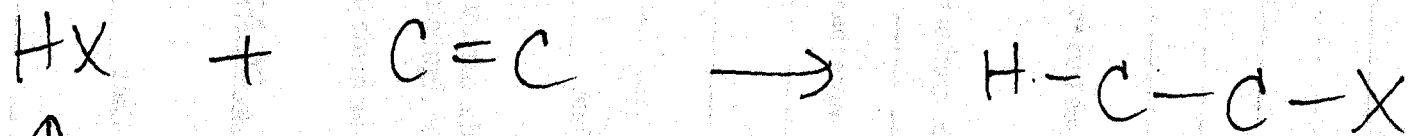


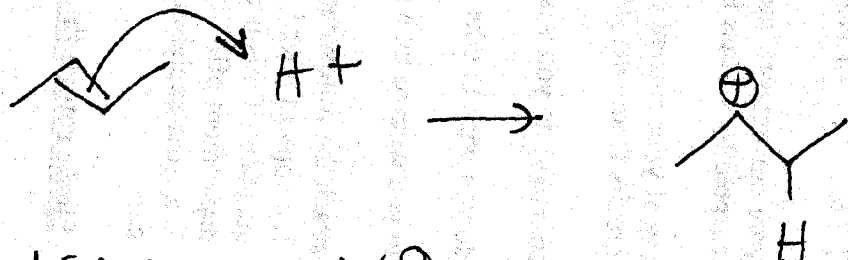
Chapter 8 - Addition Rxns.

Electrophilic Addition of HX.

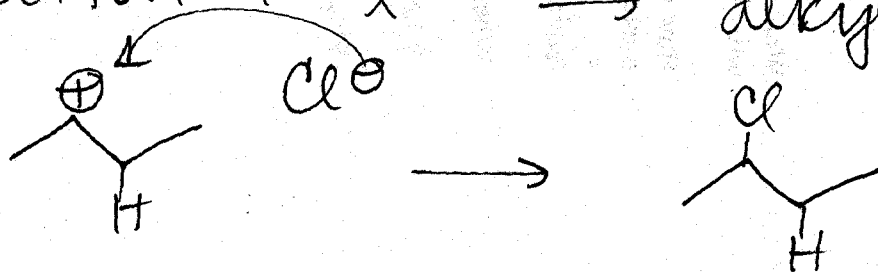
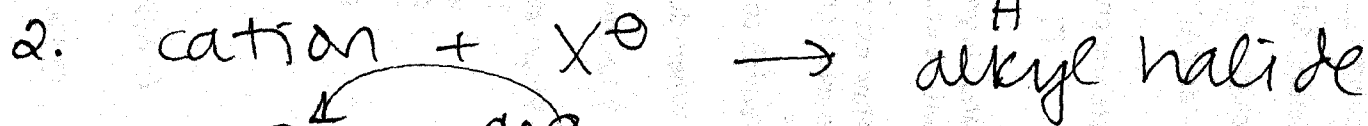


reactivities parallel acidities (ability to donate H^+)
 $\text{HF} \ll \text{HCl} < \text{HBr} < \text{HI}$ (most acidic)

