

PROPERTIES & REACTIONS of ALKANES

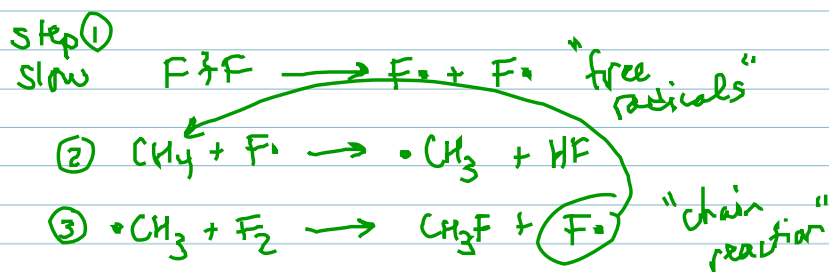
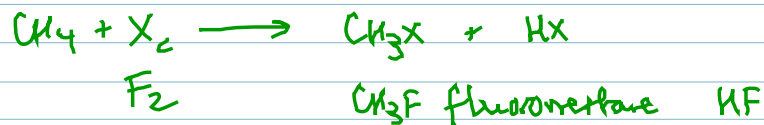
• NONPOLAR LONDON FORCES (bigger = stronger)

C₁₋₄ gases C₅₋₁₀ liquids

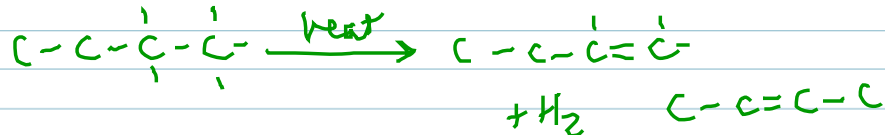
CHEMICAL REACTIONS

① COMBUSTION → very exothermic $O=C=O$

② HALOGENATION
→ swapping H's for halogens (F, Cl, Br, I)



③ DEHYDROGENATION



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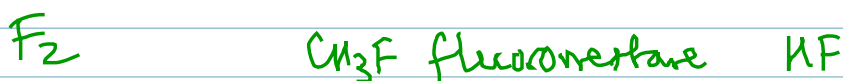
C1-4 gases C5-10 liquids

CHEMICAL REACTIONS

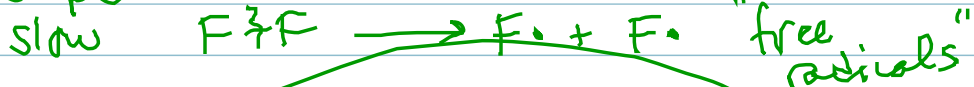
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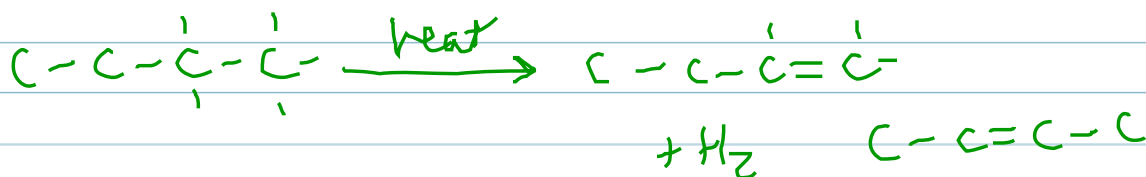
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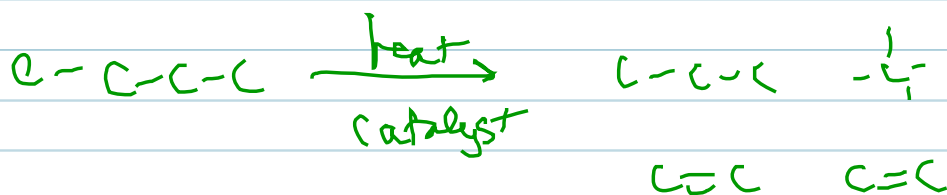
step ①



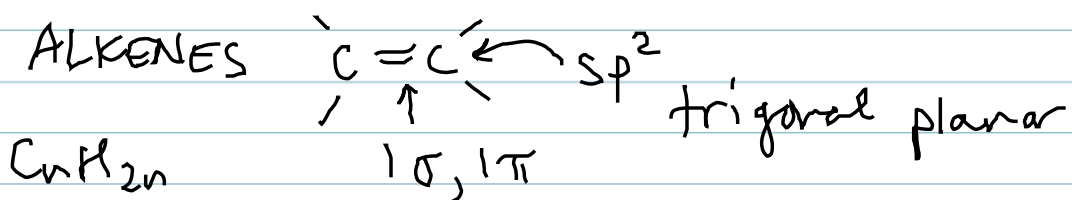
③ DEHYDROGENATION



④ CRACKING



ALKENES

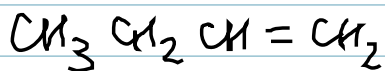


C_nH_{2n}

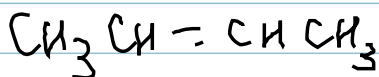
relatively reactive

Nomenclature

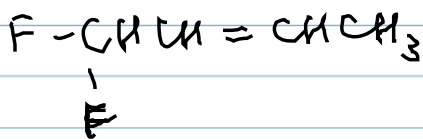
→ "ene" ending double bond always gets the lowest #



1-butene

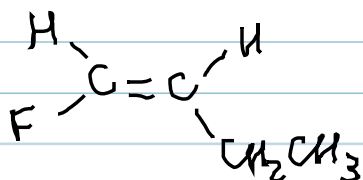


2-butene

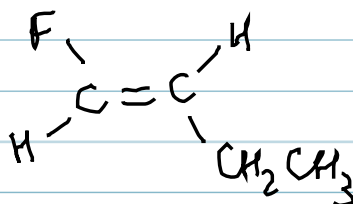


1,1-difluoro-2-butene

geometric isomers

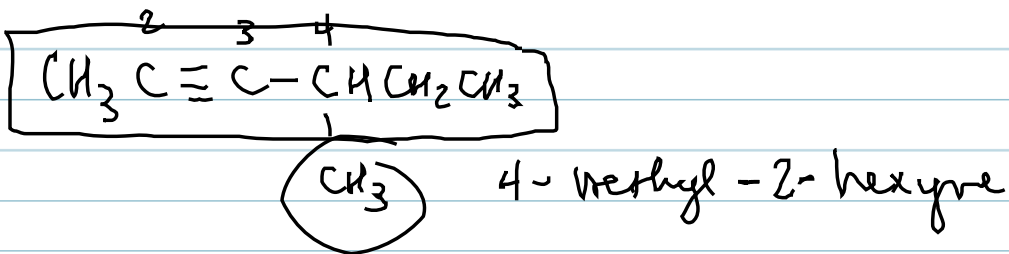
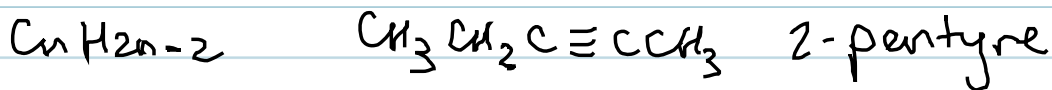
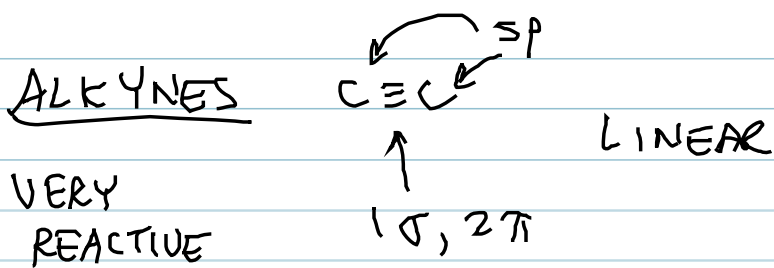


"cis"



"trans"

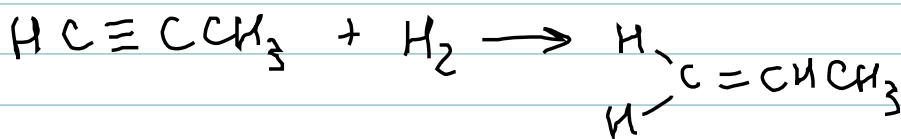
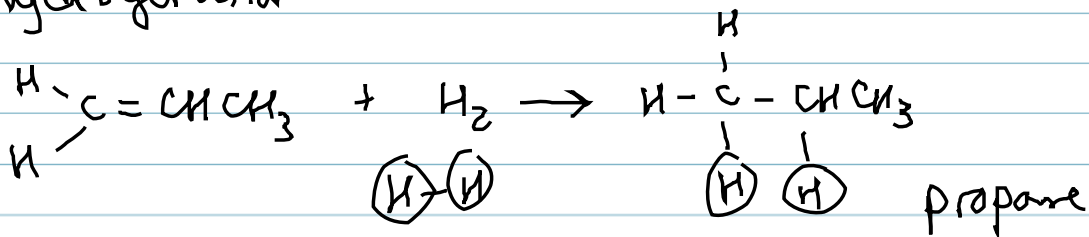
OFTEN: CIS = POLAR, TRANS = NONPOLAR



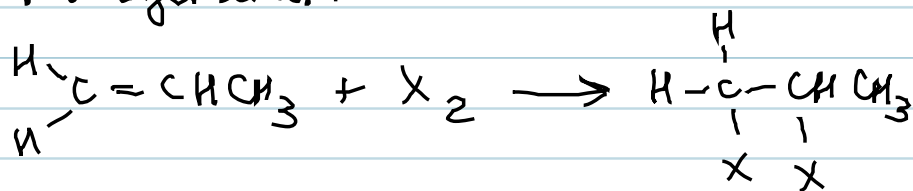
REACTIONS OF ALKENES & ALKYNES

• Addition Reactions

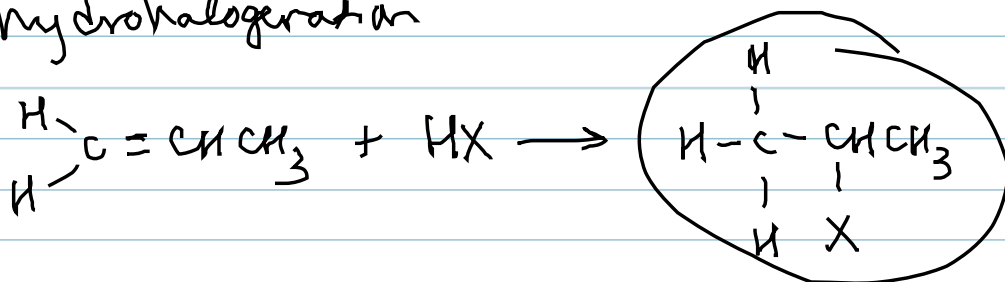
a) Hydrogenation



6) halogenation

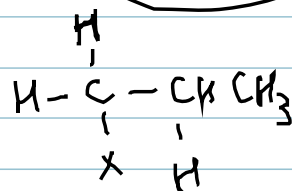


3) hydrohalogenation

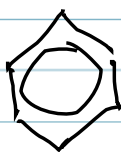


MARKOVNIKOV'S RULE

When adding HX to an alkene or alkyne, the C w/ the most H's to begin with gets the "new" H



BENZENE + AROMATICS



3 delocalized π bonds
→ stability

→ low reactivity

NO ADDITION REACTIONS

