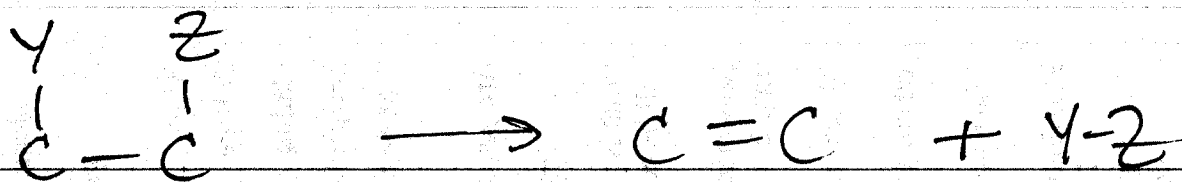
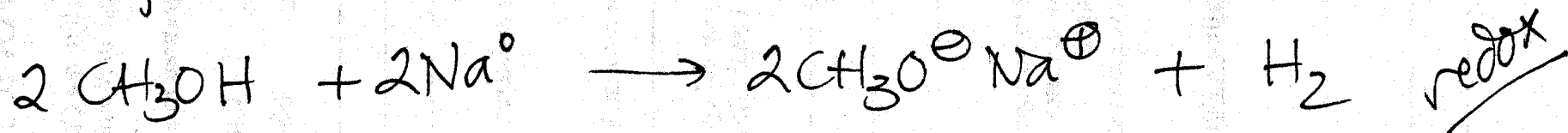


# Elimination Rxns

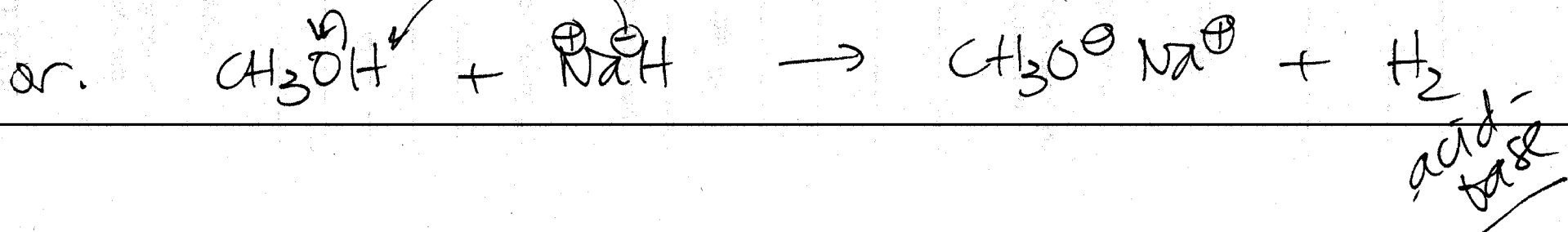


Common type - dehydrohalogenation (loss of HX)  
Sometimes called  $\beta$  elimination - the halogen is on the  $\alpha$  carbon; the H being lost is on the  $\beta$  carbon.

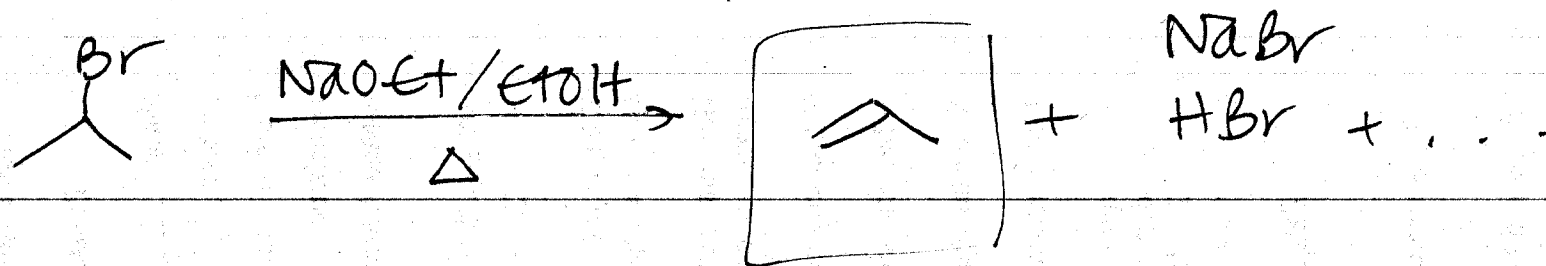
Usually need a base - often NaOH or NaOR