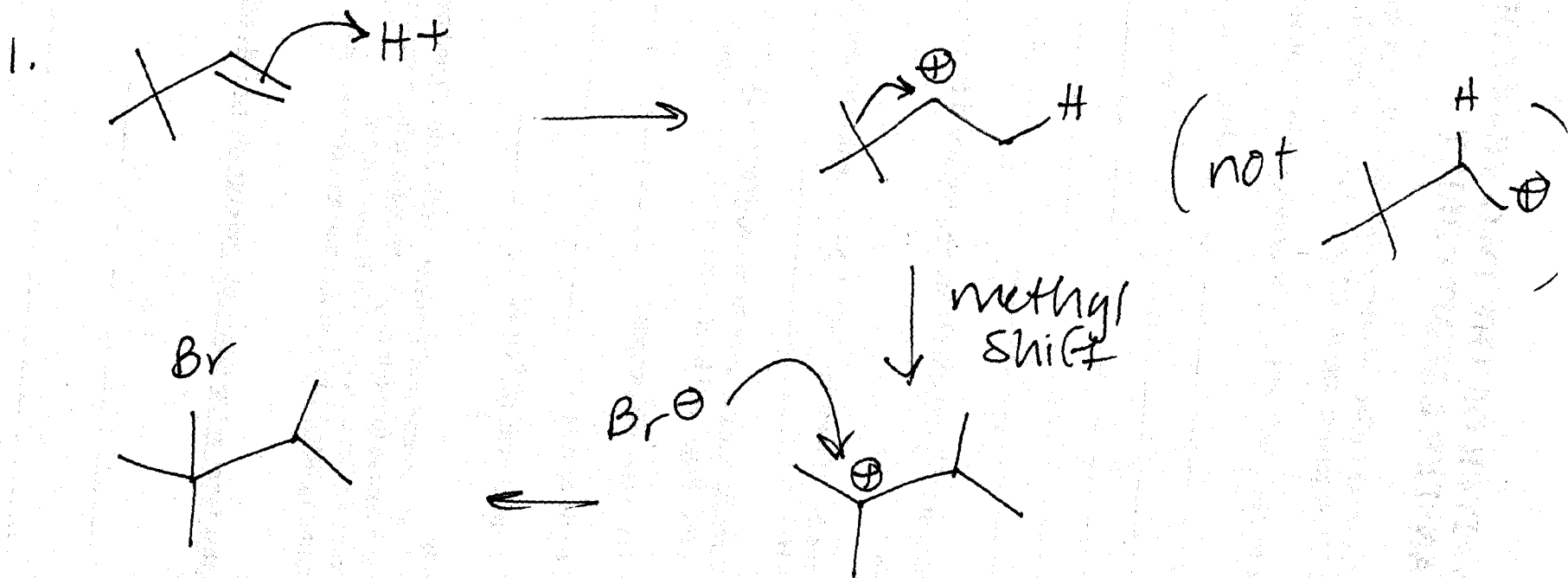
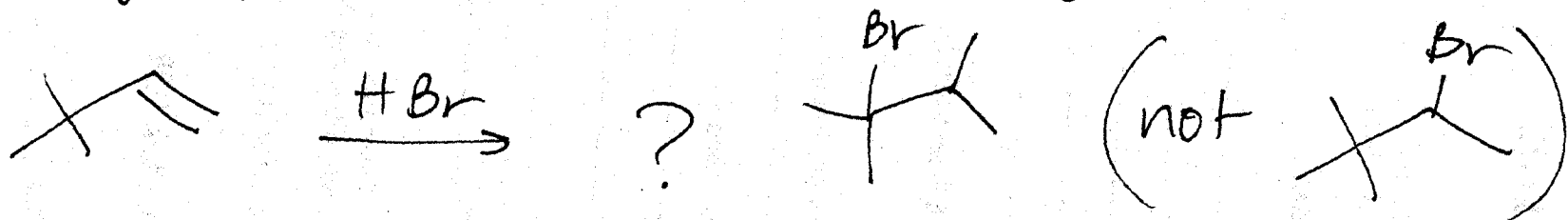
mechanism: reverse of E1



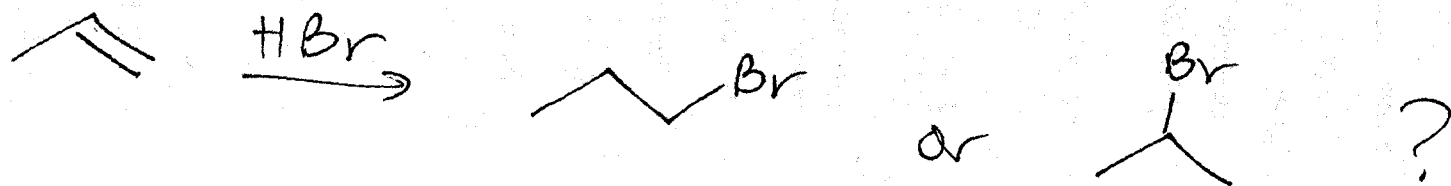
⇐ electrophilic attack of H^+ on the alkene

