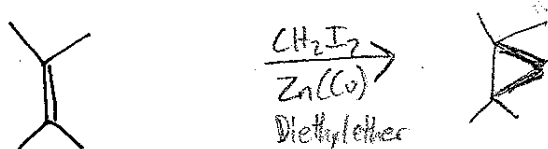
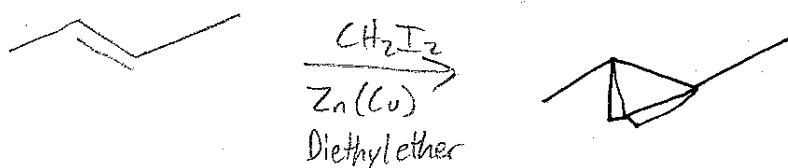
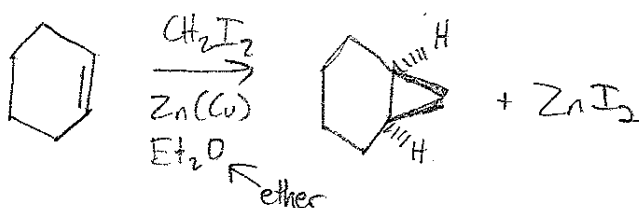
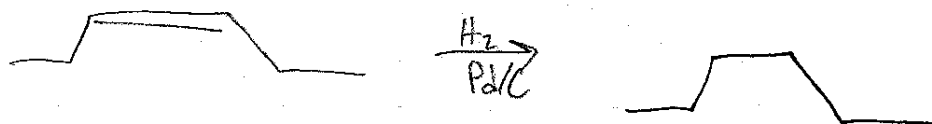
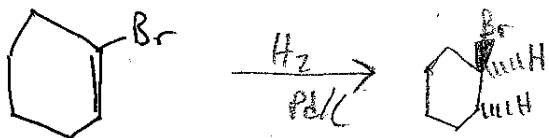
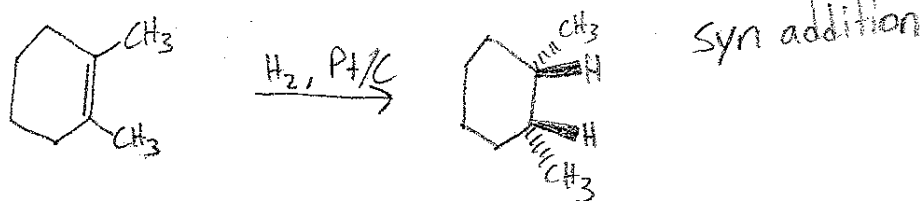


Simmons-Smith Reaction

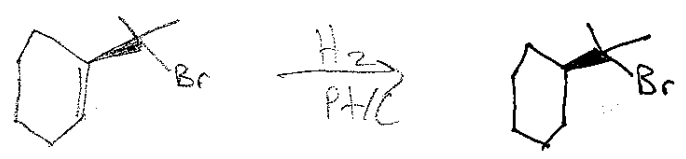
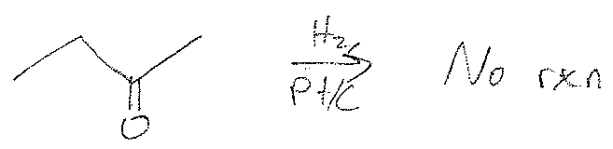
Forms a cyclopropane

