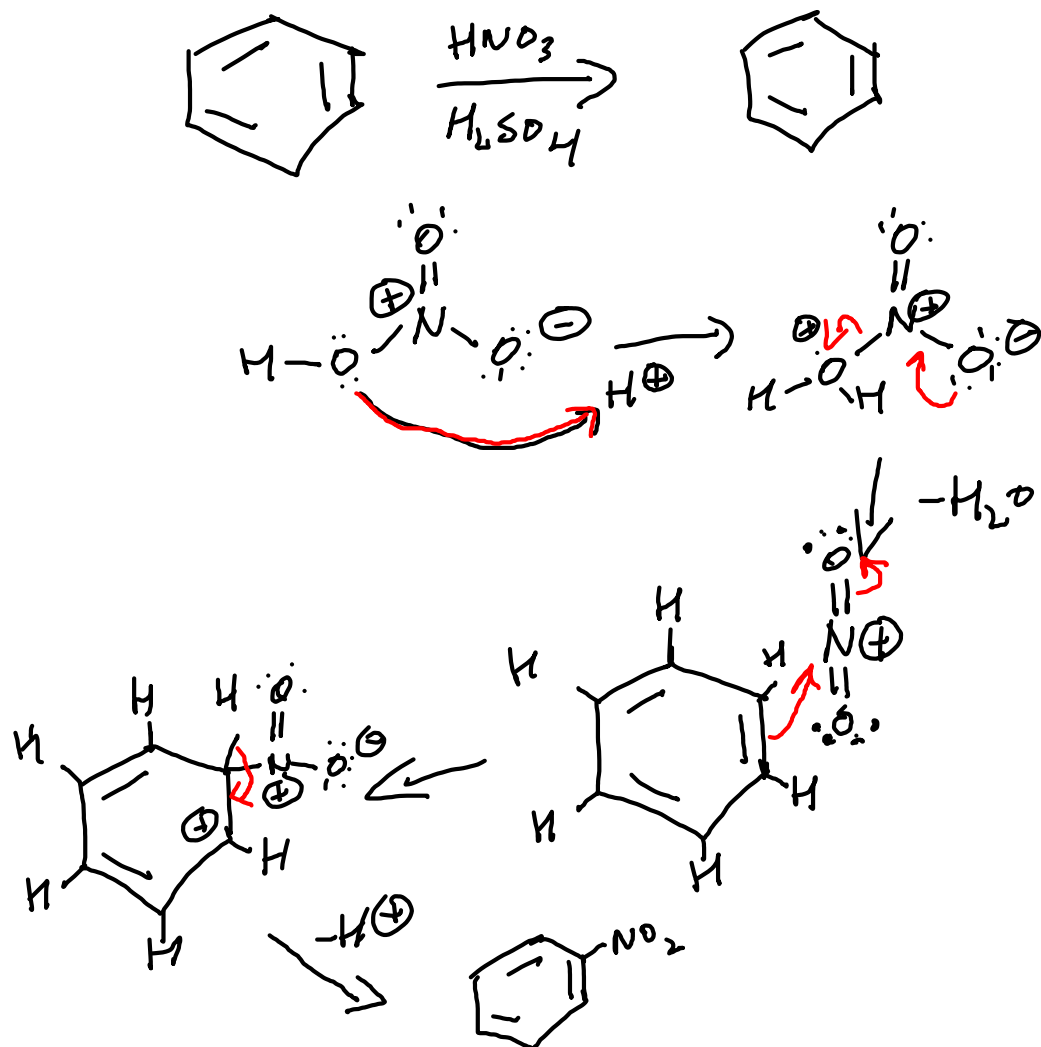
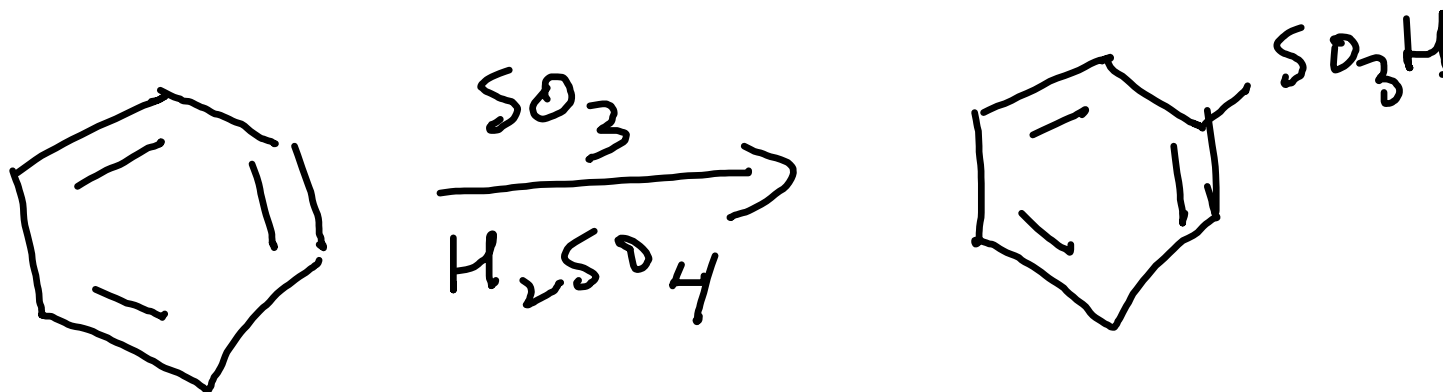


ELECTROPHILIC AROMATIC SUBSTITUTION cont.

NITRATION

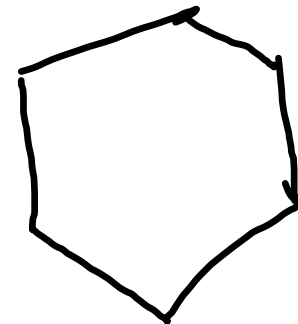
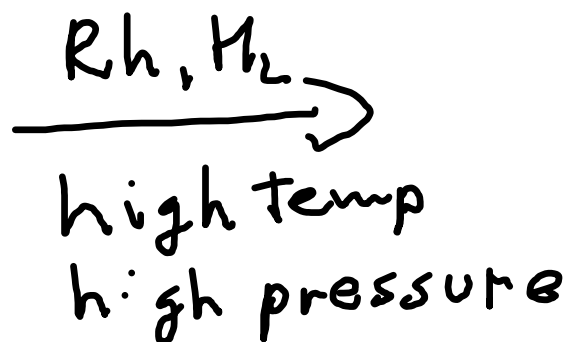
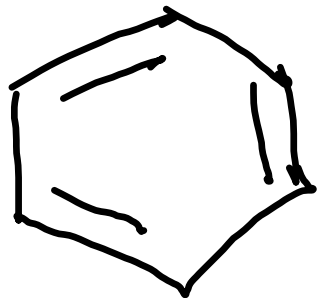


SULFONATION

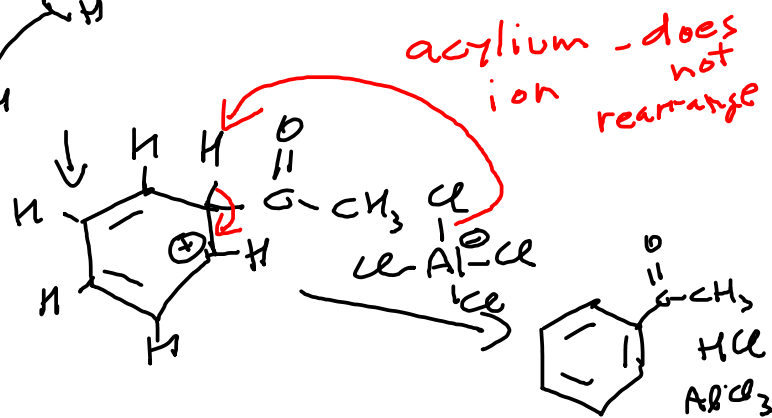
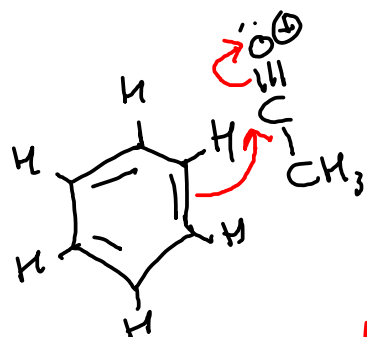
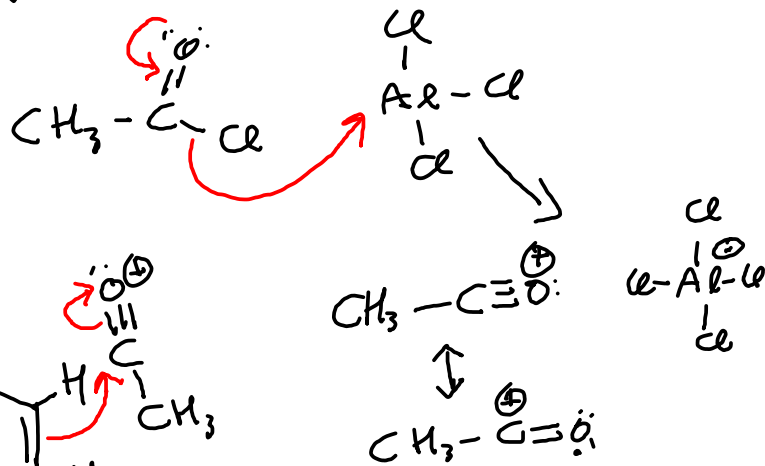
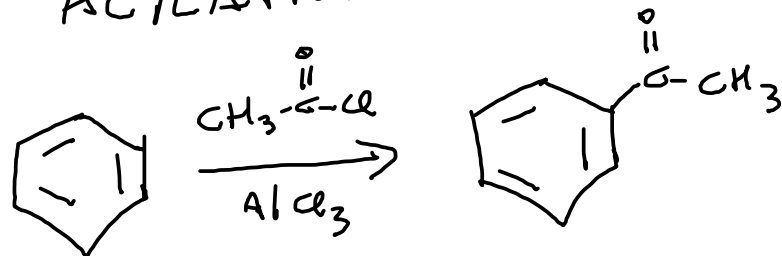


fuming
Sulfuric
acid

HYDROGENATION (not electrophilic)



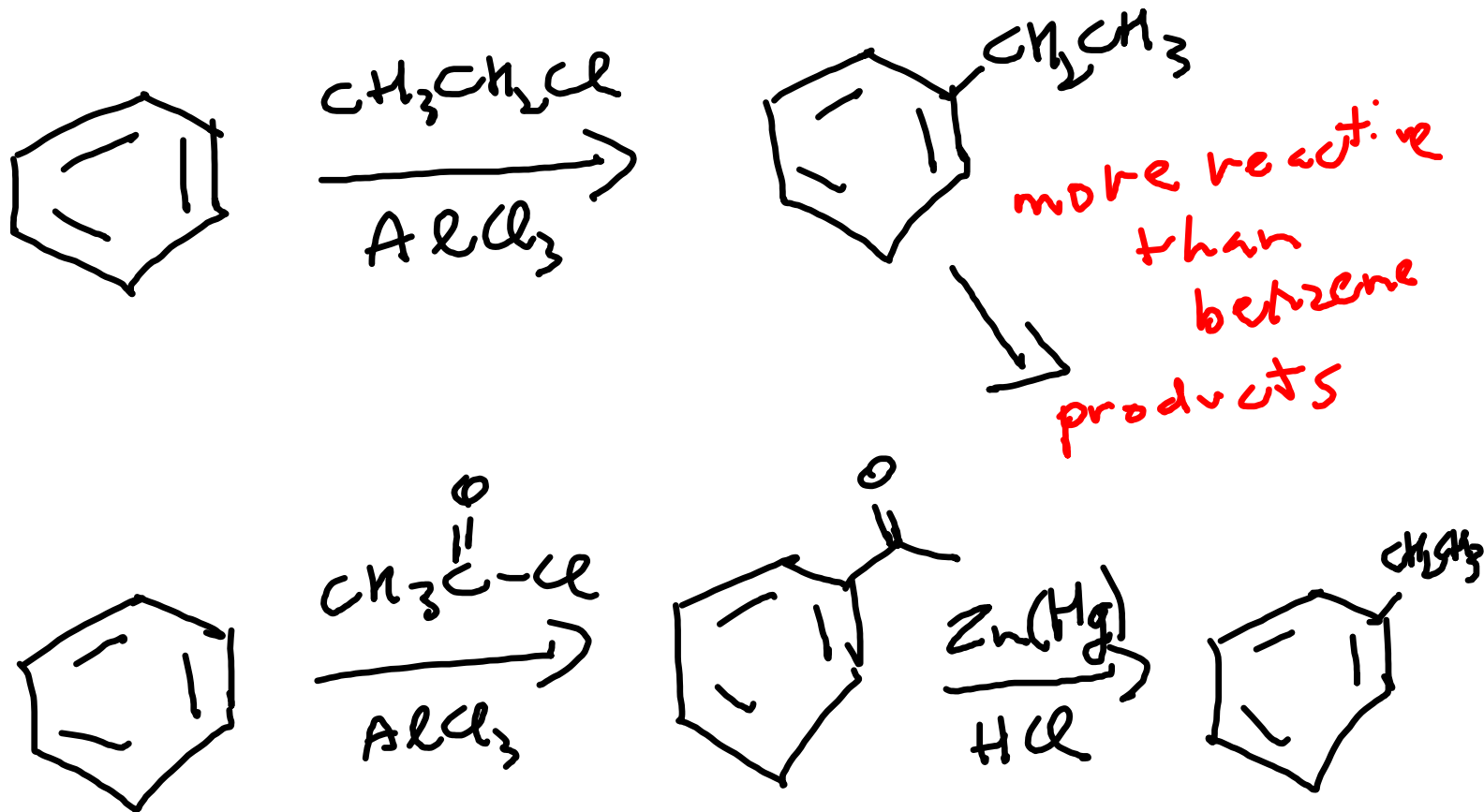
ACYLATION

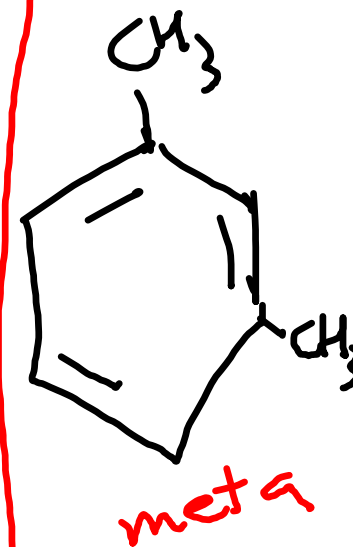
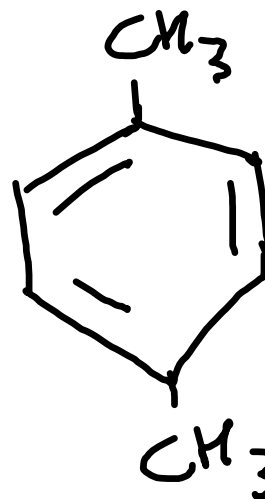
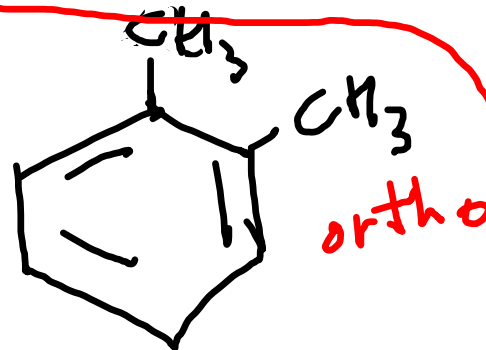
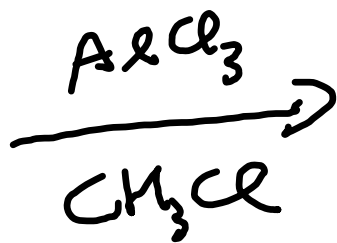
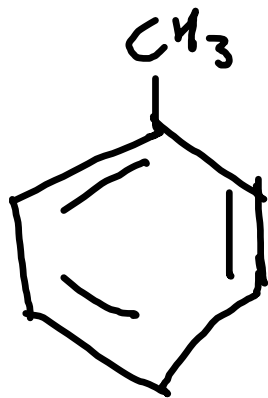


acylium - does not rearrange

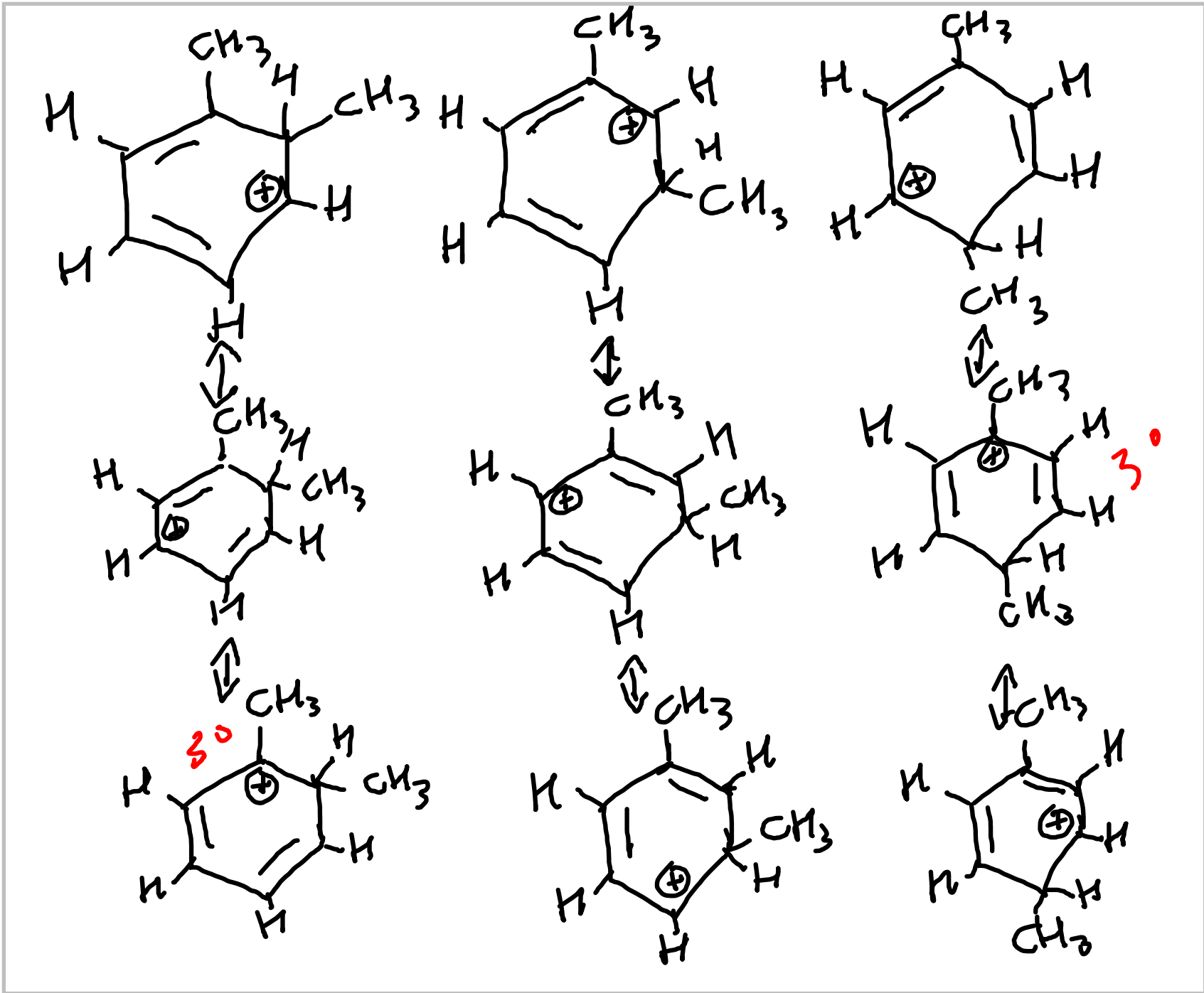
less reactive than benzene

CLEMMEN SEN REDUCTION



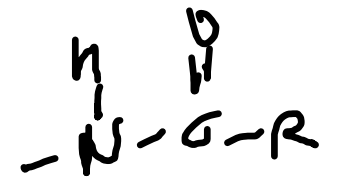
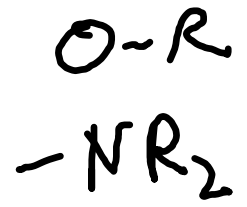


major products



o/p directors
activating

alkyl R



o/p directors
deactivating

Cl, Br, I

slower than benzene

← FRIEDEL-CRAFTS DO NOT GO

m directors
deactivating

