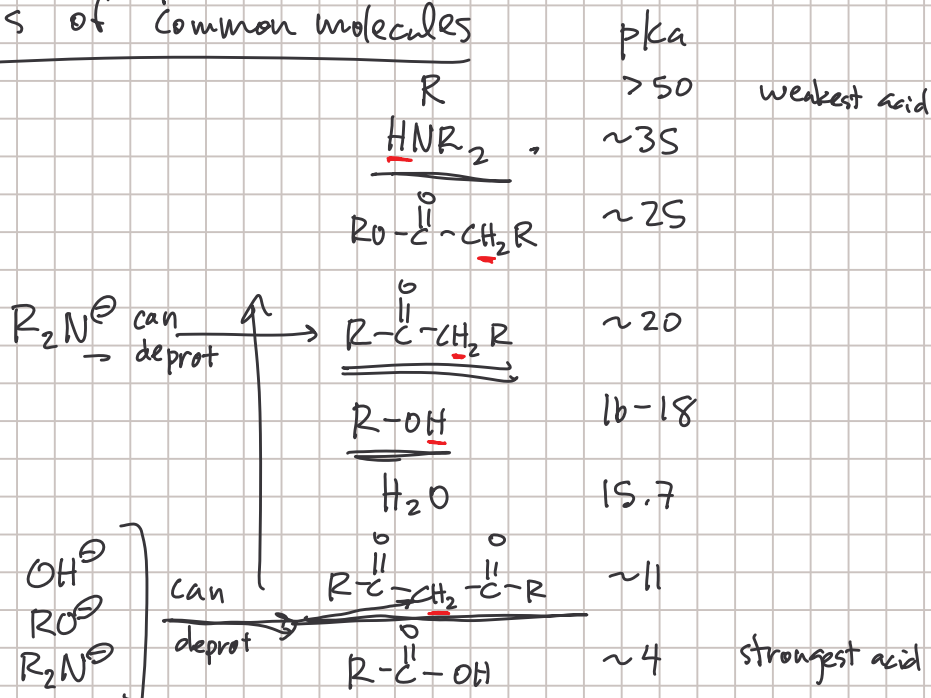
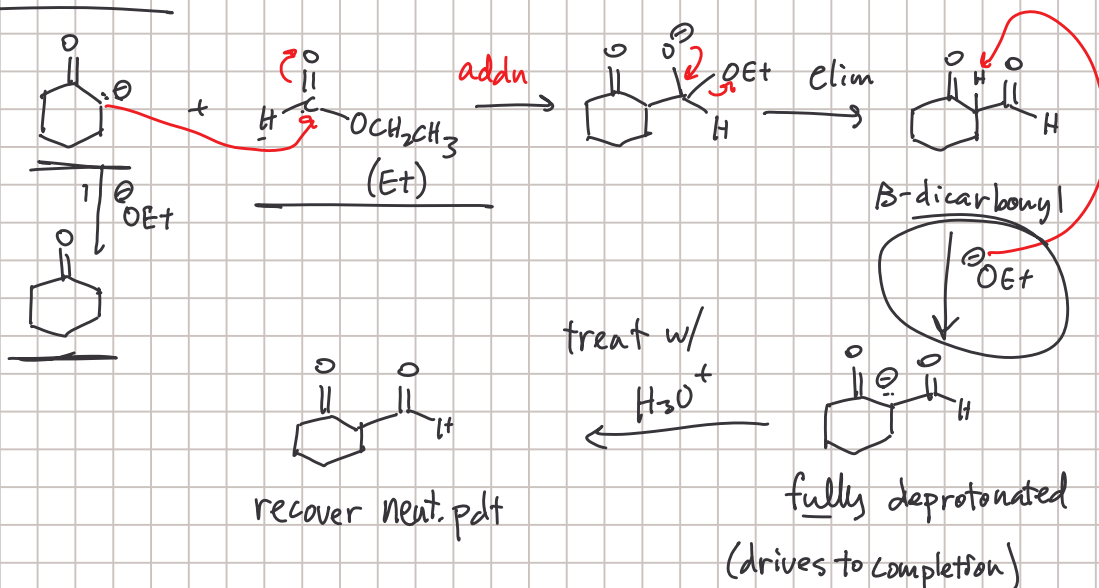


