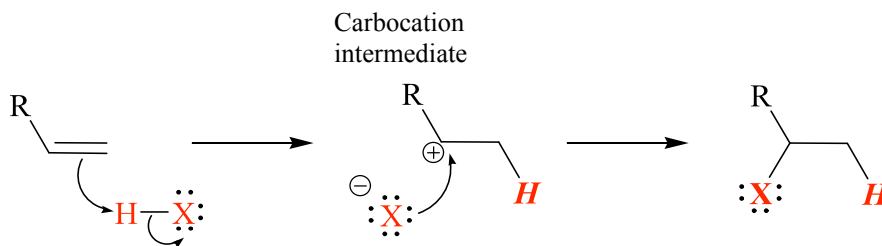


Organic Chemistry I Mechanisms

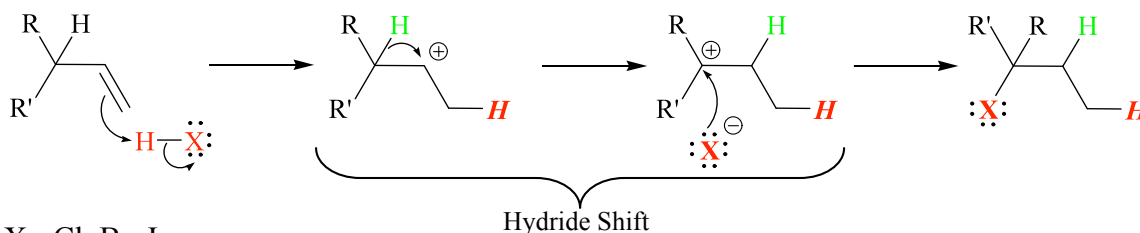
1. Alkenes

a. HX addition to an alkene:



X= Cl, Br, I

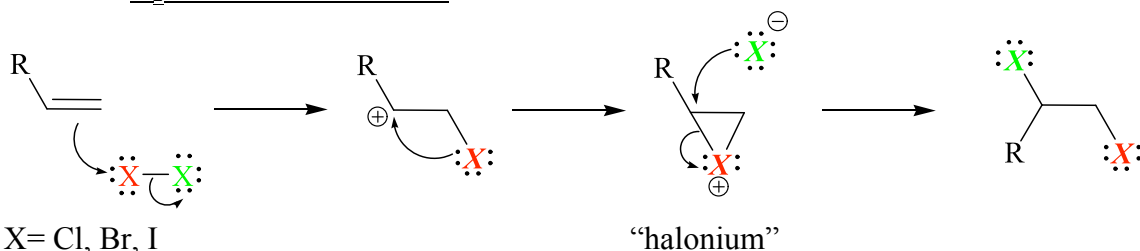
b. HX addition to an alkene with Carbocation rearrangement:



X= Cl, Br, I

Note: Methyl groups can migrate also if quaternary carbon is adjacent to a 2^o carbocation.

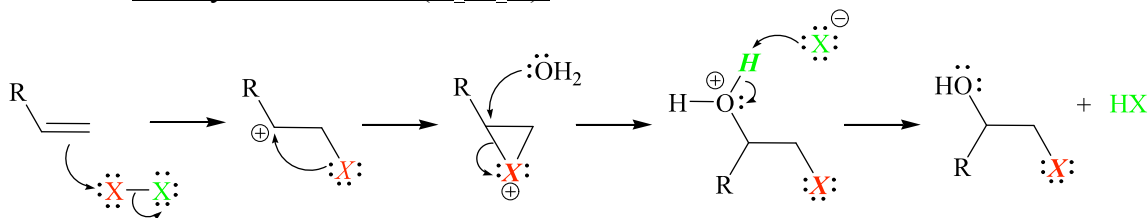
c. X₂ addition to an alkene:



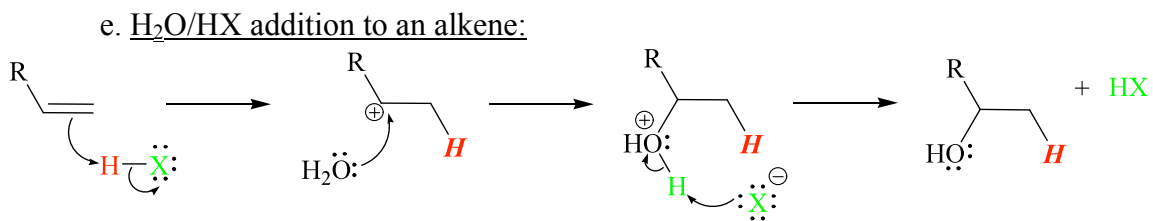
X= Cl, Br, I

NOTE: formation of the halonium species may also be written as a single step process wherein X₂ adds to the double bond, with simultaneous loss of X⁻.

