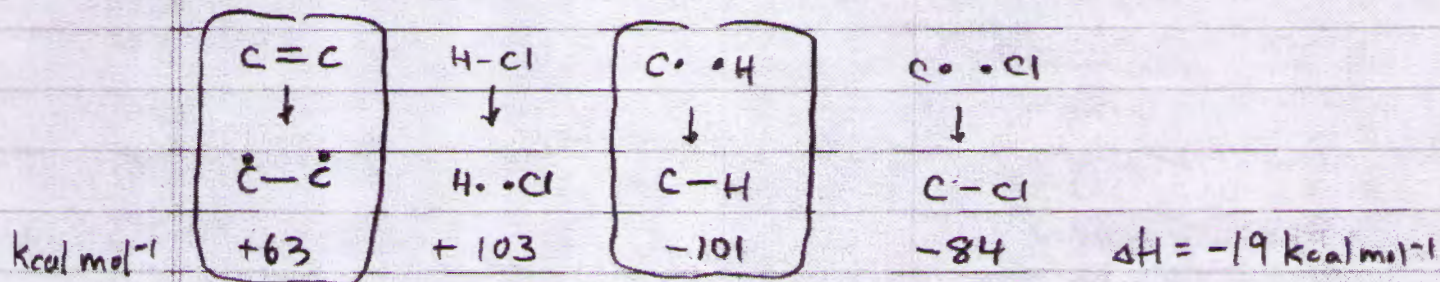
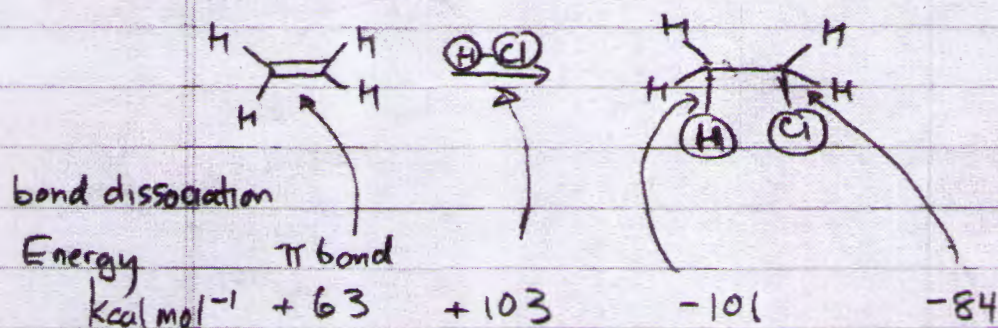
Note! Each "gate opening" scenario gives a C^+ top one is $2^\circ C^+$ bottom one is $3^\circ C^+$
 $3^\circ C^+$ more stable than $2^\circ C^+$
 $\therefore$ bottom addⁿ rxn is favored

①

Alkene Rxns.

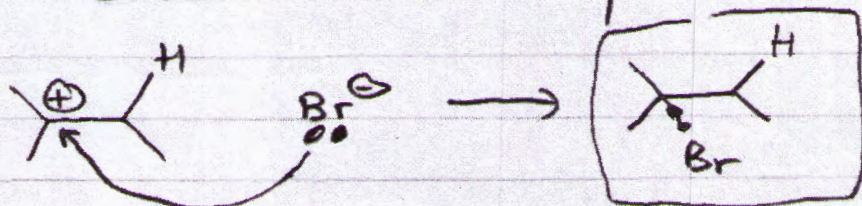


Let's Look at when Alkene Addition are favorable



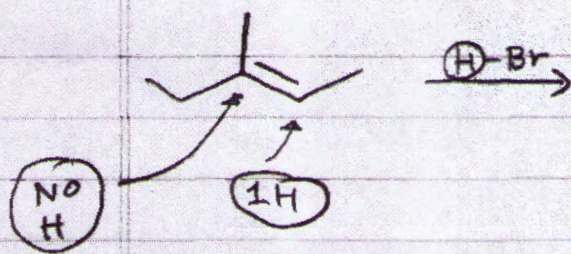
③
~~2, 8-11~~

From ~~2, 8-11~~ 3° C^+ pathway

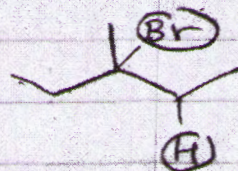


+/- attract! to
form new bond

Addⁿ product



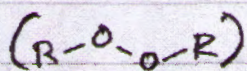
use approach highlighted above



3-bromo-3-methylpentane

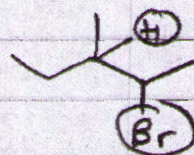
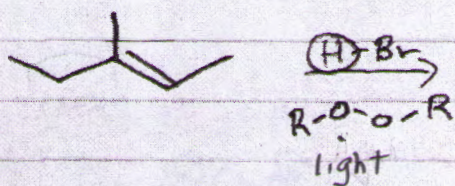
Markovnikov Product

H adds to C of $C=C$ that has more H,
the nucleophile goes to C of $C=C$ with fewer H



Note is peroxides are use w/ $H-X$ ($X = Cl, Br, I$)

then ANTI - Markovnikov product is made



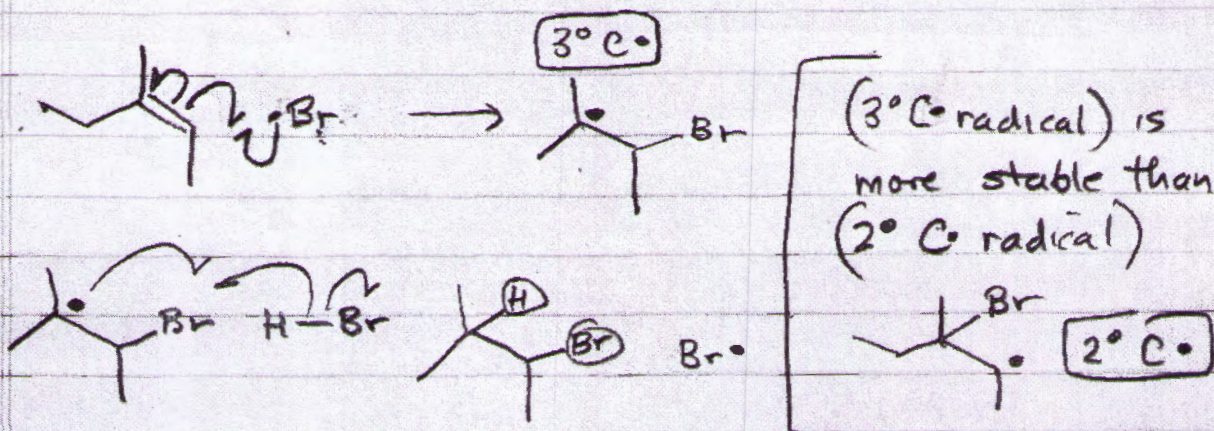
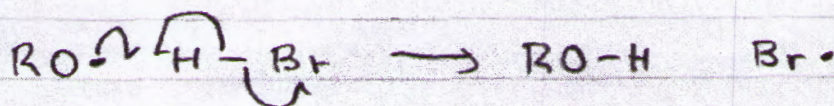
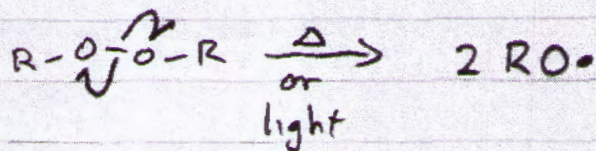
2-bromo-3-methylpentane

Constitutional isomer
of product above

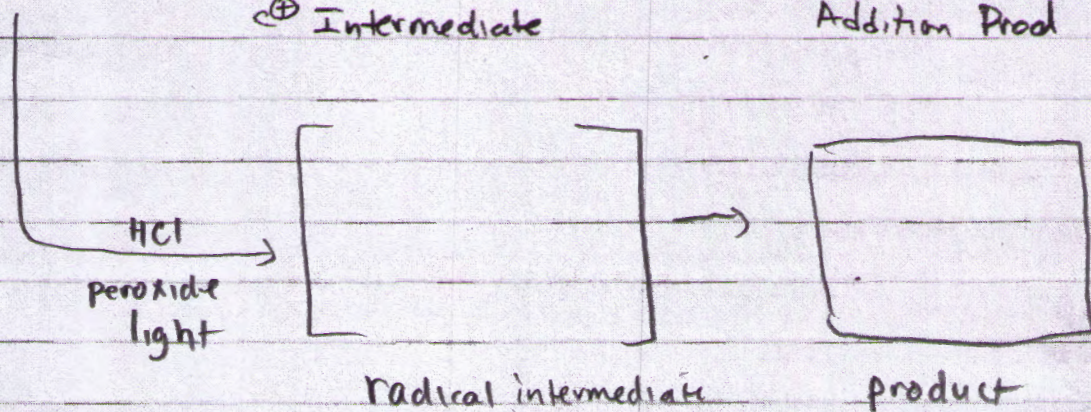
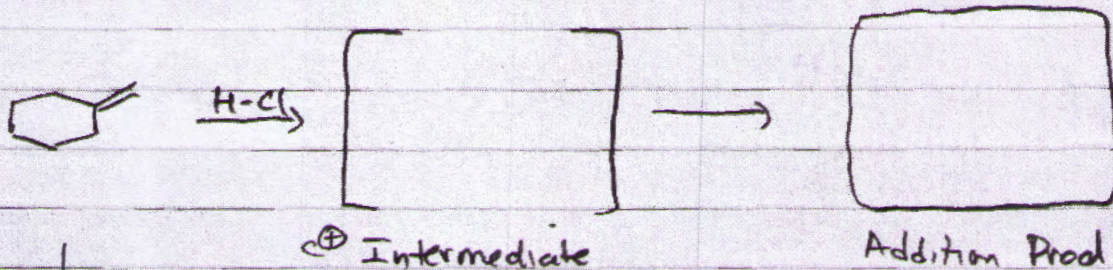
④

~~Ch 3-5~~

What happens with peroxides.