PKa's of common molecules

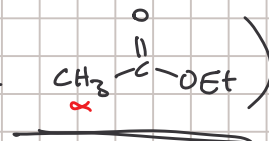


Claisen cond enolate + ester

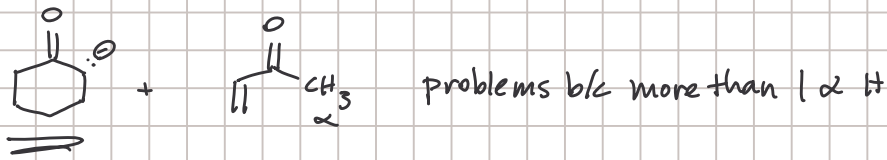


Crossed Claisen (2 different reactants)

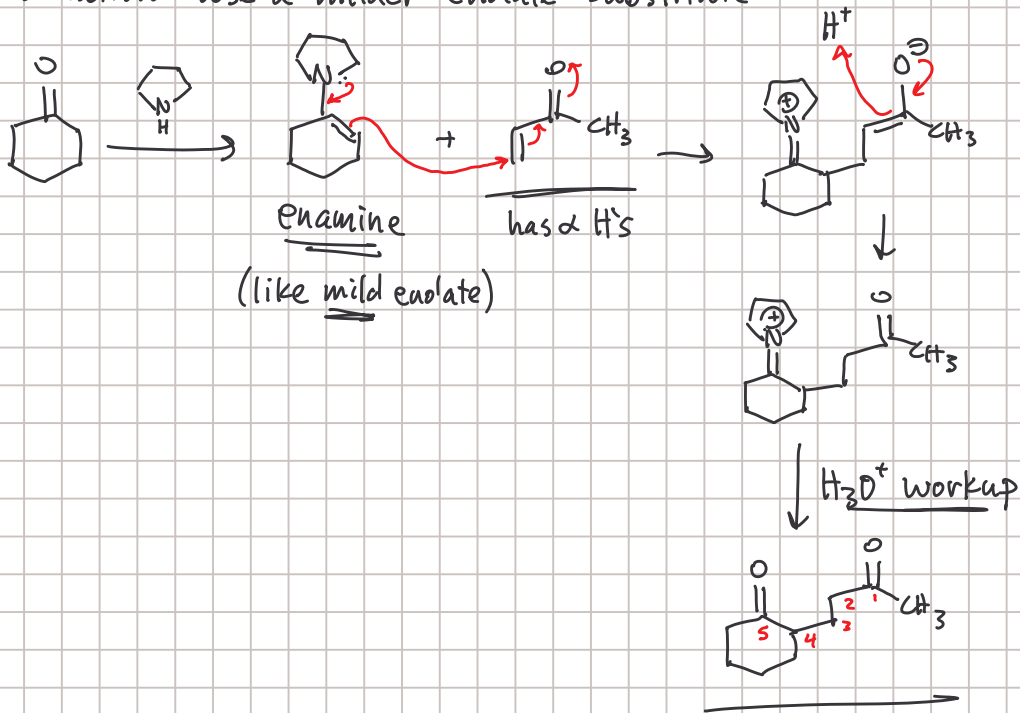
\* ester has no  $\alpha$  hydrogens (only one possible enolate can form)



