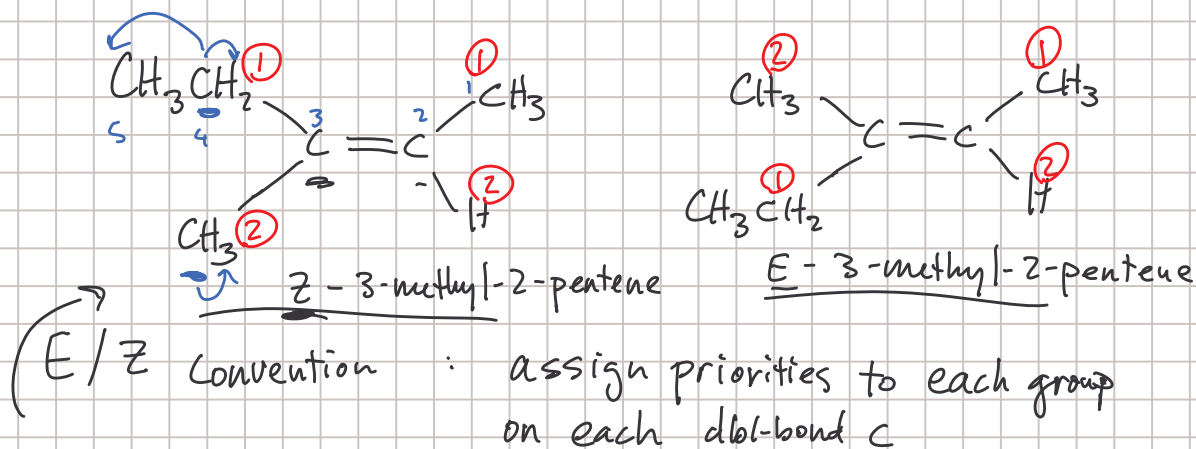


Ch 7

Note Title

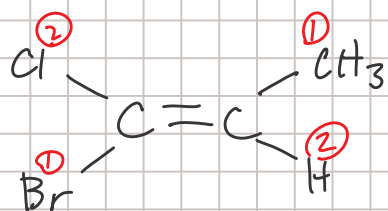
11/16/2005



if ①'s are cis to each other the compound is Z
Zusammen = together (same)

①'s are trans, compound is E

E = entgegen = apart



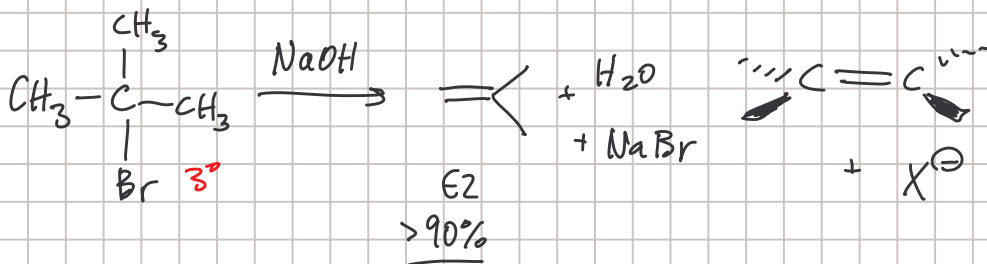
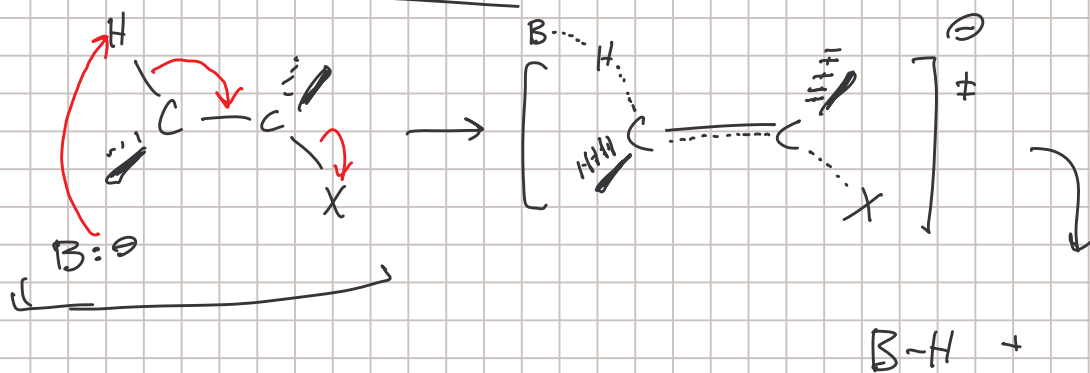
E-1-bromo-1-chloropropene

