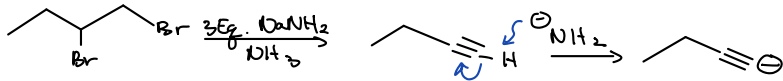
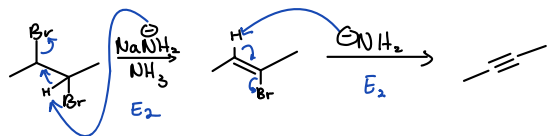
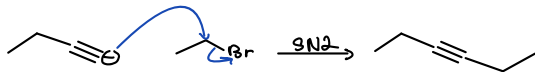


Alkyne Synthesis

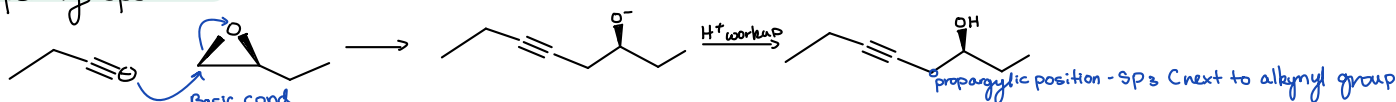


Alkynes Reacting as Nu⁻

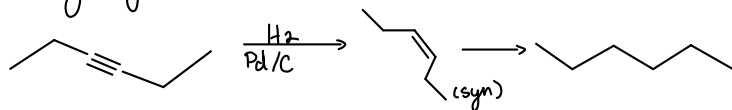
Adding an Alkane to an Alkyne (S_N2)



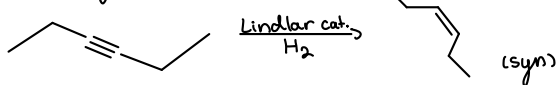
Opening Epoxides



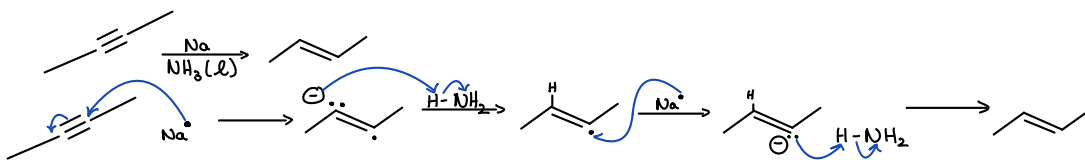
Alkyne Hydrogenation



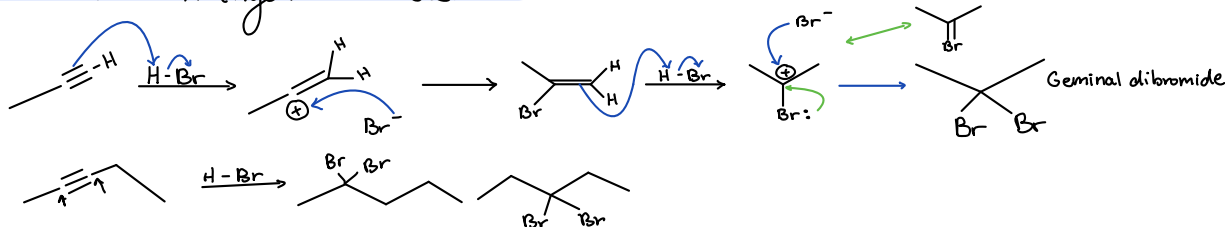
"Poisoned" catalyst - Lindlar catalyst



Alkyne Dissolving Metal Reduction

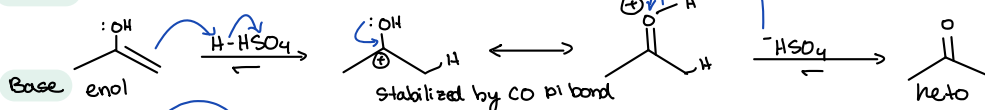


Addition of HX (hydrohalic acid)

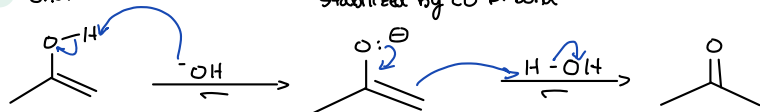


Tautomerization

Acid

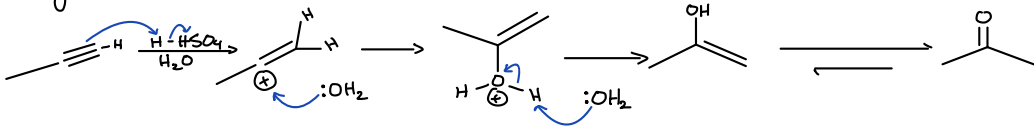


Base

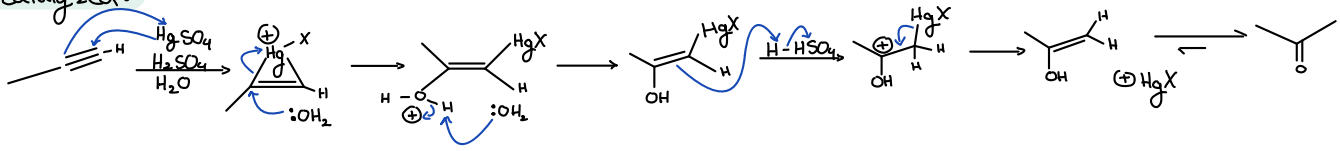


Hydration of Alkynes

acid only:

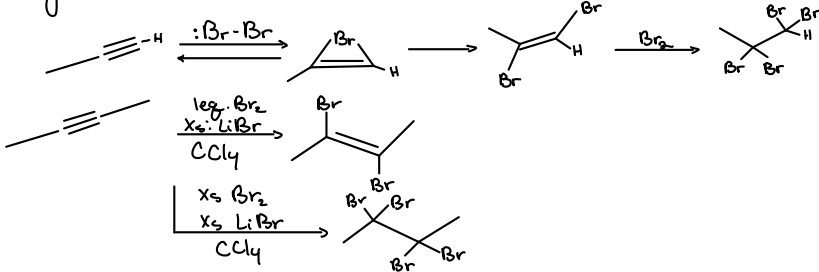


Hg-catalyzed:

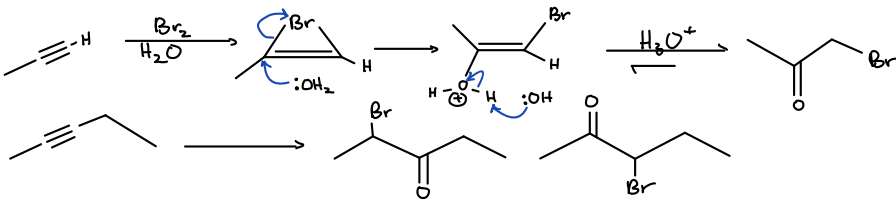


Halogen Addition

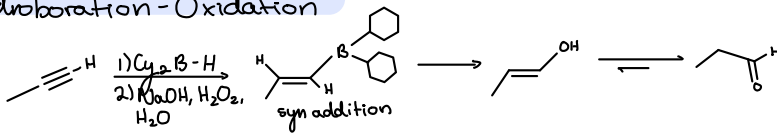
* can stop at led.



X₂ and H₂O

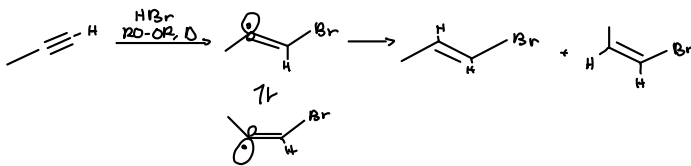


Hydroboration-Oxidation

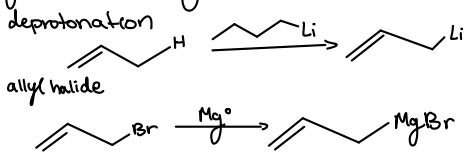


- Regioselective based on sterics
- terminal → aldehyde
- internal → ketone

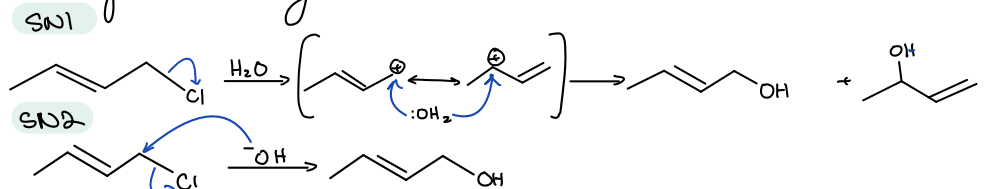
Radical Addition of HBr



Allylic Reactivity - Anions

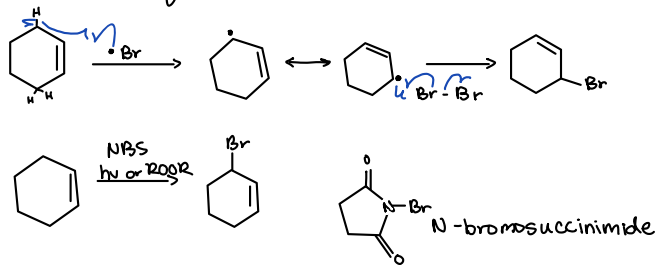


Allylic Reactivity - Cations

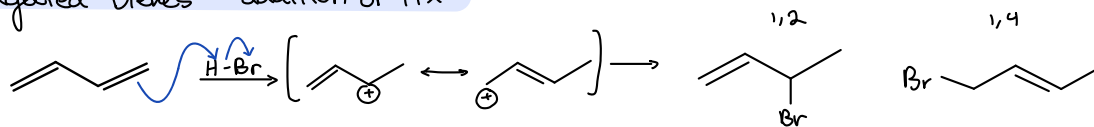


* even 1° allylic C* easy to form
SN2 and SN1 faster @ allylic position

Allylic Reactivity - Radicals



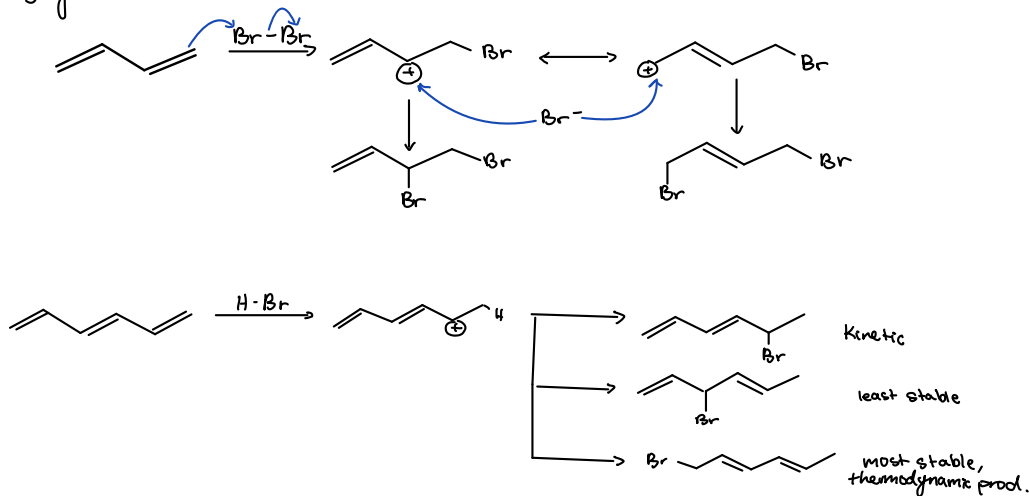
Conjugated Dienes — addition of HX



1,2 = Kinetic control
faster, low temp

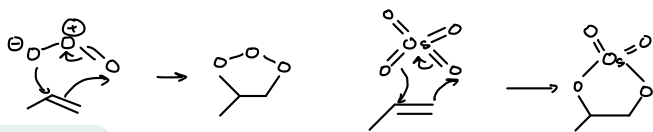
Thermodynamic control — which prod. is more stable
↪ more sub. alkene = more stable

Conjugated Dienes — addition of X $_2$

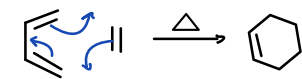


Pericyclic Reactions

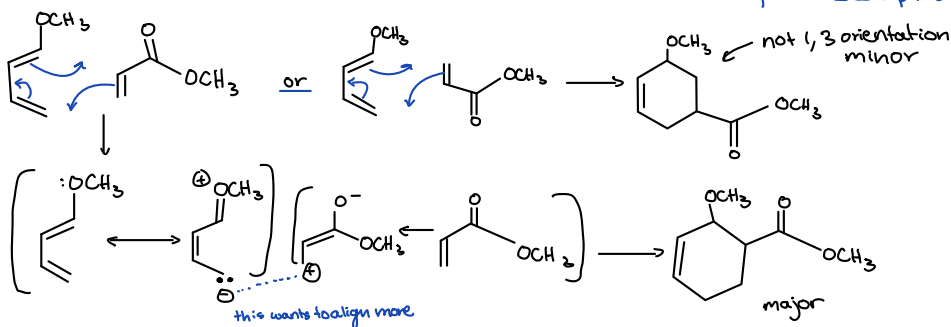
• O $_3$ and OsO $_4$



• Diels Alder — orbital overlap requires s-cis conformation



* e $^-$ rich dienes and e $^-$ poor dienophiles react faster
- lone pairs tend to be e $^-$ donors
- polarized pi bond e $^-$ withdrawers

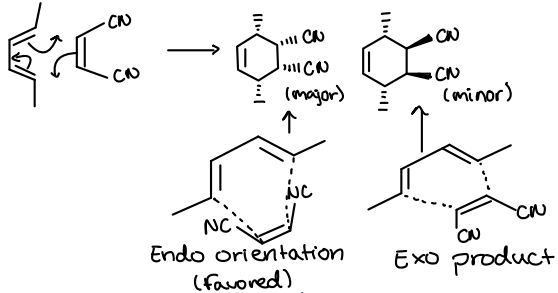


Diels Alder stereochemistry

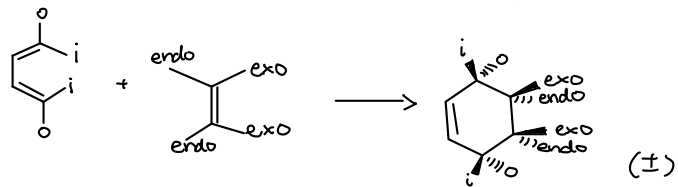
Trans starting material → trans ring



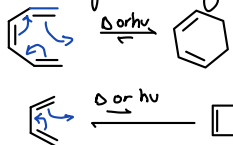
Endo Rule - Cis Orientation



* pi bonds on CN interact w/ alkene pi bonds ↑ stability



Electrocyclic Ring Opening/Closing



# πe ⁻	Δ	hν
2, 6, 10	dis	con
4, 8	con	dis

Electrocyclic Reactions

