

(32) Today

Sections 6.5 – 6.11
Chapter 7.3 - 7.5

(34) Second Class from Today

Chap 7

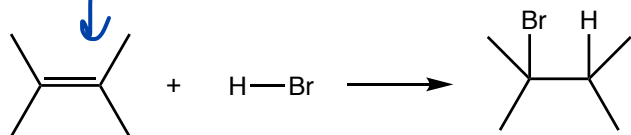
Next Class (33)

Chap 7

Third Class from Today (35)

Chap 7

not the correct mechanism
 Reaction Coordinate Diagrams: Kinetics



Reactant(s) *

Product(s) *

Transition State *

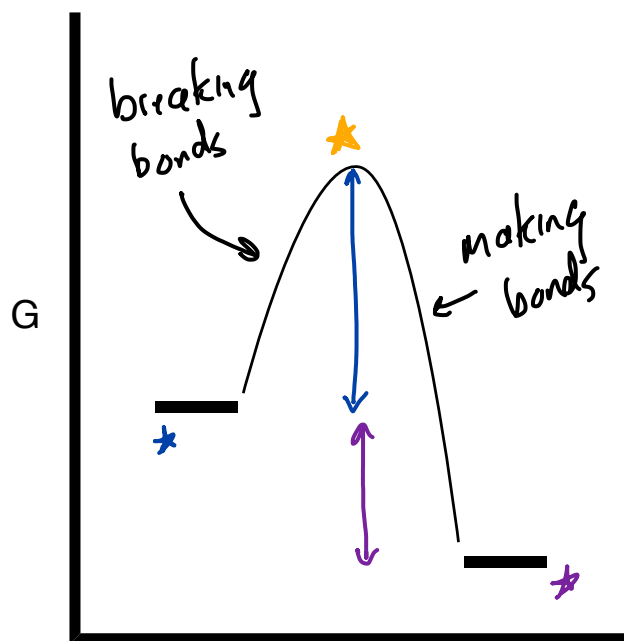
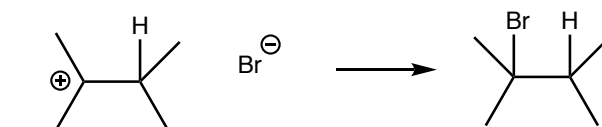
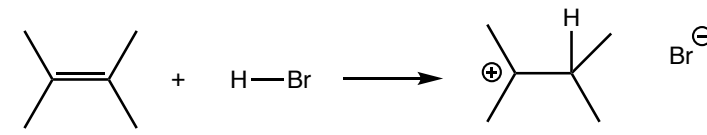
Intermediate *

Activation Energy ΔG^\ddagger
 rate of a reaction
 (kinetics)

ΔG (thermodynamics)
 change in Gibbs free E
 K (thermodynamics)
 related to the change in
 Gibbs free E

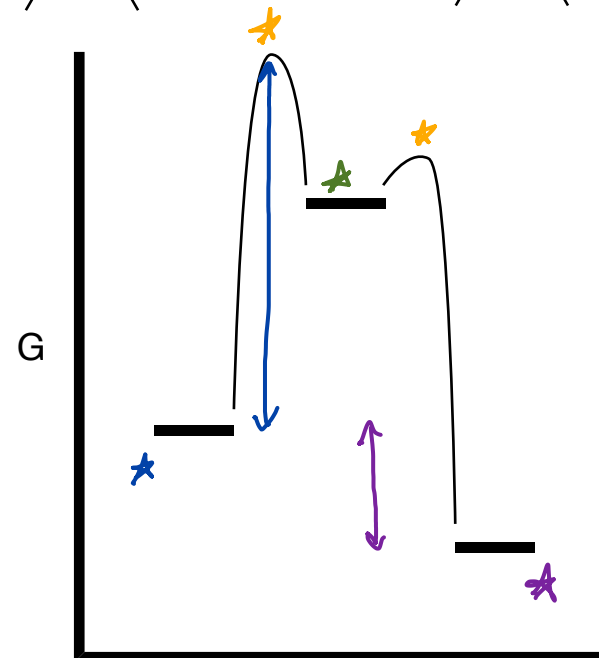
the lower the ΔG^\ddagger
 the higher the
 intrinsic rate (faster)

this is the correct mechanism
 Section 6.9, 6.10



reaction coordinate

↑
 extend of rxn



reaction coordinate

Reactant(s) the left, combine to make products

Product(s) on the right, formed from reactants

Transition State - the highest energy point between reactants + products
 (reactants + intermediates, intermediates + prod) where the rxn
 switches from mostly breaking bonds (energy in) to mostly making bonds
 (energy out)

Intermediate

molecules or ions that are formed and consumed during a reaction

Activation Energy ΔG^\ddagger relates to the rate of a reaction (kinetics)

the amount of energy that must be overcome for the reaction to proceed. The lower the barrier the faster the reaction

ΔG (thermodynamics)

The change in Gibbs Free energy from reactants to products...