Alkene synthesis

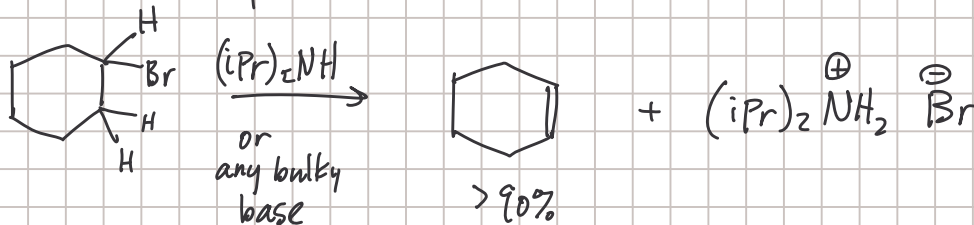
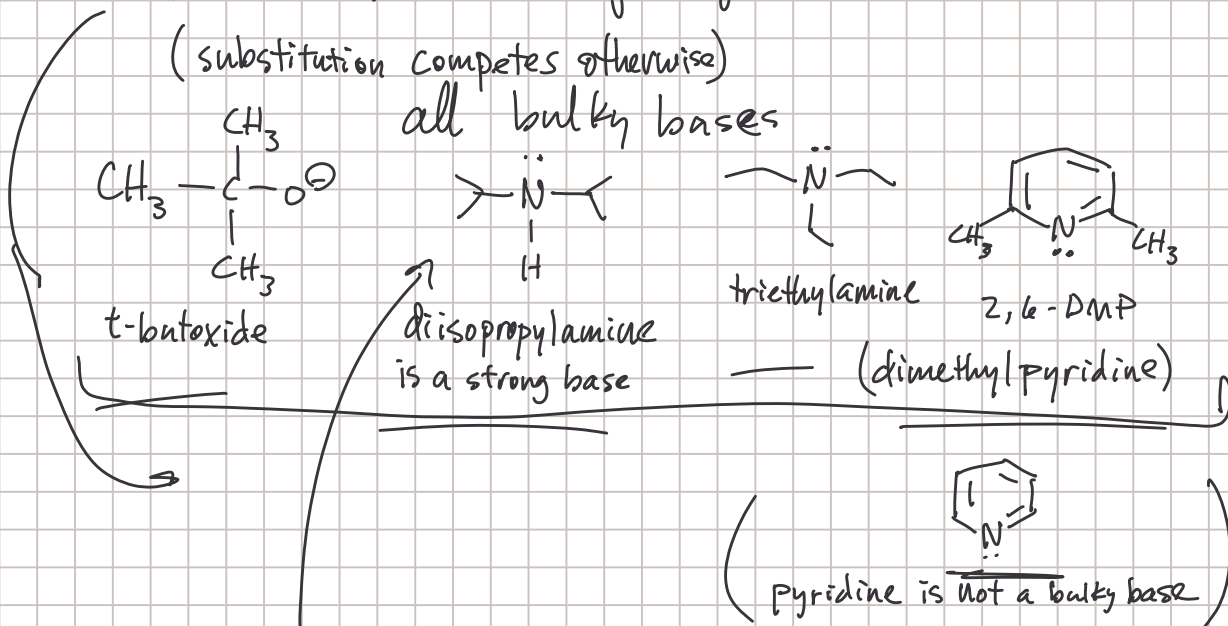
dehydrohalogenation = lose H
lose X

less useful : comp. w/ sol & rearrangements.
E1 or E2 mechanisms can be dehydrohalogenations
more useful synthetically

E2 as dehydrohalogenation



- Any strong base will give good E2 yields on 3° RX
- Bulky base required for good yields on 2° RX

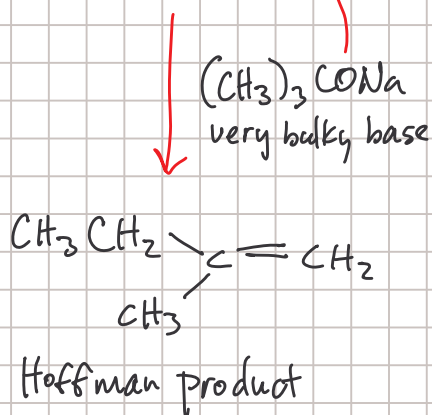
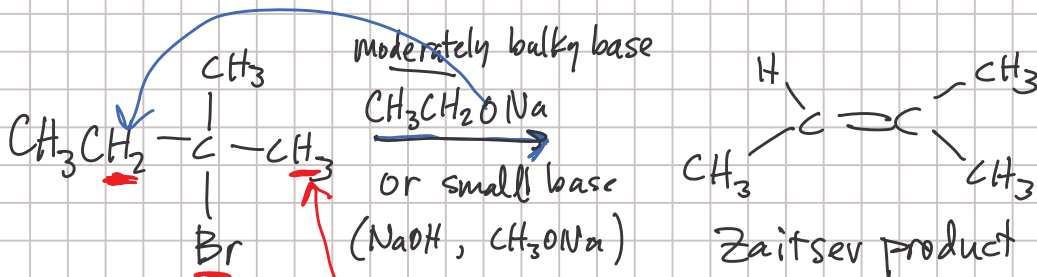


Hoffman product

- results from abstraction of least-hindered proton

Zaitsev product

- most-substituted double bond
- most stable product



★ small or moderately bulky bases abstract an H to form most stable pdt (Zaitsev)

★ very bulky bases can only abstract the least-hindered H to form Hoffman product.