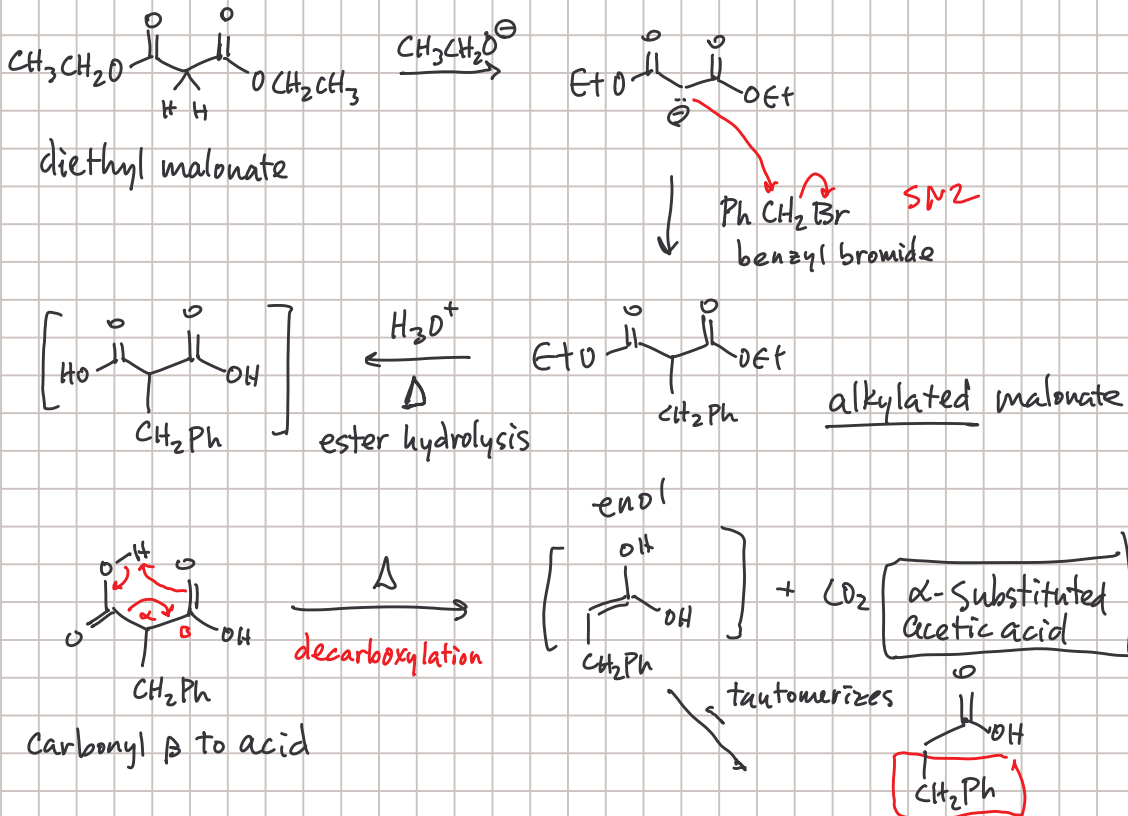


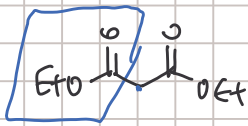


Solution: use a milder enolate-substitute



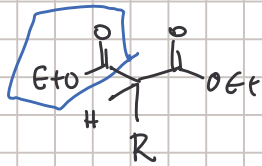
Malonic ester synthesis: makes  $\alpha$ -substituted acetic acid



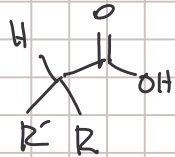
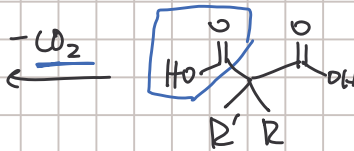
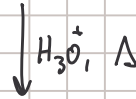
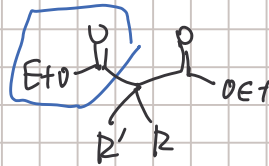


temporary ester

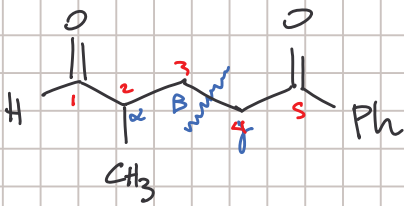
alkylate



can be alkylated again!

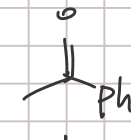
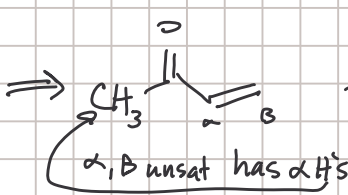
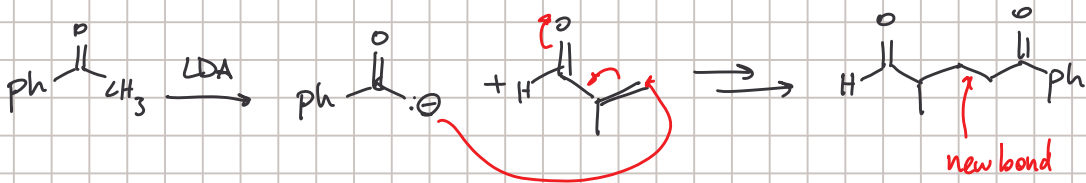
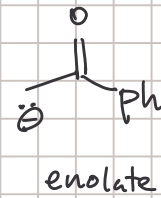
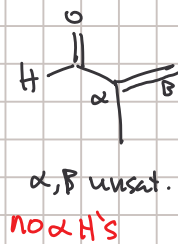


$\alpha, \alpha$ -disubstituted acetic acid



1,5-dicarbonyl

form  $\beta$ - $\gamma$  bond



use enamine (milder enolate)

skipped acetoacetate synt  
" Robinson "

Aldol, Claisen, Michael, malonic ester for exam