

Today

Electrophilic Aromatic Substitution
8.16 - 8.21, 18.1 - 18.8

Second Class from Today

The affect of substituents on EAS:
Activators, deactivators and *o,p* vs *m*
Directors
Section 18.12, 18.13

Next Class

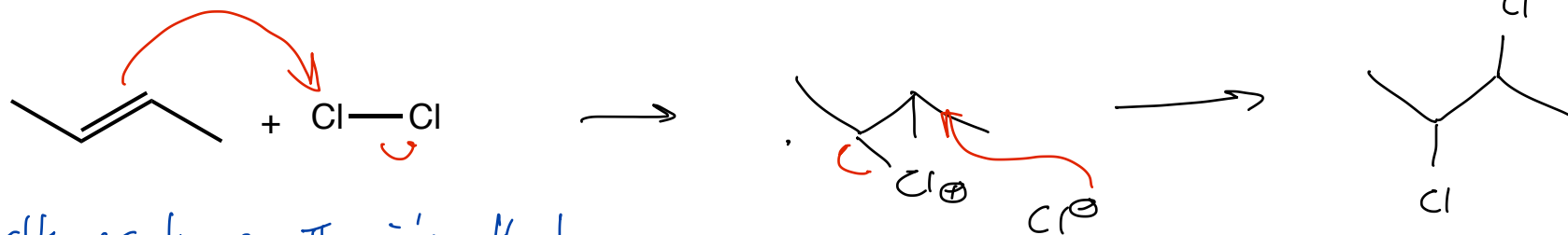
Electrophilic Aromatic Substitution
8.16 - 8.21, 18.1 - 18.8

The affect of substituents on EAS
Activators, deactivators and *o,p* vs *m* Directors
Section 18.12, 18.13

Third Class from Today

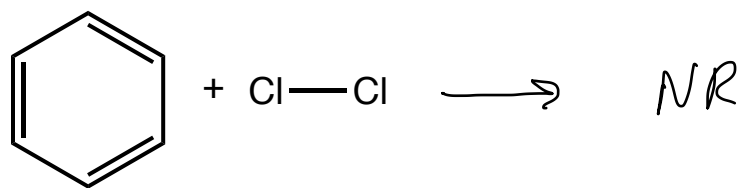
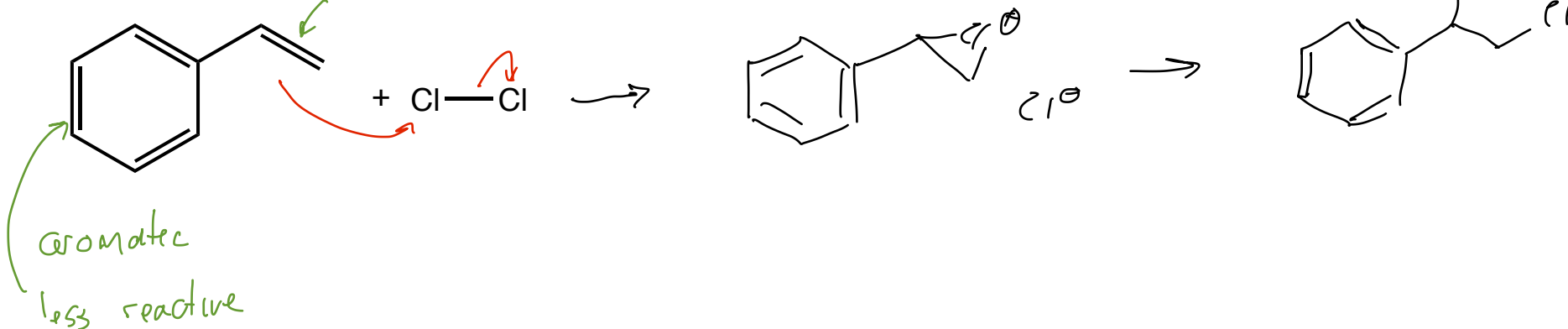
The affect of substituents on EAS:
Activators, deactivators and *o,p* vs *m* Directors
Section 18.12 – 18.14

Electrophilic Aromatic Substitution (not electrophilic addition)

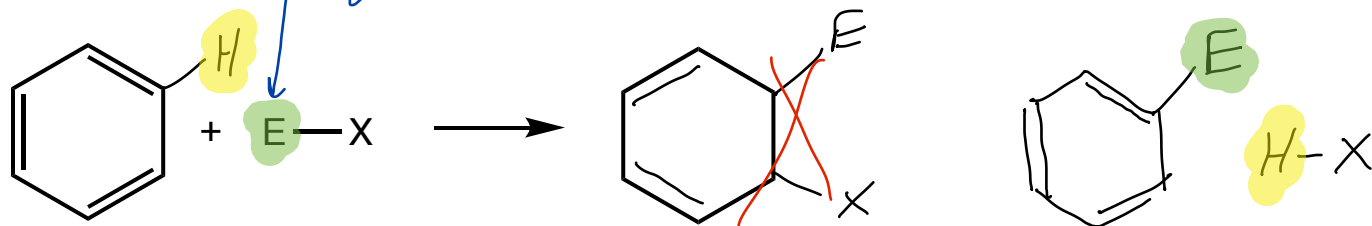


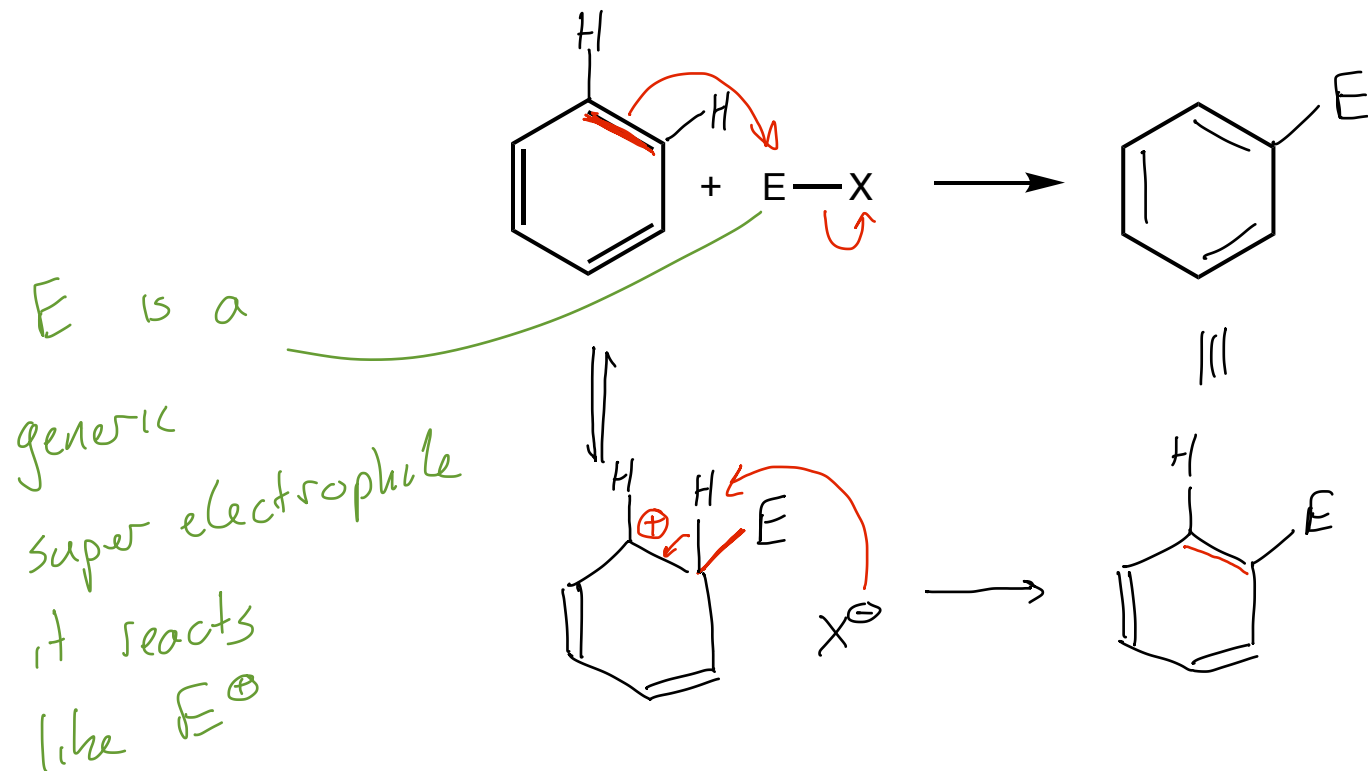
alkenes have π e⁻'s that are nucleophilic + they react with electrophiles

alkene more reactive



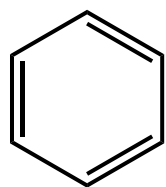
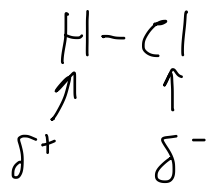
a super electrophile... electrophilic addition would involve a loss of aromaticity



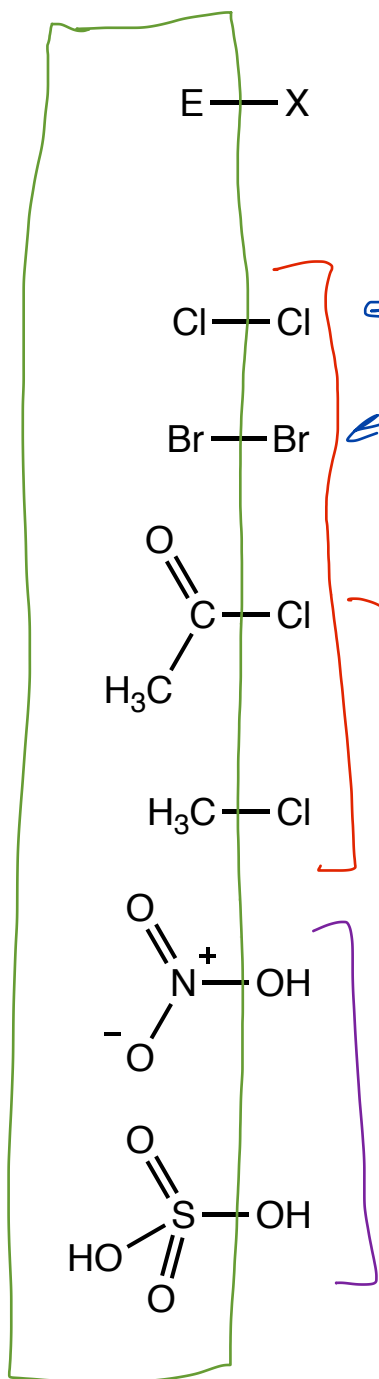


Electrophilic Aromatic Substitution

Sections 18.3 - 18.8



+

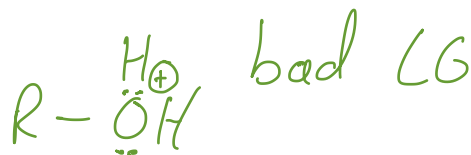


remove these to make E more electrophilic

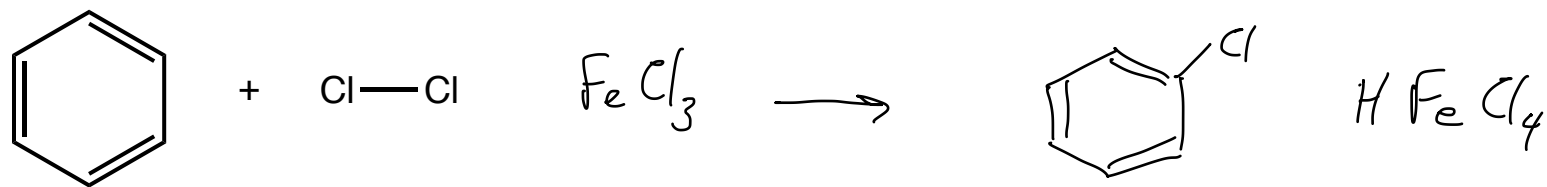
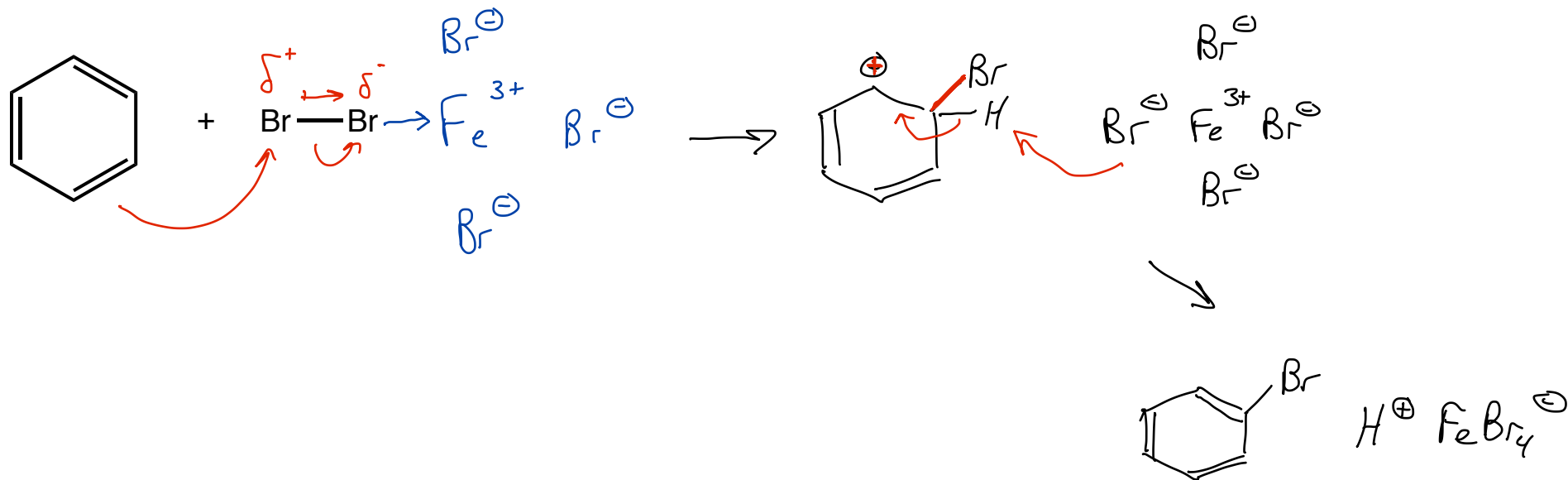
make the E more electrophilic by reacting them with an acid....

react with Lewis Acids

react with sulfuric acid



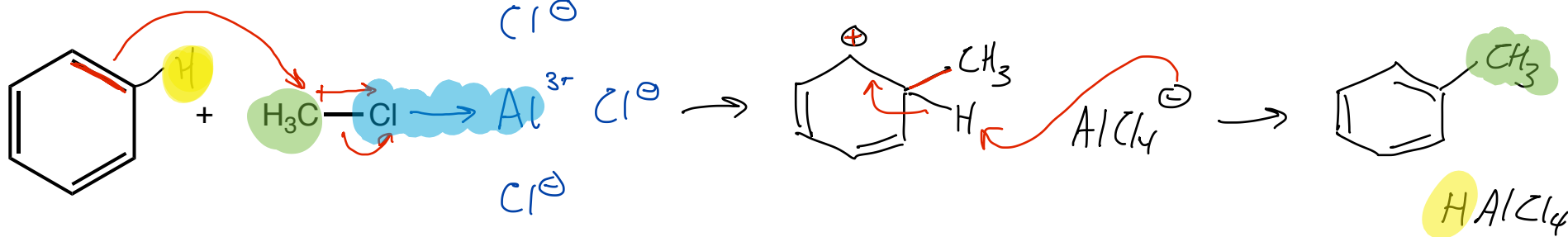
Bromination and Chlorination *Lewis acids are lone-pair e⁻ acceptors* Section 18.3



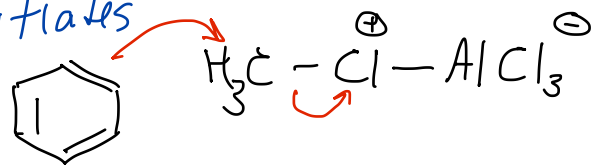
Alkylation and Acylation

$FeCl_3$ doesn't work :-

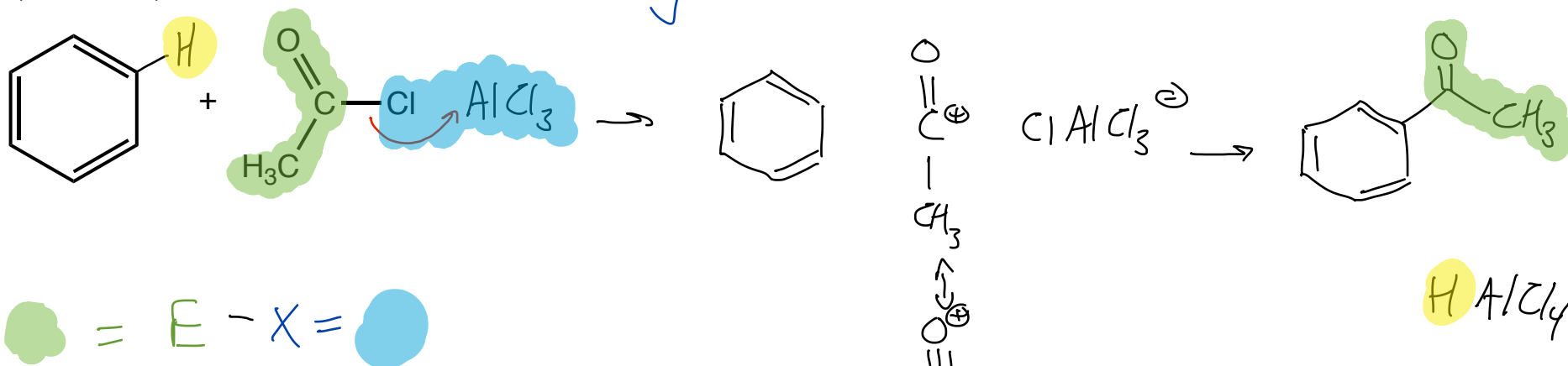
Sections 18.5 & 18.6



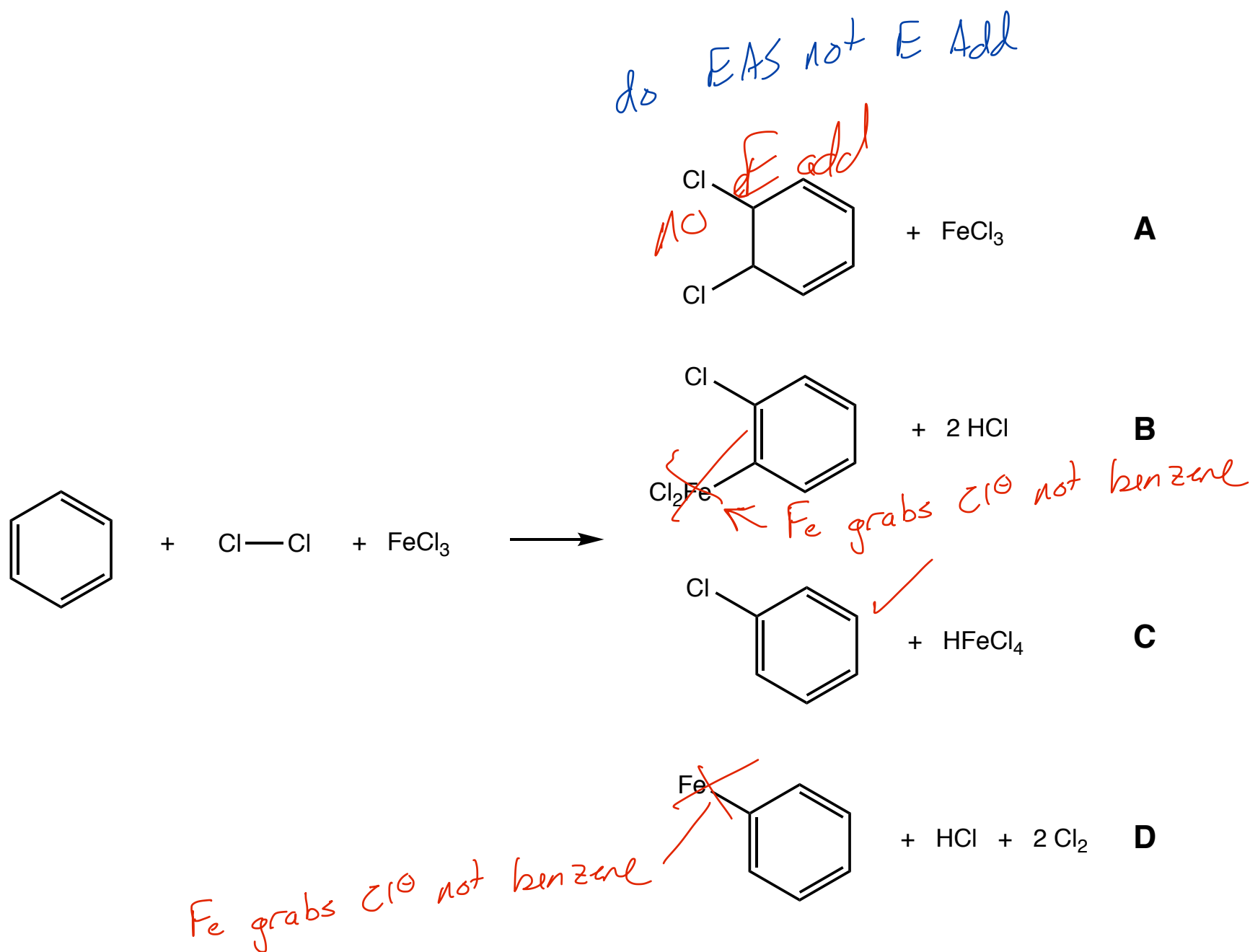
electrophile initiates the reaction



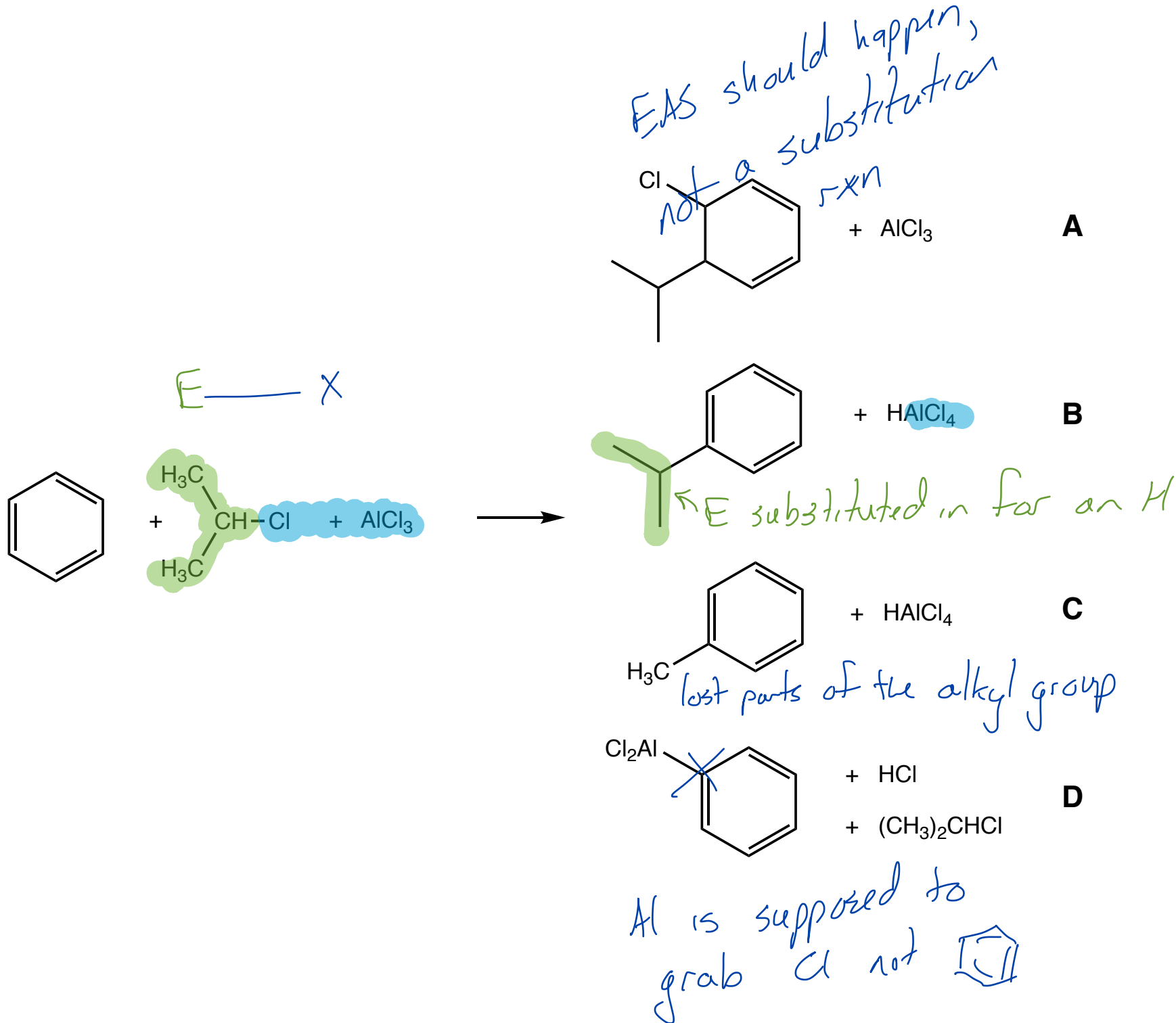
Fe^{3+} didn't work ... not a lot of +4 metals ... how about a +3 metal that is smaller?
 Al^{3+} attracts Cl to it making the C more positive



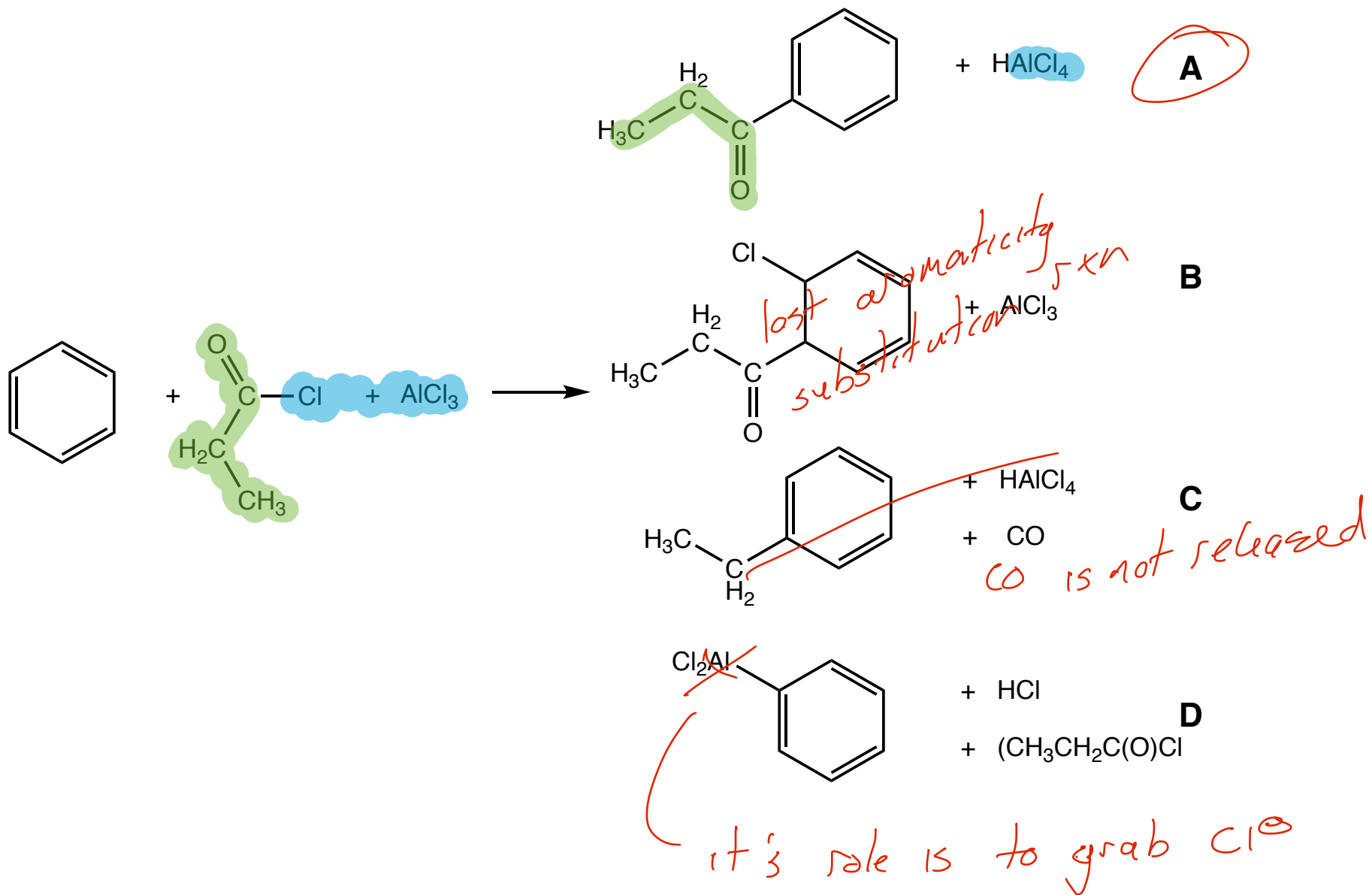
Review



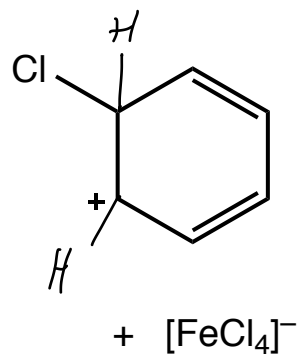
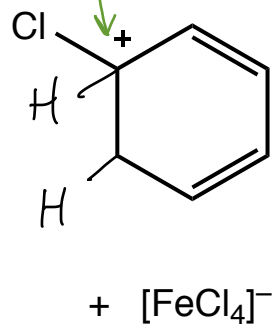
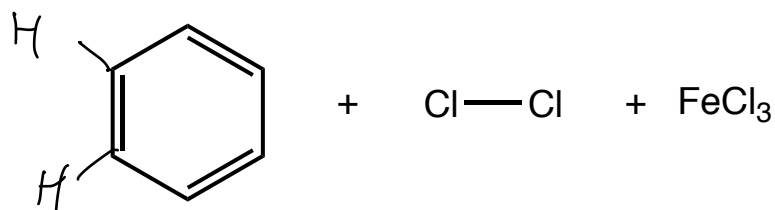
Review



Review



Review



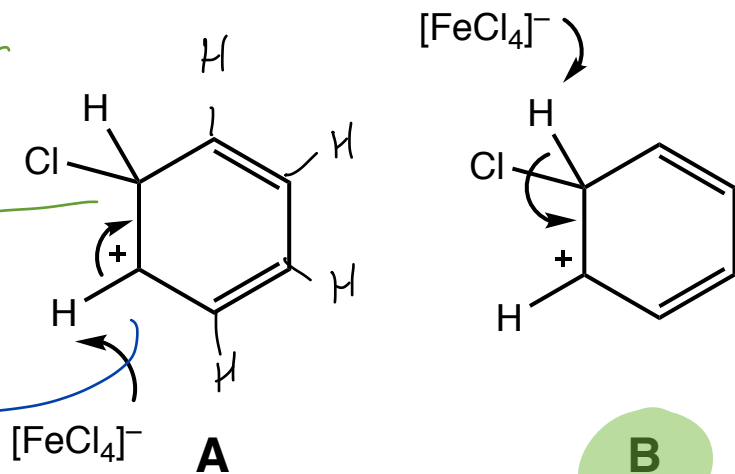
this C would
not be ⊕
because it
has 4 bonds

A

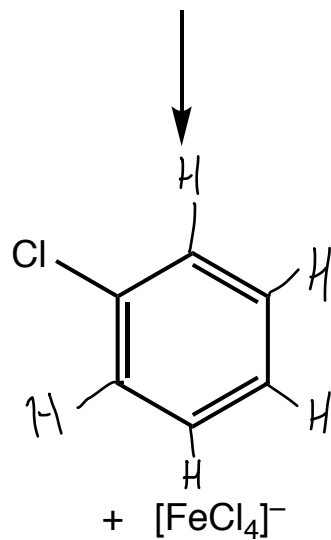
B

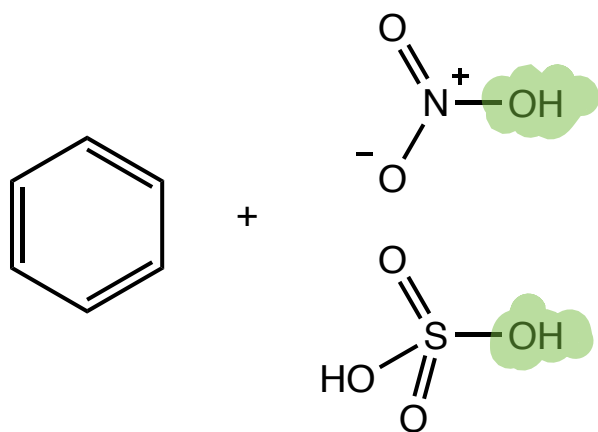
Review

this would leave the this C atom with 5 bonds



this would leave this C atom with only 2 bonds





adding H^+ to the OH turns
it into a better LG