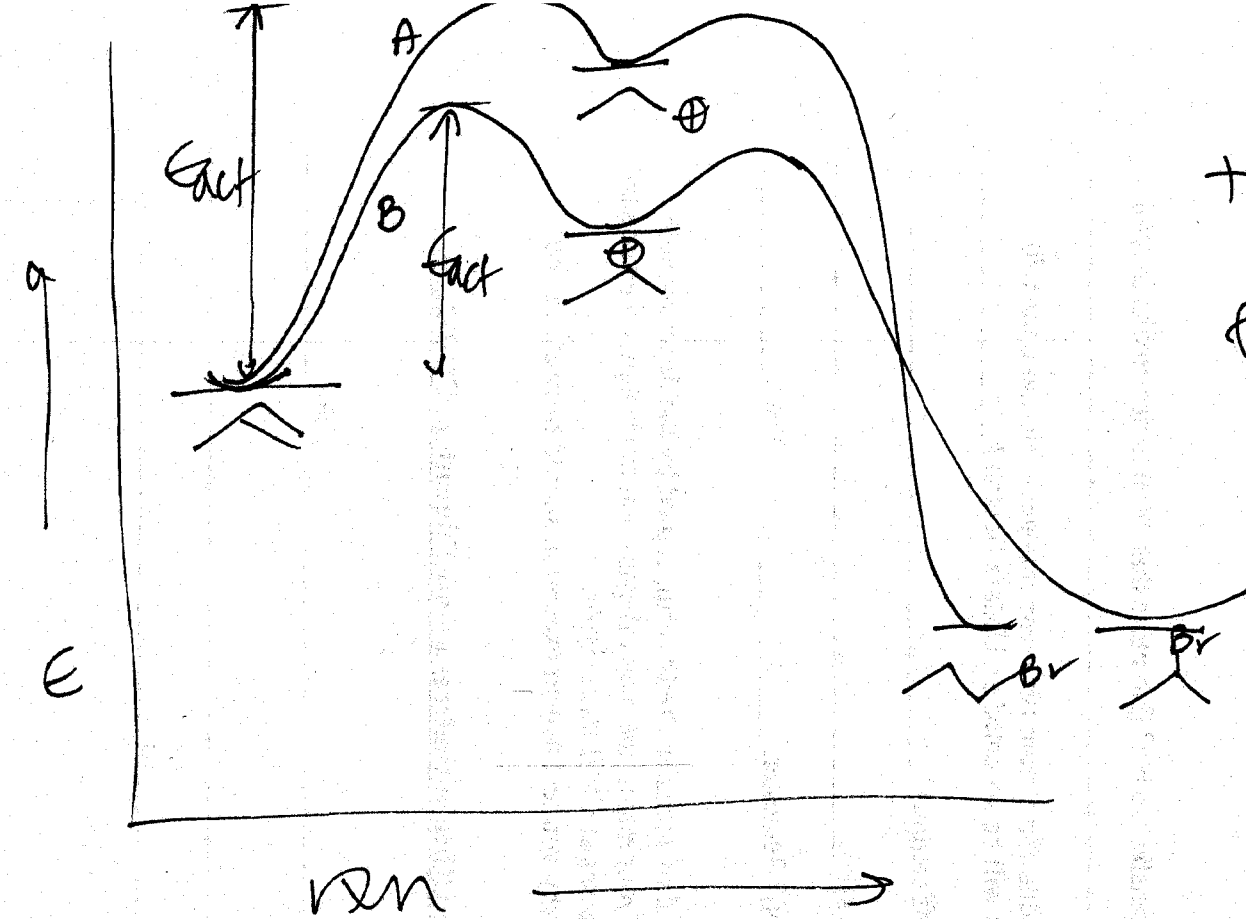


* cation intermediate always possible. \Rightarrow rearrangement is



This is a regioselective rxn.



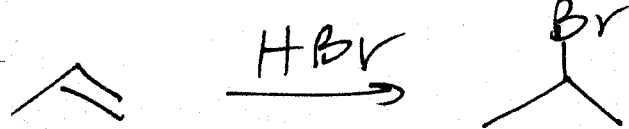


Notice:
 transition state +
 cation intermed.
 for pathway A are
 higher energy
 than those for
 pathway B

Also $E_{act}(A) > E_{act}(B)$

~~Markovnikov's Rule~~

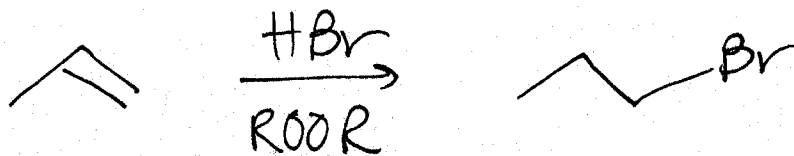
Markovnikov's Rule: when adding an
 unsymmetrical reagent to an alkene (unsymm.)
 add the \oplus piece of the reagent so as to
 get the more stable cation.



markovnikov
addition

cation intermediate

works w/
HBr, HCl, HI



↑
peroxides

"anti-markovnikov"

radical mechanism
(Ch. 10)

only works w/ HBr

Regiospecific - more than const. isomer possible
but only one observed as major prod.

* these are not stereospecific.

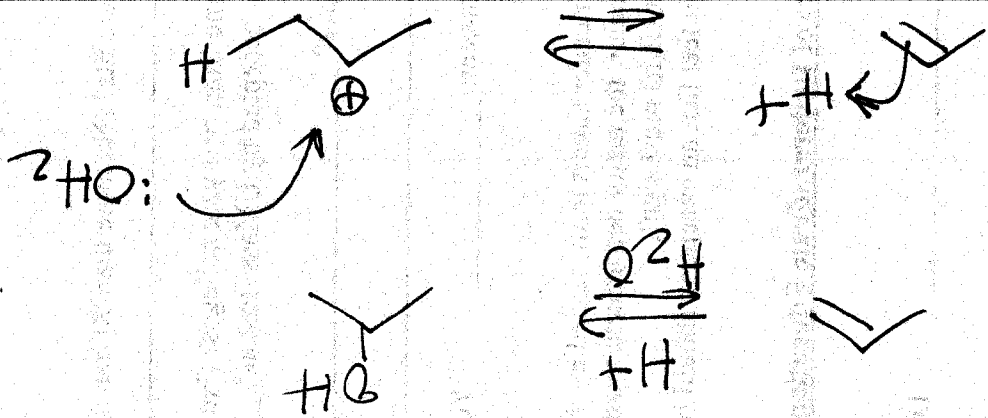
— alkene is planar so H^+ comes in from
either side

— cation is also planar so X^- comes in
from either side

* skip 8.4 - add'n of H_2SO_4 to alkenes *

conversion of alkenes to alcohols

1. acid-cat. hydration - reverse of dehydration

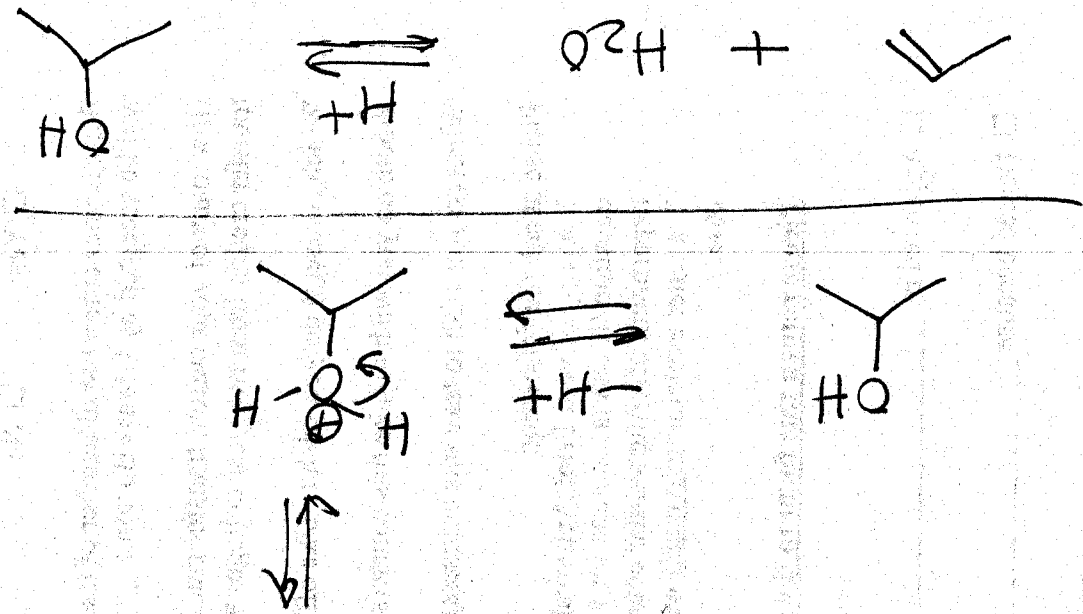


* Markovnikov addition

* cation intermediate

=> rearr. possible

* not stereospecific (planar intermediate)



Think
techniques:
Principle: