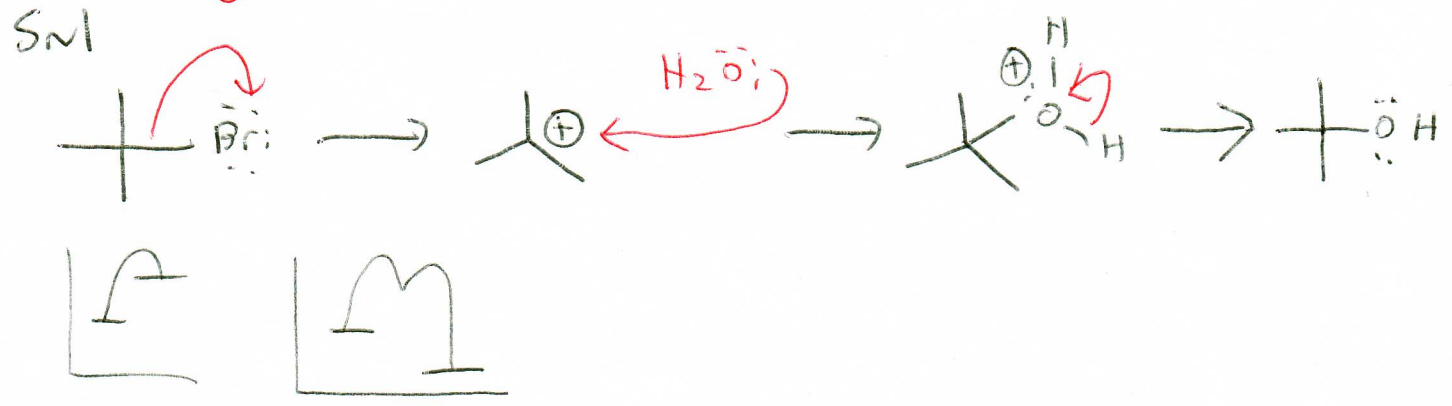
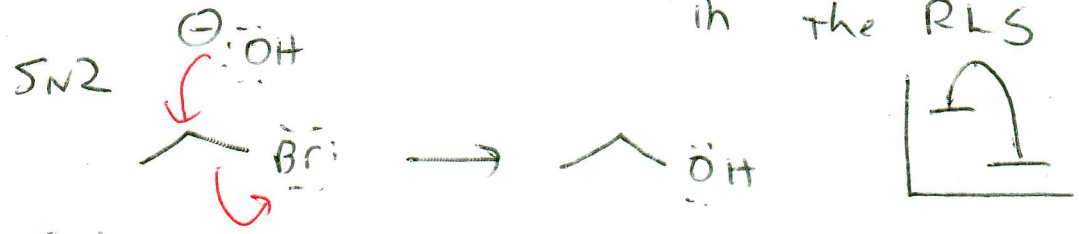


Kinetics

RCD, RLS, Ea → The reagents in a rate law are in the RLS



Hyperconjugation

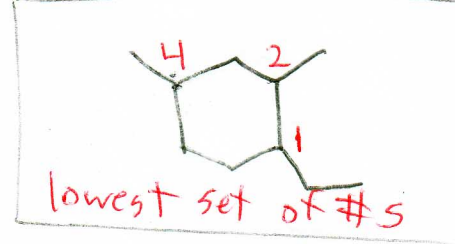
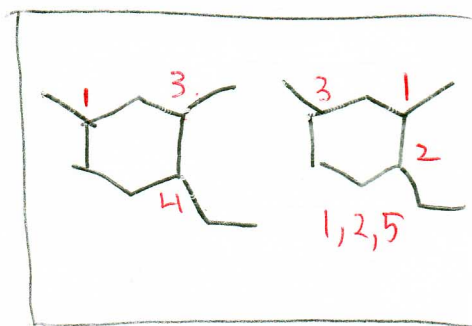
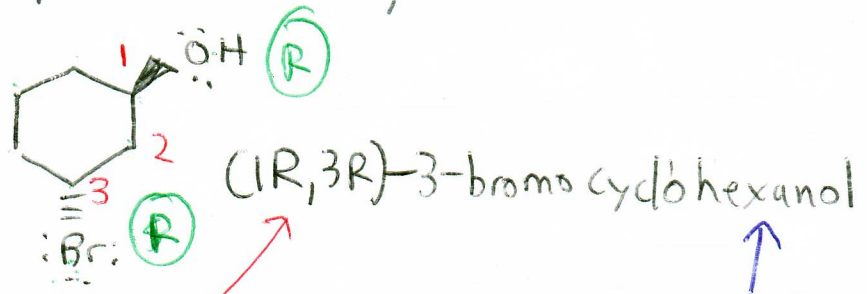
Stereochemistry → R/S ; achiral / chiral

- loss, retention, + inversion of configuration

SN1 (circled in green)

SN2 (circled in green)

optical activity → racemic mixture

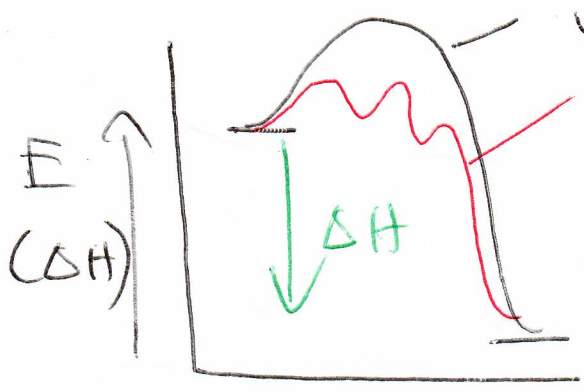


can be left out since most

For only one stereo- important ~~substituent~~ functional group is automatically #1.

For multiple stereo centers, numbers must be used.

Thermodynamics - what is a state function and why is it important that enthalpy is a state function,

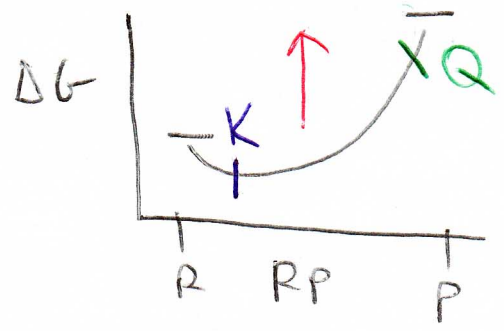


A catalyst lowers the E_a for a rxn by giving a new rxn pathway,

A catalyst does not change ΔH (or ΔG), since Hess's law states those values only depend on the identity of the products + reactants. Thus, a catalyst will not affect the balance of products + reactants in equilibrium.

Equilibrium - 3 definitions (K , rate, E)
- Le Chatelier's principle

Delocalization + resonance structures



← This is a likely RP diagram for the dissociation of a weak acid.

Weak acid → an acid that only minimally dissociates,



$$K_A = \frac{[H^+][A^-]}{[HA]}$$

$$\Delta G = -RT \ln K$$

Neutral $\equiv [H^+] = [OH^-]$

Auto-ionization of water $H_2O \rightleftharpoons H^+ + OH^-$

↳ Unfavorable, but some molecules have enough energy to dissociate.

pH $\equiv -\log_{10} [H^+] = 7$ for pure water @ 25°C.

Neutralized \equiv moles acid = moles base

Why is neutral \neq neutralized