get  $\text{CH}_3\text{O}^\ominus \text{Na}^\oplus / \text{CH}_3\text{OH}$

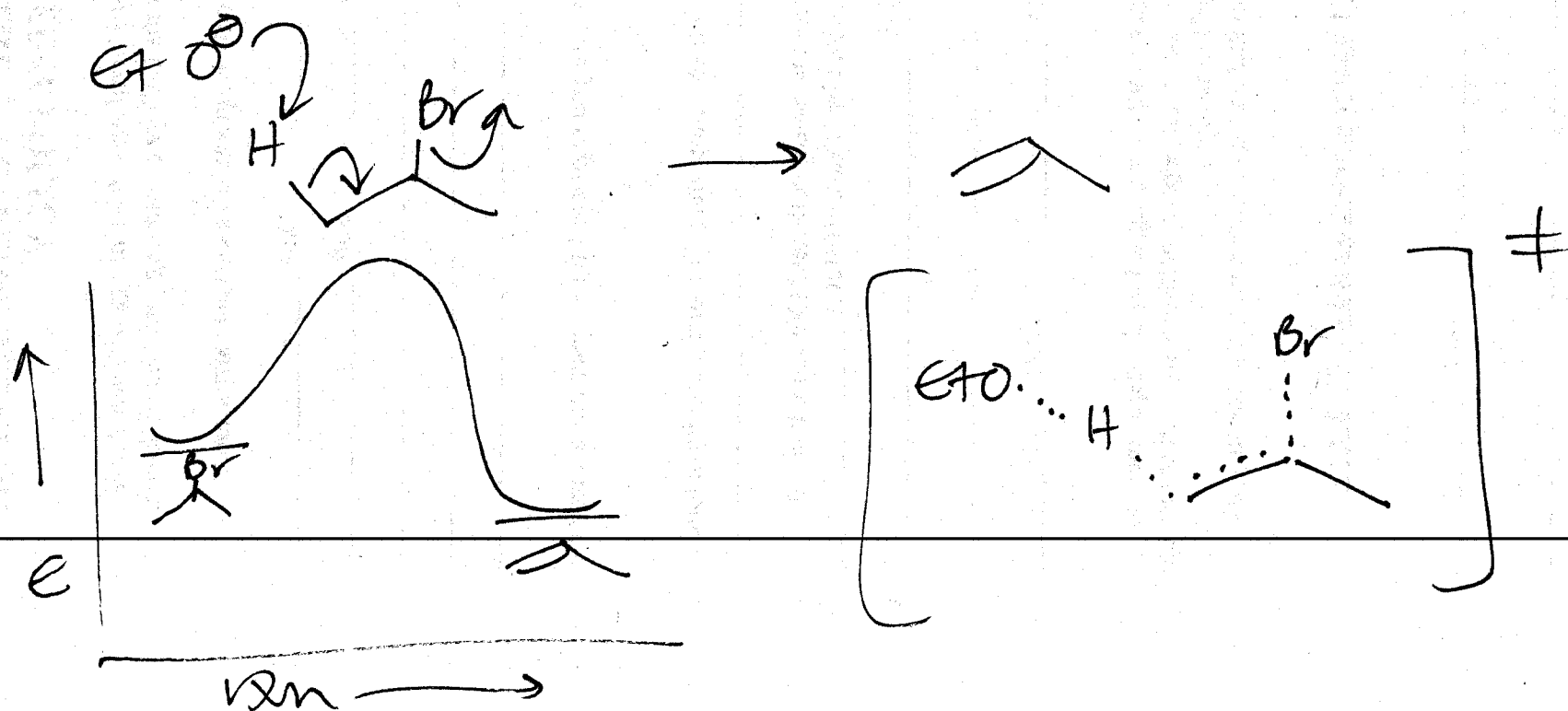


# 1. The E2 elimination

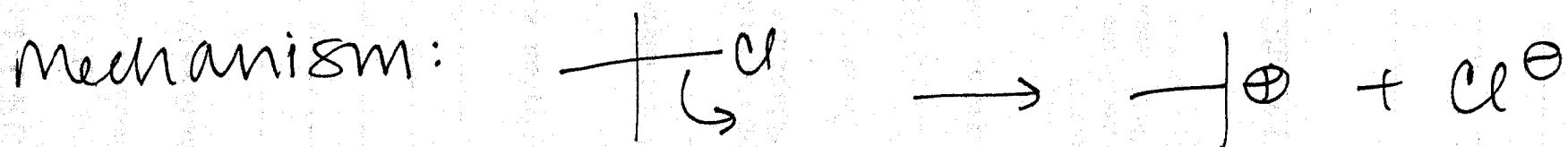
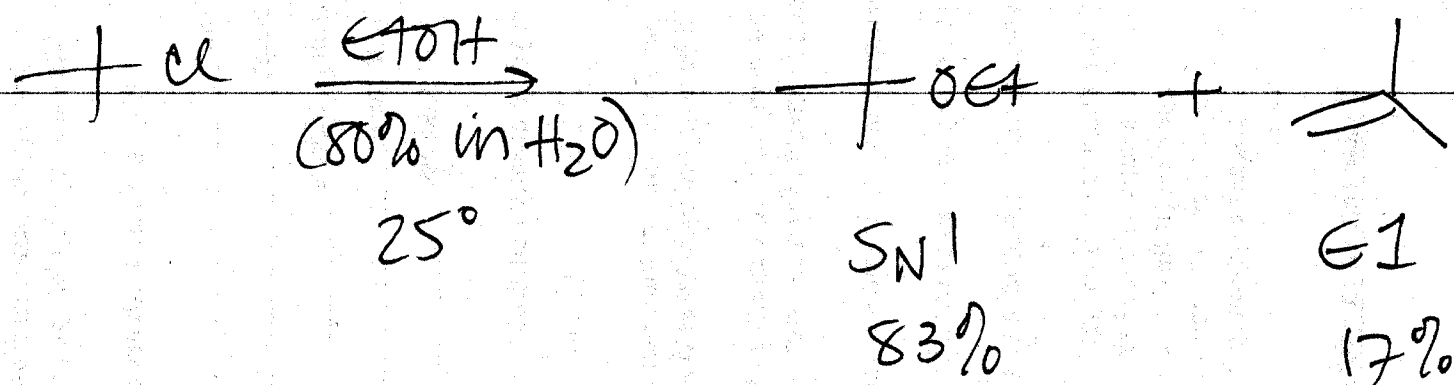


study the kinetics:  $\text{rate} = k [\text{iPr-Br}] [\text{NaOEt}]$   
 second order - just like  $\text{S}_\text{N}2$ .

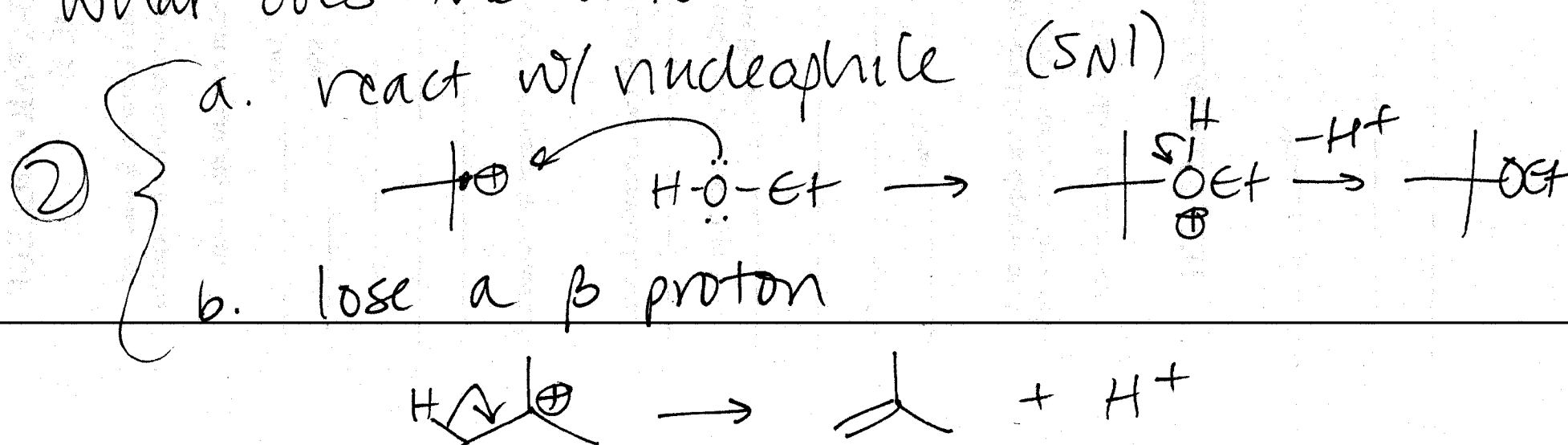
mechanism: \*concerted  
 \*anti elim.