Hydrogenation

Reduces a multiple bond by adding 2 hydrogens

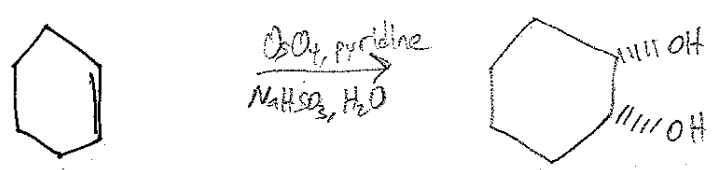
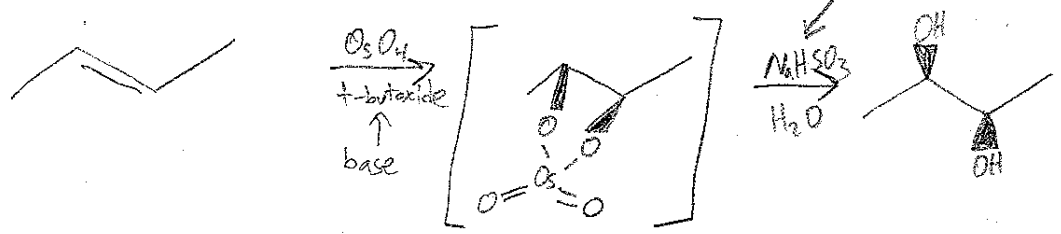


Hydrogenation does not reduce $C=O$, $C\equiv N$



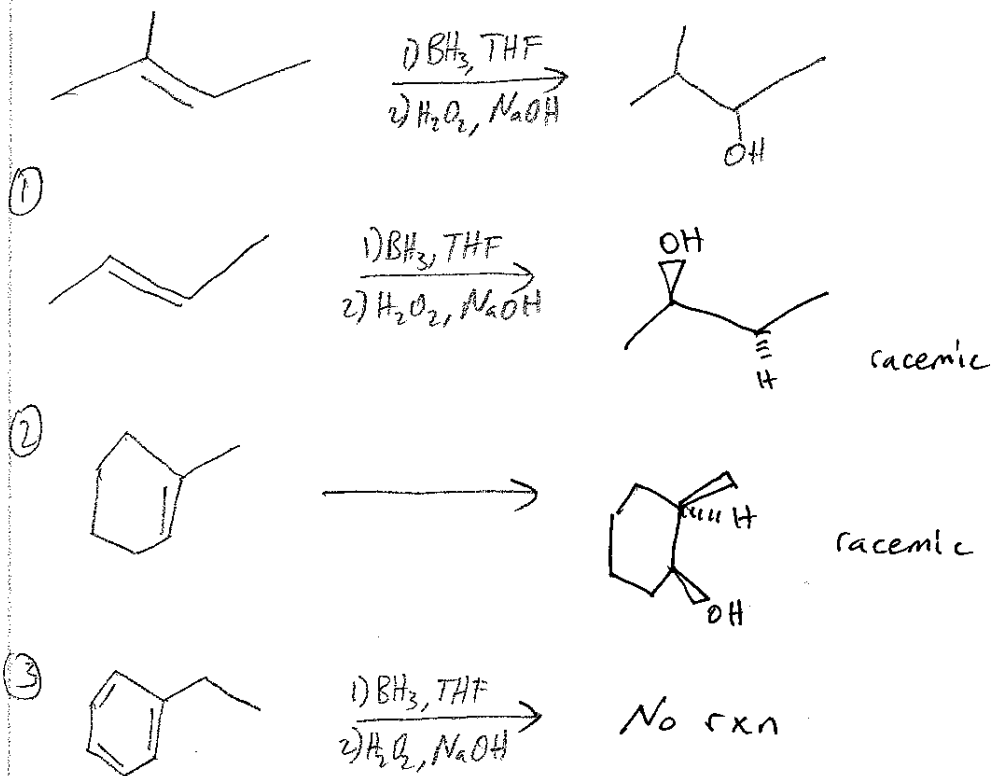
Osmium Tetroxide Formation of Diols (Dihydroxylation)

Diol means 2 $\sim\text{OH}$ groups
Syn addition onto multiple bond



Hydroboration

• Antimarkovnikov



Oxidative Cleavage

• Splits a double bond into 2 carbonyls

Special case

• KMnO_4 creates carboxylic acid and CO_2 if Hydrogens on both double bond carbons