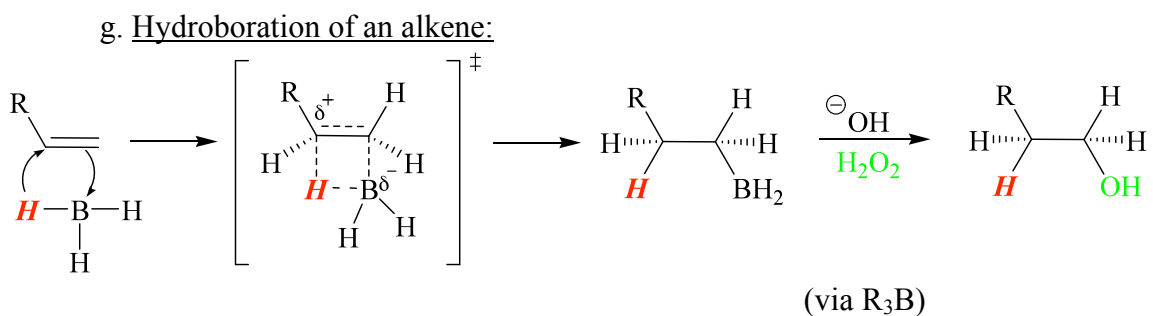
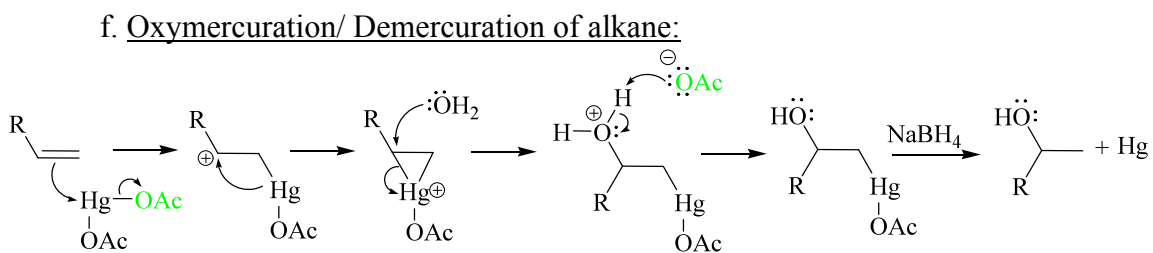
d. Halohydrin formation (X₂/H₂O):



