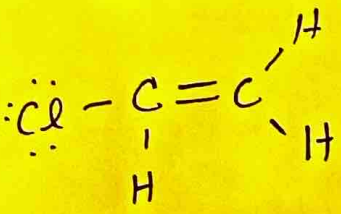
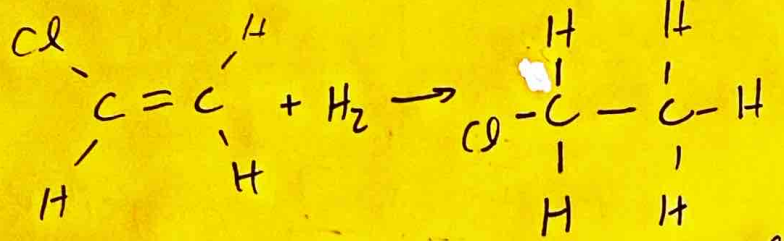
Alkene Chemistry answer key



1-chloroethene

1. Hydrogenation

$$CHClCH_2 + H_2 \xrightarrow[150^\circ]{Ni} CH_2ClCH_3$$

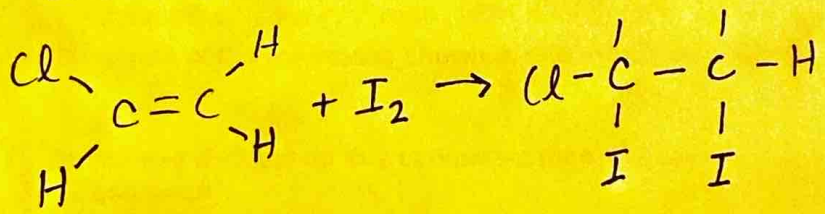


H_2 breaks double bond to produce alkane

1-chloroethane

2. Addition of iodine aka halogenation

$$CHClCH_2 + I_2 \rightarrow ClICHCH_2I$$

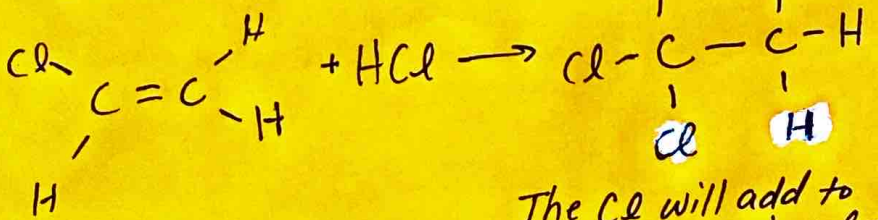


I_2 breaks double bond to produce di-substituted halogenoalkane

1-chloro, 1,2-diiodo ethane

3. Addition of HCl

$$CHClCH_2 + HCl \rightarrow Cl_2CHCH_3$$

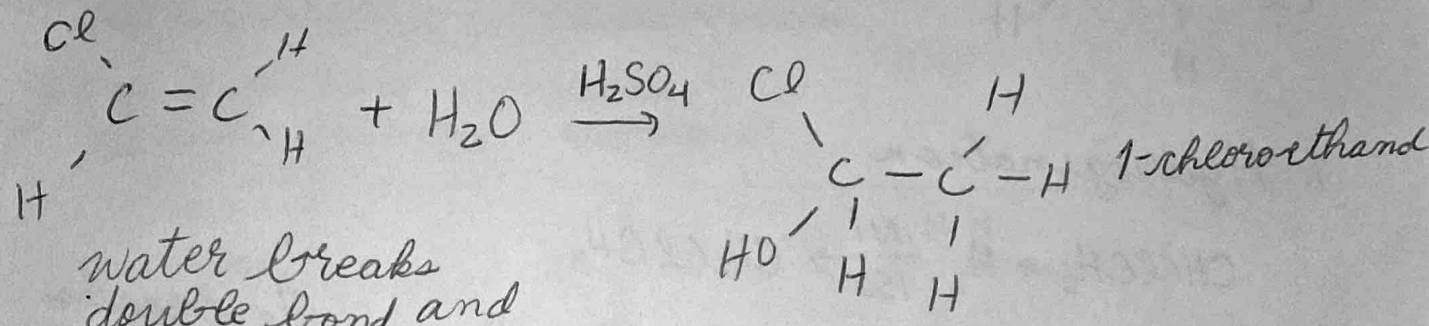


HCl breaks double bond to produce substituted halogenoalkane

The Cl will add to the carbon that has the fewest H atoms. This is due to the formation of a more stable intermediate in this mechanism (HL stuff)

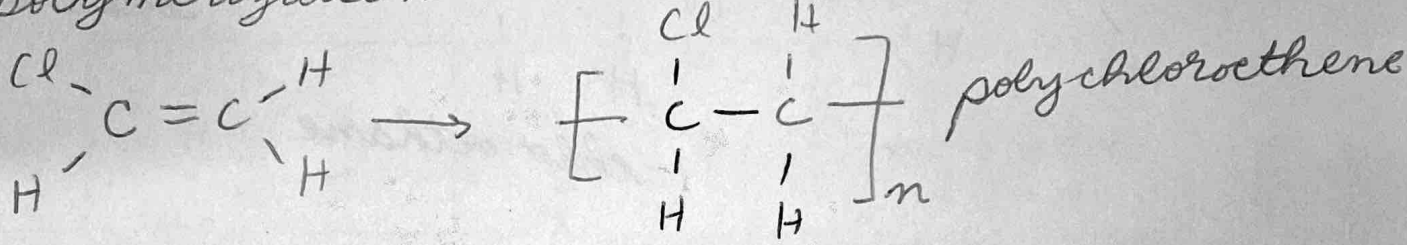
4. Hydration

$CHClCH_2 + H_2O \longrightarrow ClCH_2OCH_3$



water breaks double bond and adds alcohol group

5. polymerization



breaks double bond due to heat/pressure to cause chains of monomers