- thermodynamically controlled (most stable pdt formed)
- kinetically controlled (fastest reaction is favored)

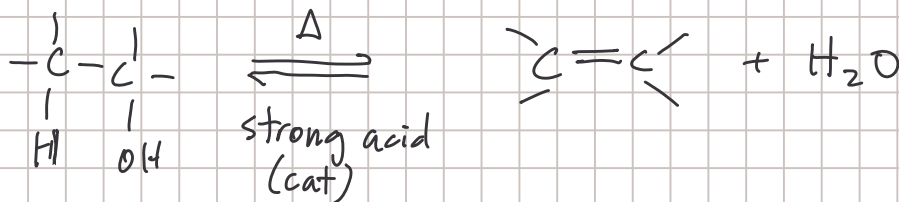
- stereochemistry E2 rxn requires H & X to be anti-coplanar!

(dictates E/Z geometry of product)

Dehydration of alcohols

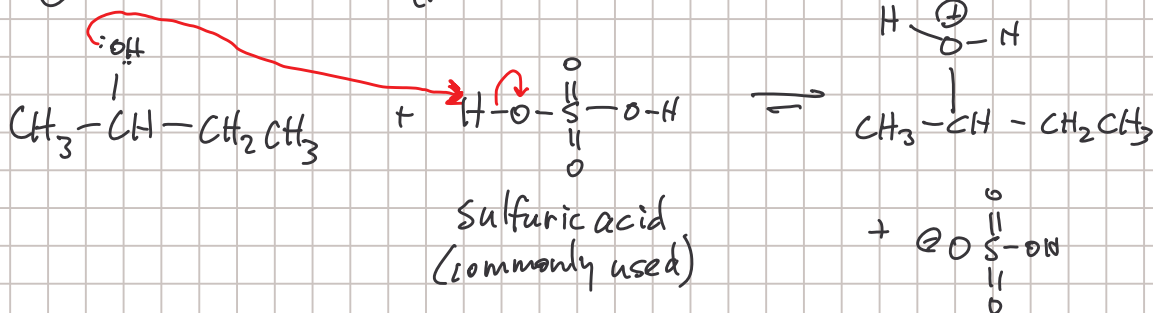
common, simple method
for alkene formation

→ removal of H_2O

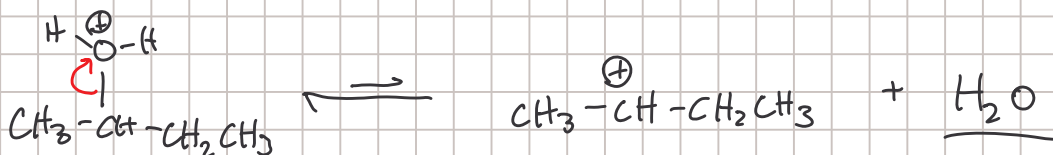


E1 mechanism

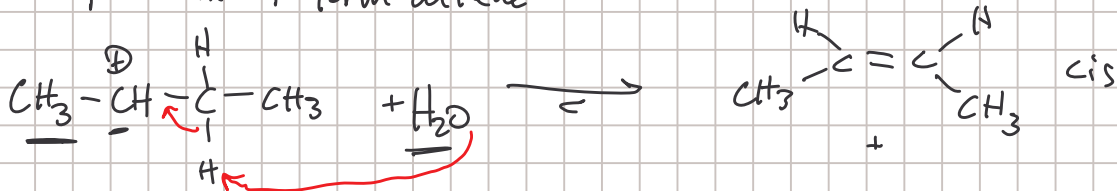
① Protonation of OH (fast)



② ionization (slow)

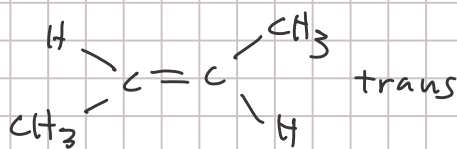


③ deprotonation to form alkene



Zaitsev products predominate

(H_2O is a small base)



3°
alcohol

$> 2^\circ \gg 1^\circ$

rearrangements
can occur.

+ H_3O^+