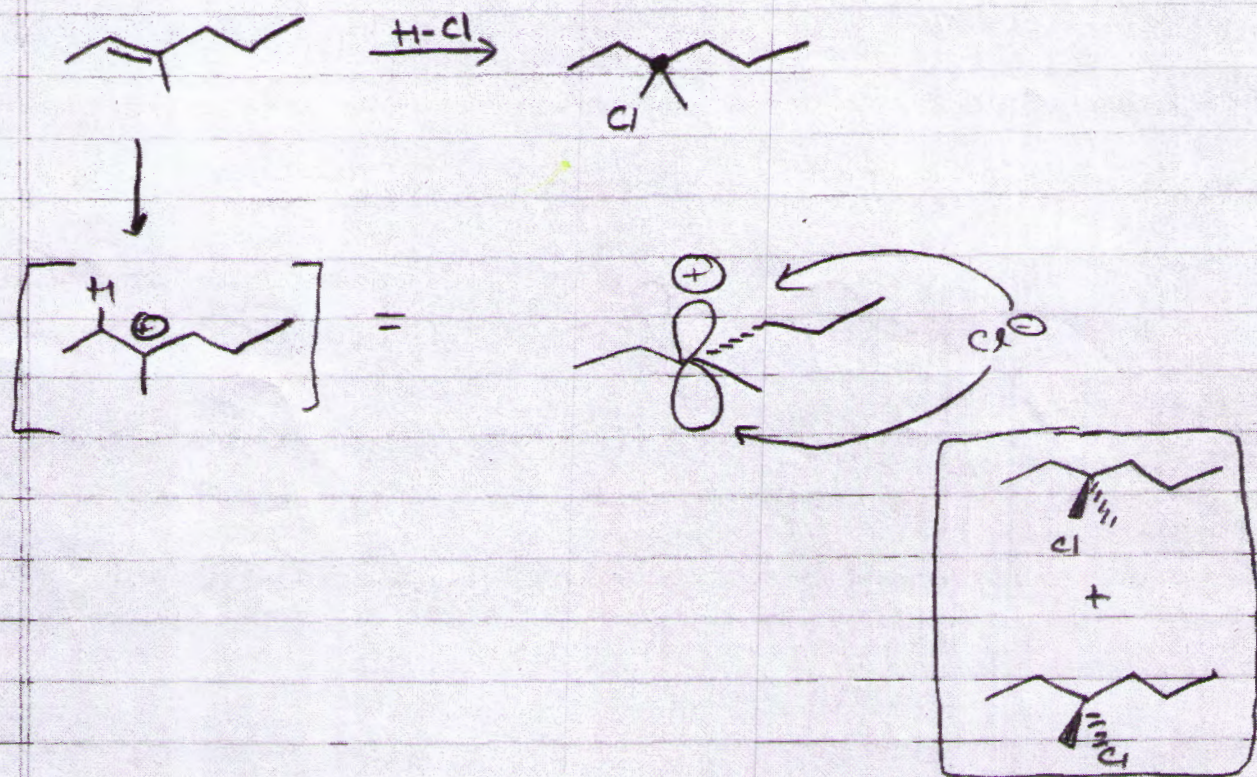
Do Problem ~~3-5~~ for practice



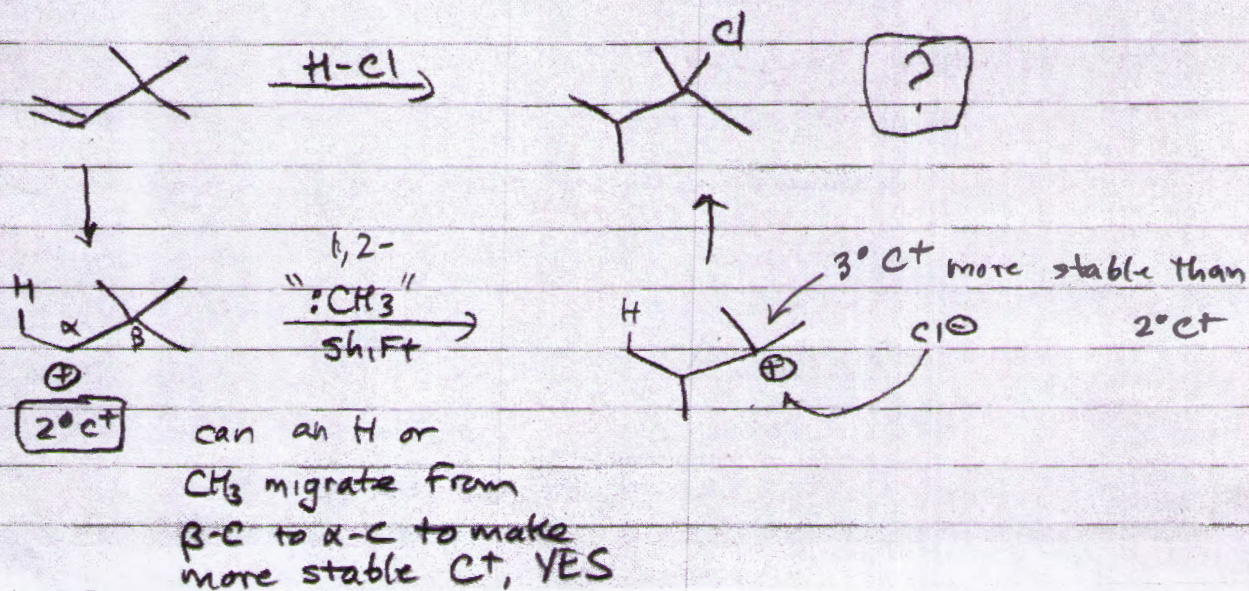
⑤

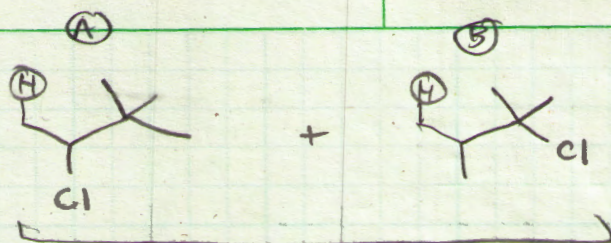
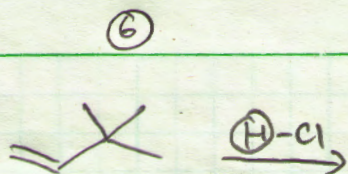
8-1

If a new chiral center is formed, draw a dot (•) on that center. do not draw wedged or dashed lines.



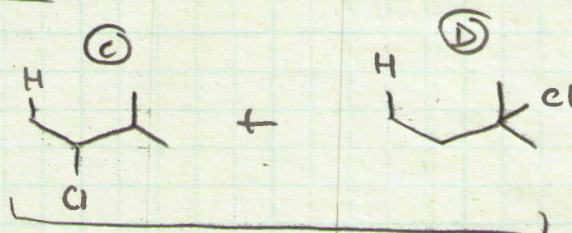
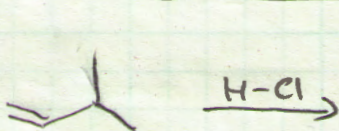
