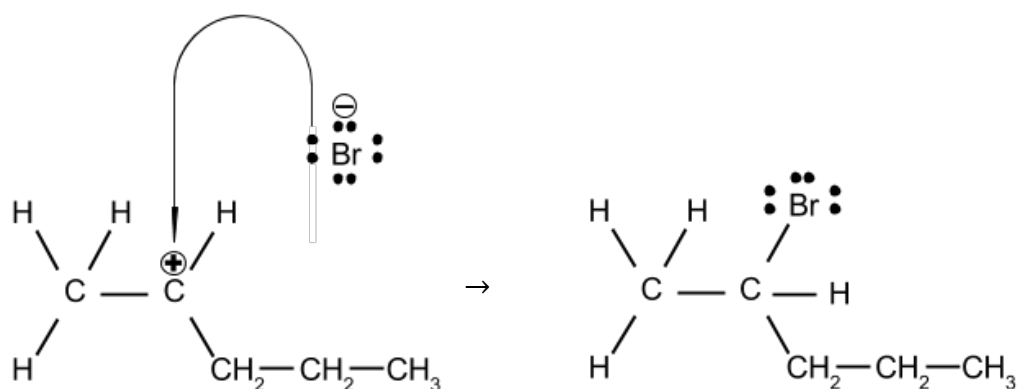
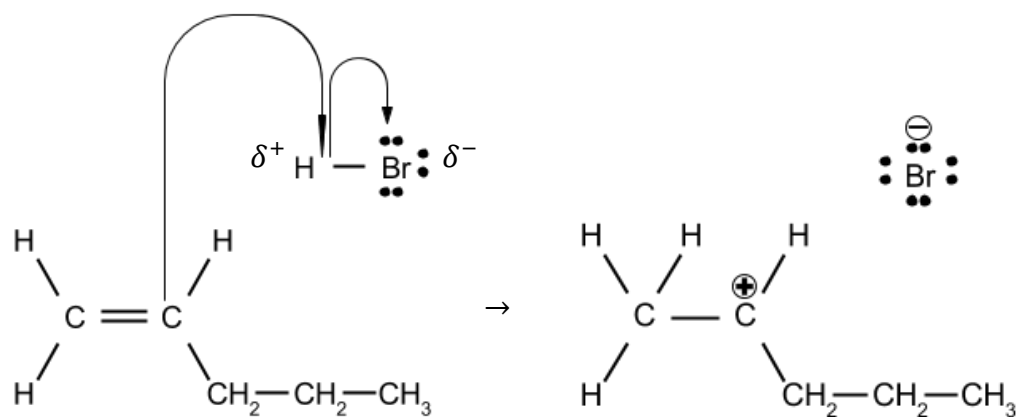


## Reaction Mechanisms



Br is more electronegative than H and thus takes the electron, C breaks its double bond and binds with H  
 Electron poor C binds with electron rich Br

Partial charges prompted reaction

Beginning Products

hydrogen bromide + 1 pentene

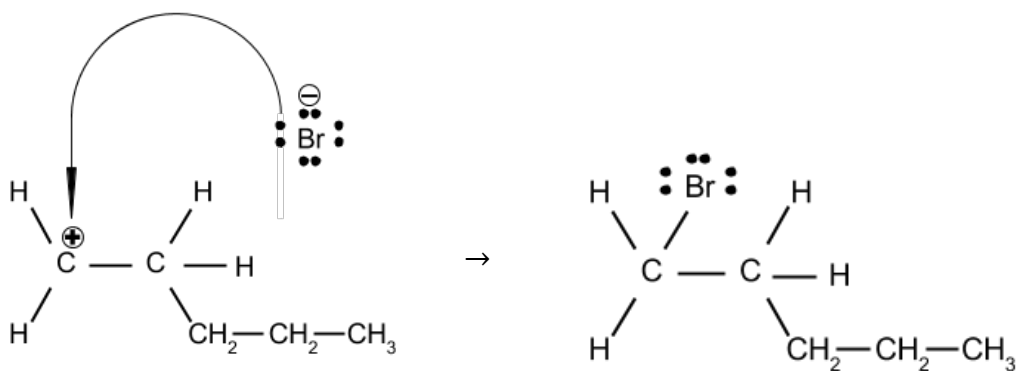
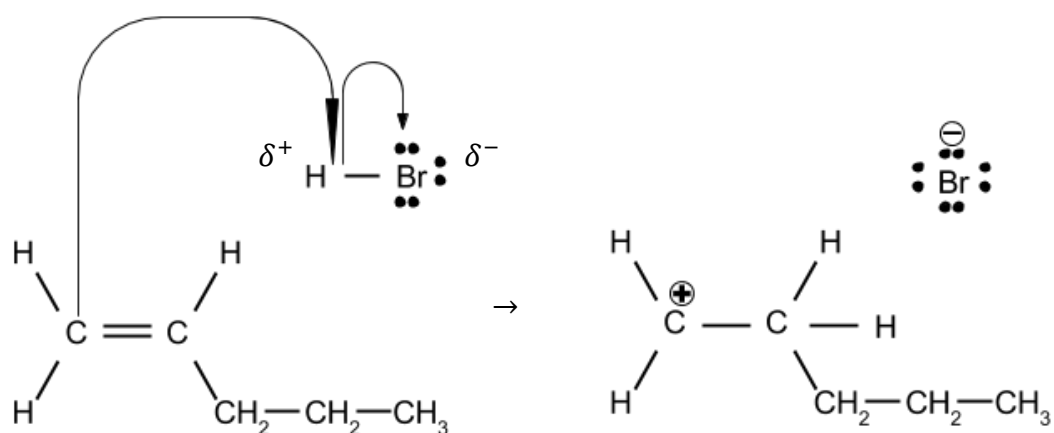
Neutral charges stabilized reaction

End Product

2 - bromo pentane

Another possible mechanism from the beginning products

hydrogen bromide + 1 pentene



This second mechanism leads to the ending product

1 - bromo pentane

Carbocations

C with a positive charge

Experiments demonstrate that the preferred ending product is the 2 - bromo pentane

As it appears more abundant in the resulting solutions

The difference between the 2 products is due to which C becomes the carbocation

The preference and resulting abundance for a particular product is due to the following rule

Markovnikov's Rule

Constituent with more H attracts more H

Constituent with more groups attracts more groups

This is further understood by considering the stability of the carbocation

Carbocation becomes more stable when attached to more electron rich atoms or molecules

Stability increases with increased bonds to electron rich atoms

H is not very electron rich at all, thus C is very unstable with H and therefore prefers to seek other atoms

Carbocation

C with a positive charge

Primary C bonded to 1 other electron rich atom

Secondary C bonded to 2 other electron rich atom

Tertiary C bonded to 3 other electron rich atom

Quaternary C bonded to 4 other electron rich atom

The carbocation with the most electron rich atoms around it is also the C most willing to give up its electrons