## 2. The E1 Elimination

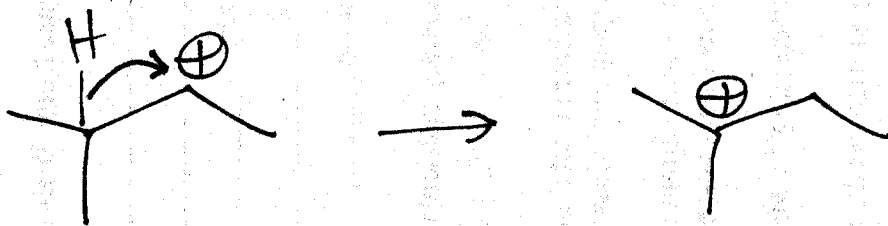


what does the cation do?



① c. rearrange:

If a cation can rearrange to form a more stable cation, it will.



---

substitution vs. elimination

\* favored @ elevated temps.

\* use a bulky base such as  $\text{t-BuOK} / \text{t-BuOH}$

# Substrates

1° RX - SN2 v. easy - generally predominates  
Want E2 - raise temp / use bulky base.

2° RX - look @ everything! Strength of  
nu/base, temp of rxn, solvent...

3° RX - competition between SN1 + E1 -  
hard to influence. Raise temp  
to favor E1. Switch to a strong  
base (NaOH, NaOR) - now E2.

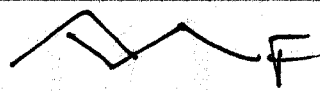
# cis/trans Revisited



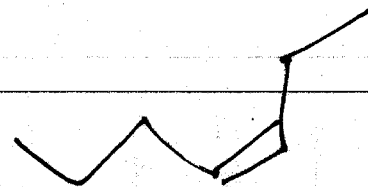
trans



cis

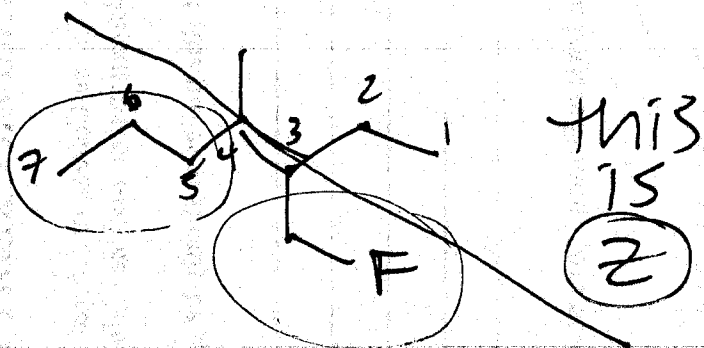


trans



cis

what about this one?



cis/trans is rather ambiguous.

use E/Z

Z - 3-fluoromethyl-4-methyl-3-heptene

E: entgegen

opposite

Z: zusammen

same  
side

1. Look at each end  
of the double bond  
+ identify the higher  
priority gp. using C-I-P rules.

2. Are the two high priority gps. on the same  
side of the double bond? Yes: Z No: E