What happened?





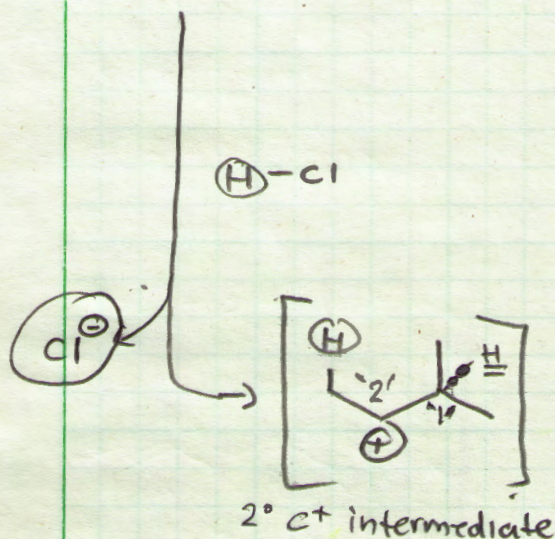
mixture

⑤ occurs via "CH₃" [methyl] shift



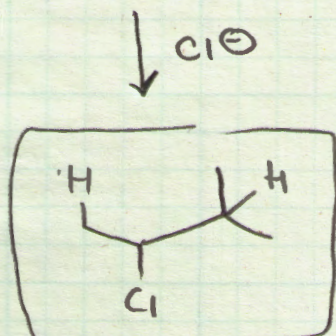
mixture

How is ④ formed.



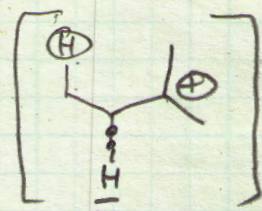
NOTE the H above!

it shifts H: = hydride

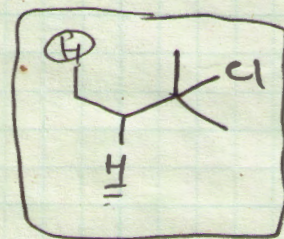


③ above

1,2-Hydride
"H:" shift



3° c⁺ intermediate



④ above