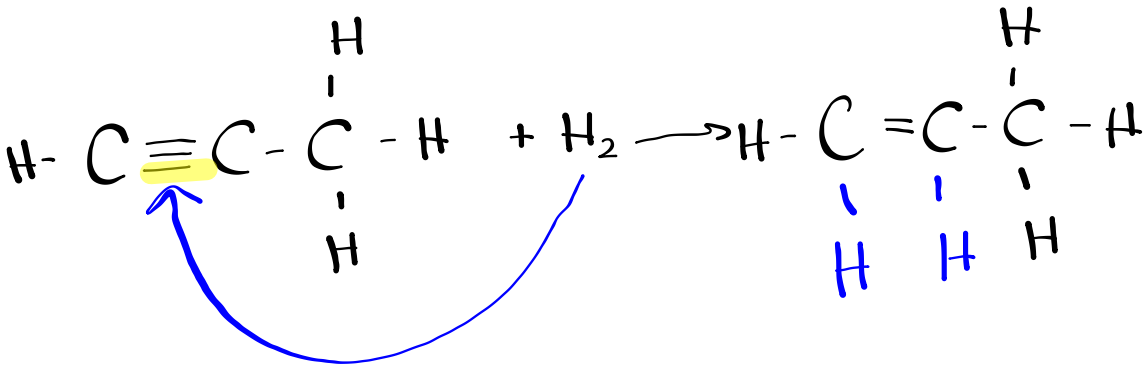
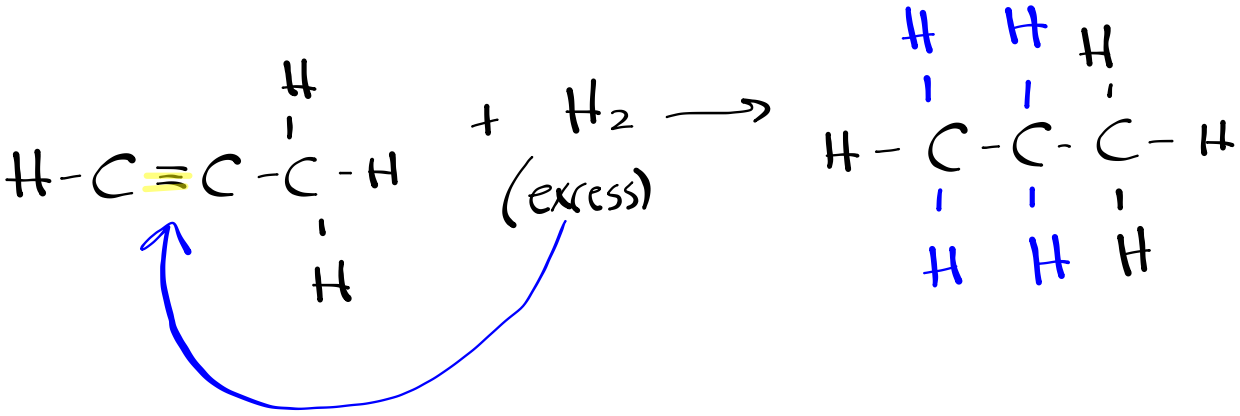
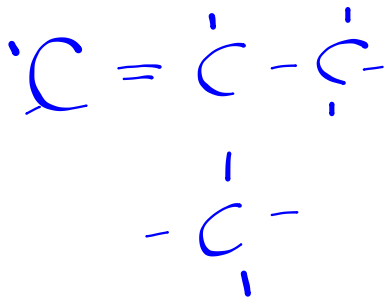
ADDITION (cont'd)







HYDROCARBON DERIVATIVES

Hydrocarbons are compounds made up of only carbon and hydrogen atoms.

Hydrocarbon derivatives are composed of the hydrocarbon parent in which one or more of the hydrogens have been replaced with a non-hydrocarbon element or group of elements (functional group)

Ex. CH_3CH_2Cl

What is a 'functional' group?

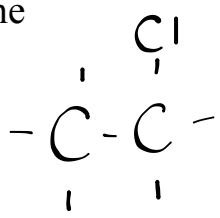
Organic Halides

- an organic molecule in which one or more of the hydrogens have been replaced with a Group 17 (halogens) atom.

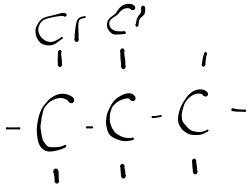
Naming

Organic halides are named using the same rule as hydrocarbons. The branch is named by shortening the halogen to name to fluoro, chloro, bromo-, iodo-, etc.

Ex. chloroethane



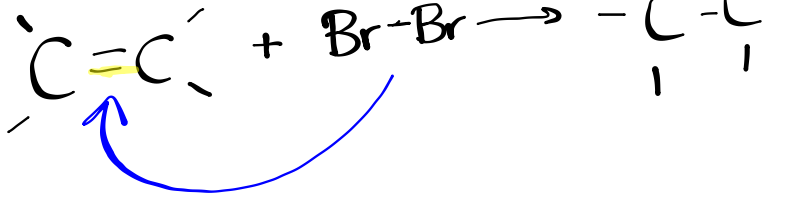
1,2-dichloropropane



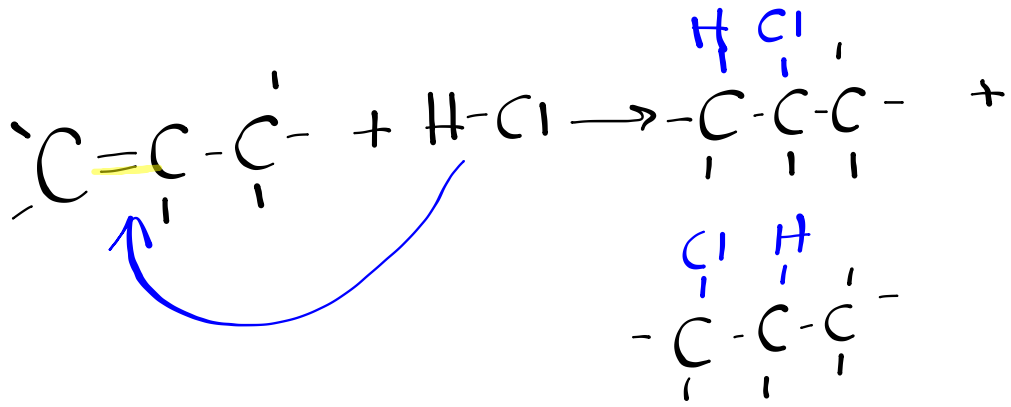
Reaction Types

ADDITION- multiple bonds (pi bonds) are broken and hydrogen or halide are added.

Ex. a) ethene + bromine → 1,2-dibromoethane



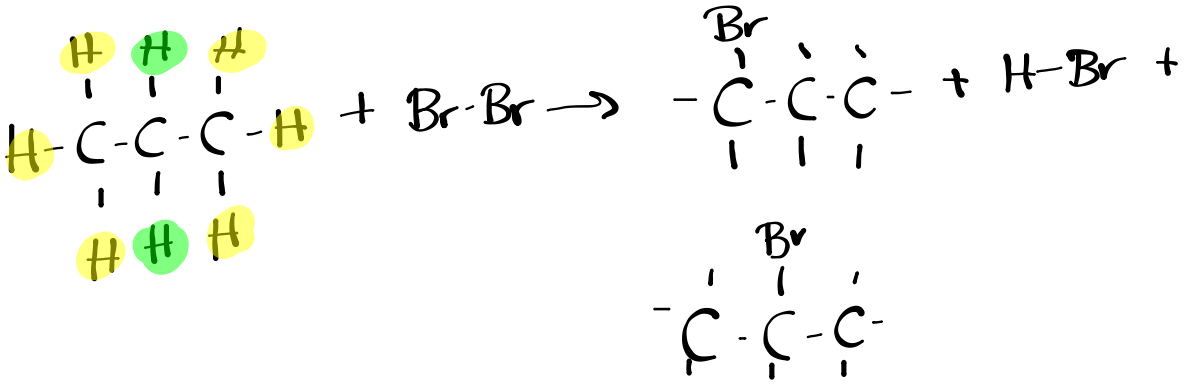
b) propene + hydrogen chloride → 1-chloropropane + 2-chloropropane



SUBSTITUTION REACTIONS - carbon-hydrogen (sigma bonds) are broken and the hydrogen is replaced with another functional group.

- very difficult reaction; usually occurs in the presence of light

Ex. propane + bromine → 1-bromopropane + 2-bromopropane + hydrogen bromide



benzene + chlorine