Extent of rxn, whether the rxn will go or not

K (thermodynamics)

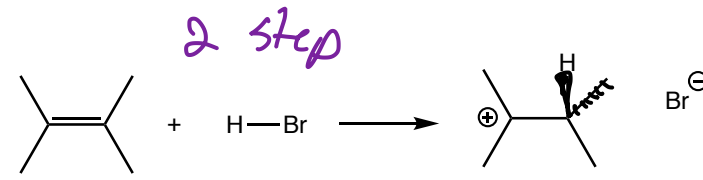
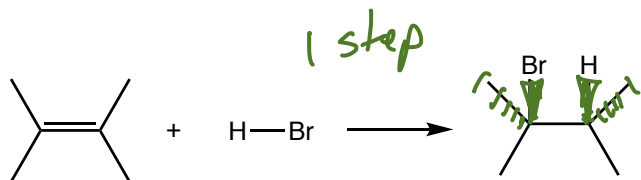
$$K = \frac{[\text{prod}]}{[\text{react}]}$$

Same as above... K is related to ΔG ... extent of rxn

Favorable, spontaneous $\Delta G < 0$, $K > 1$

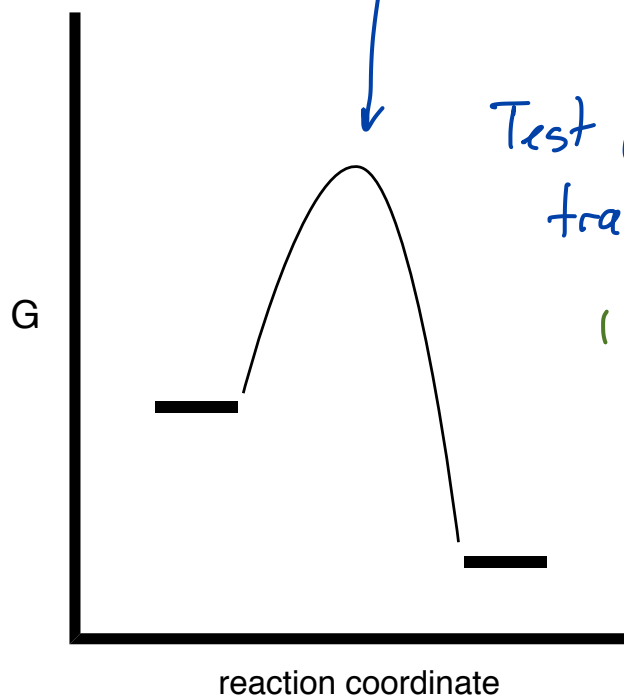
Reaction Coordinate Diagrams: Kinetics

Section 6.9, 6.10



this transition state is not the same as this one

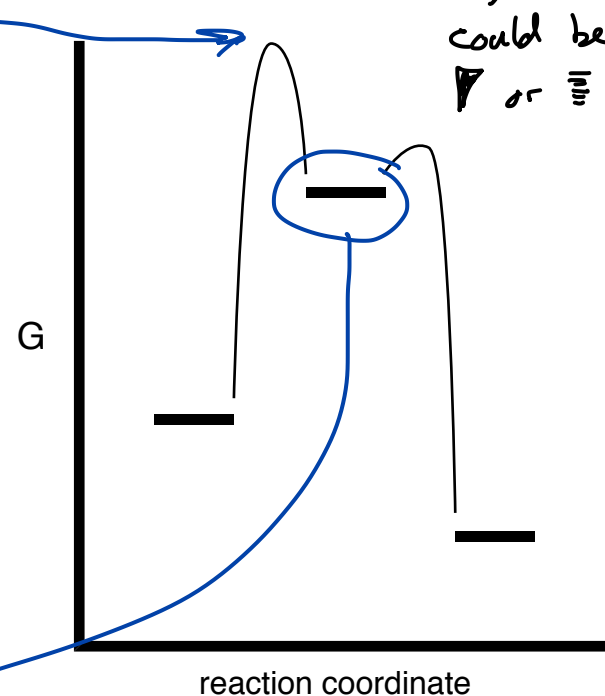
Test predictions about transition states



1 step mechanism...
H + Br add to the same face.

2 step mechanism
H adds to one face...

intermediate forms + the Br can add to the same face or to different face

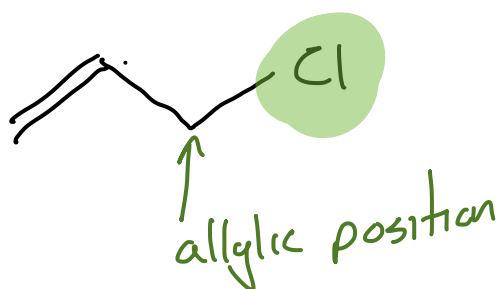


there will be an intermediate can I catch the intermediate?

Same rules as alkanes except, alkenes are a functional group, so the **position of the double bond gets the lowest number** and "ane" ending of parent hydrocarbon is changed to "ene" and the **double bond must be contained in the longest carbon chain**.

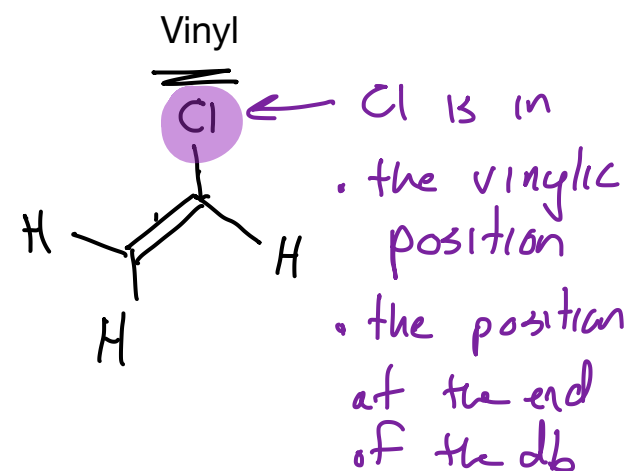
A note on some special names

Allyl

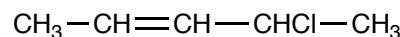
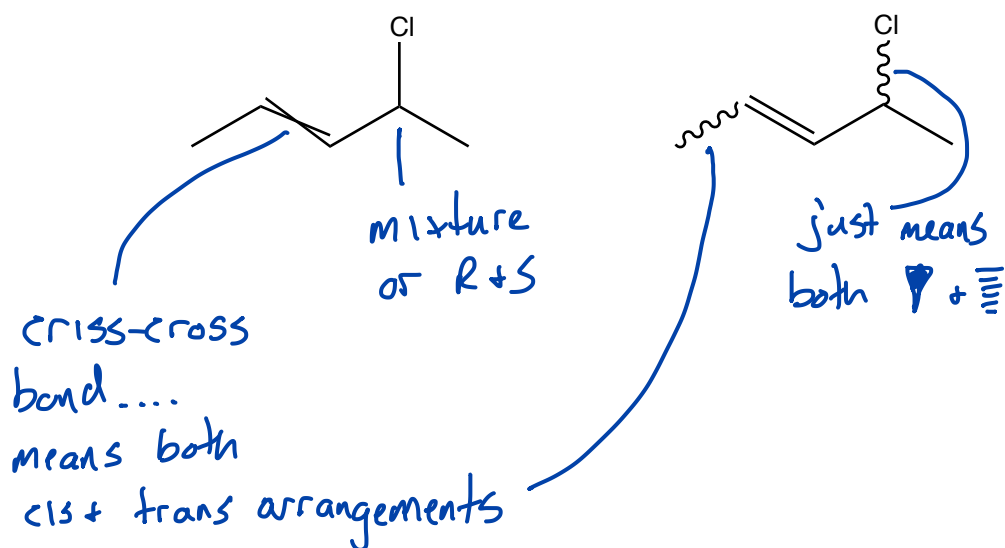


and

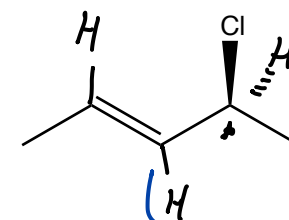
PVC polyvinyl chloride



A note on how structures are drawn



Zero attempt to show stereochemistry



a specific structure with stereochemistry shown

Ends, Sides, and Faces — split lengthwise along the node of the π bond

split lengthwise along π bond

cut between C + C