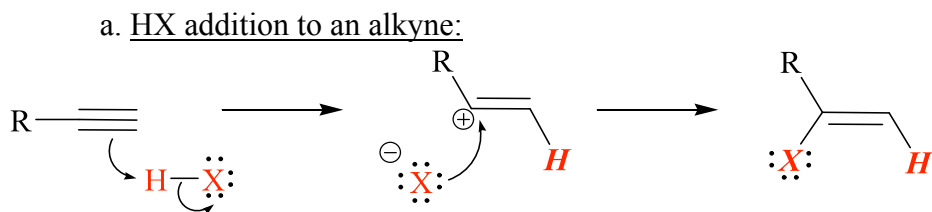
X= Cl, Br, I



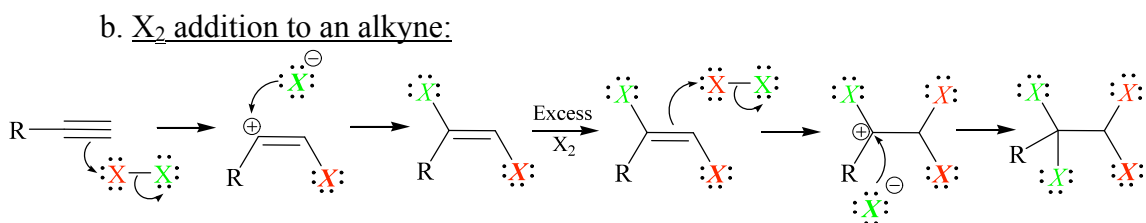
X=Cl, Br, I



2. Alkynes

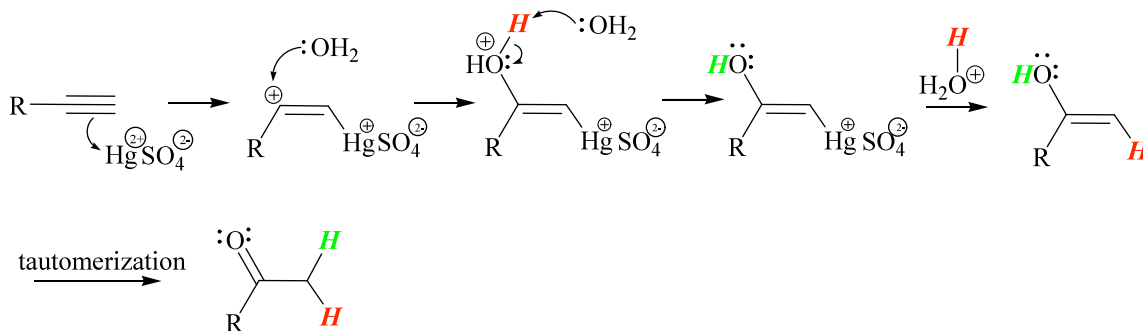


X= Cl, Br, I

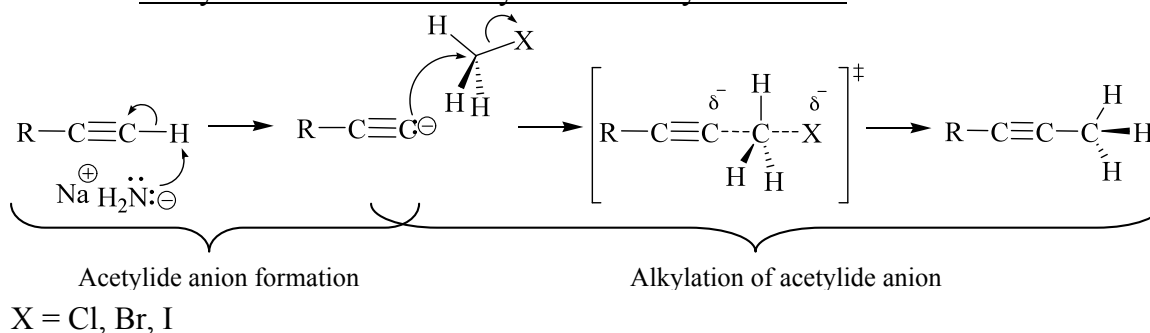


X= Cl, Br, I

c. Hg catalyzed hydration of an alkyne:

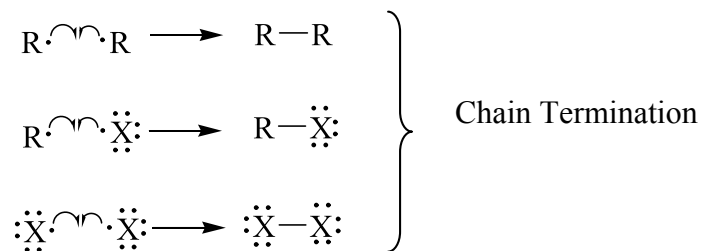
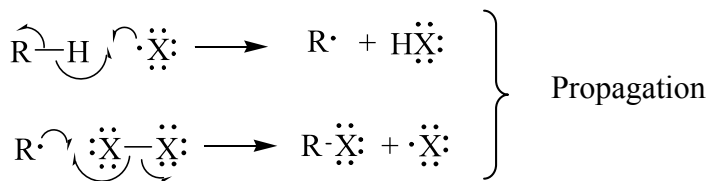
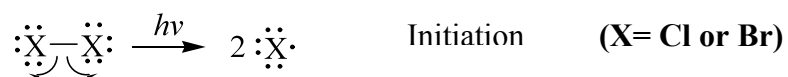


d. Acetylide formation and alkylation of acetylide anions:



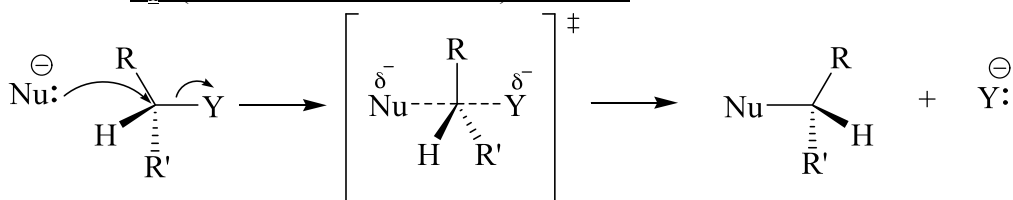
3. Alkanes

Radical halogenation of alkanes:



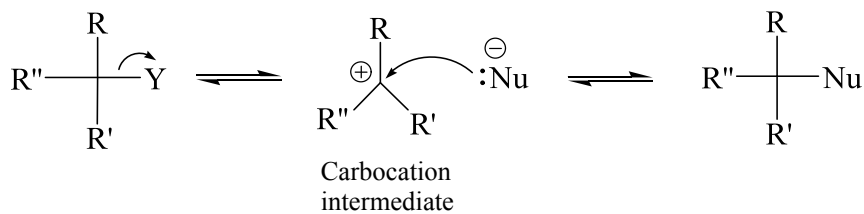
4. Nucleophilic Substitution and Elimination

a. S_n2 (bimolecular substitution) reaction:

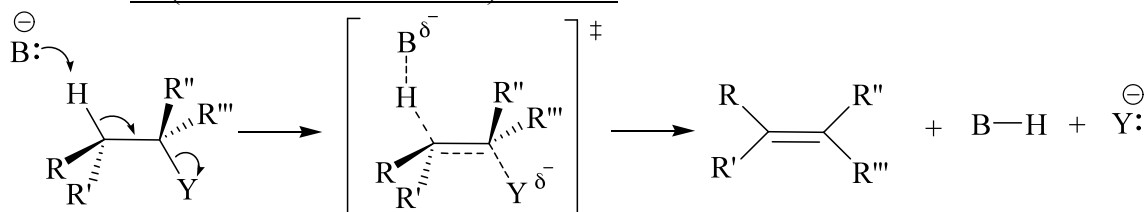


Nu= Nucleophile
Y= Leaving group

b. S_n1 (unimolecular substitution) reaction:



c. E2 (bimolecular elimination) reaction:



B = Base

d. E1 (unimolecular elimination) reaction:

