

Final Exam 150 pts $\rightarrow$ 100 pts

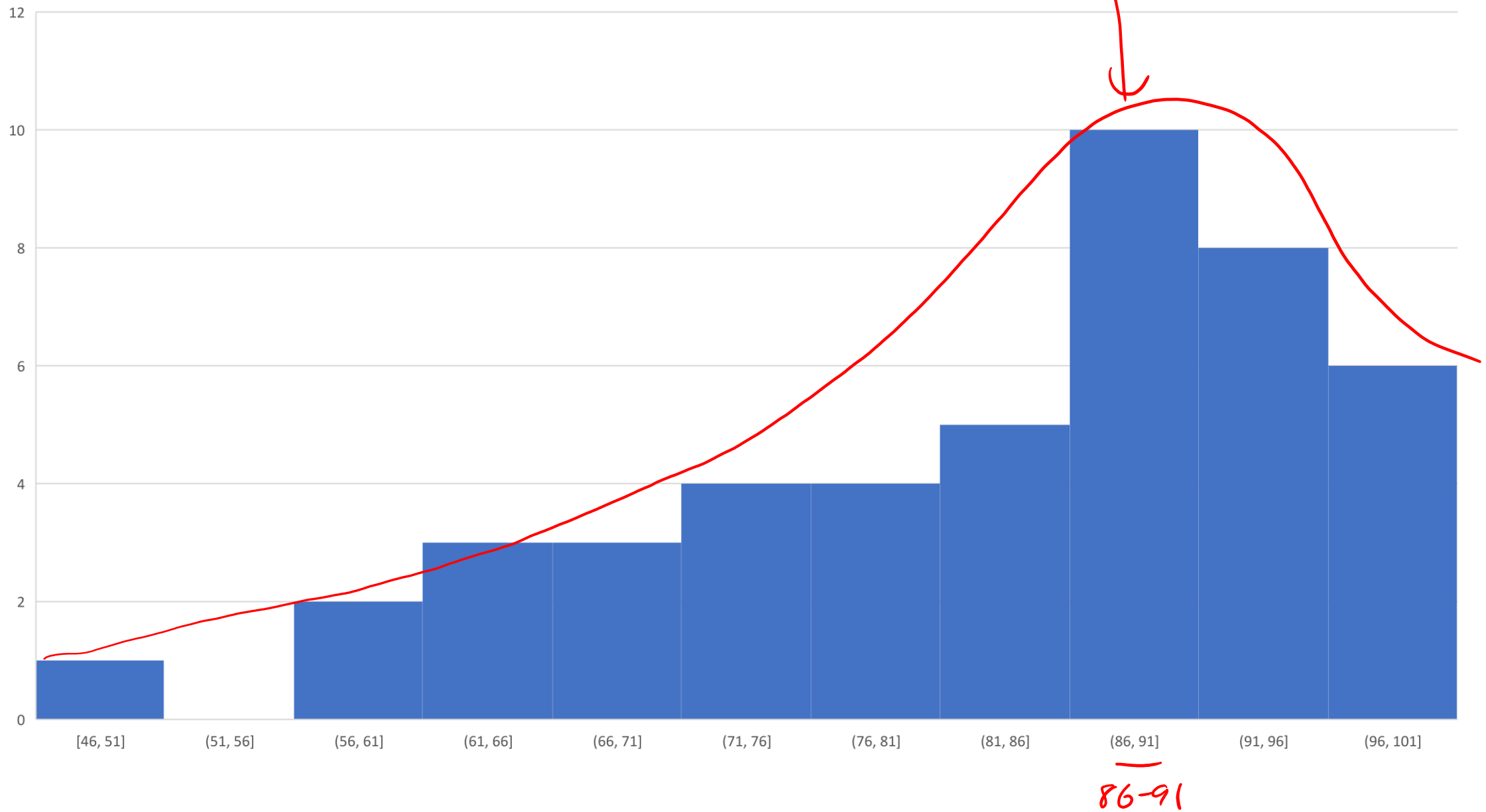
Diels-Alder: Stereochemistry

Practice with Diels-Alder



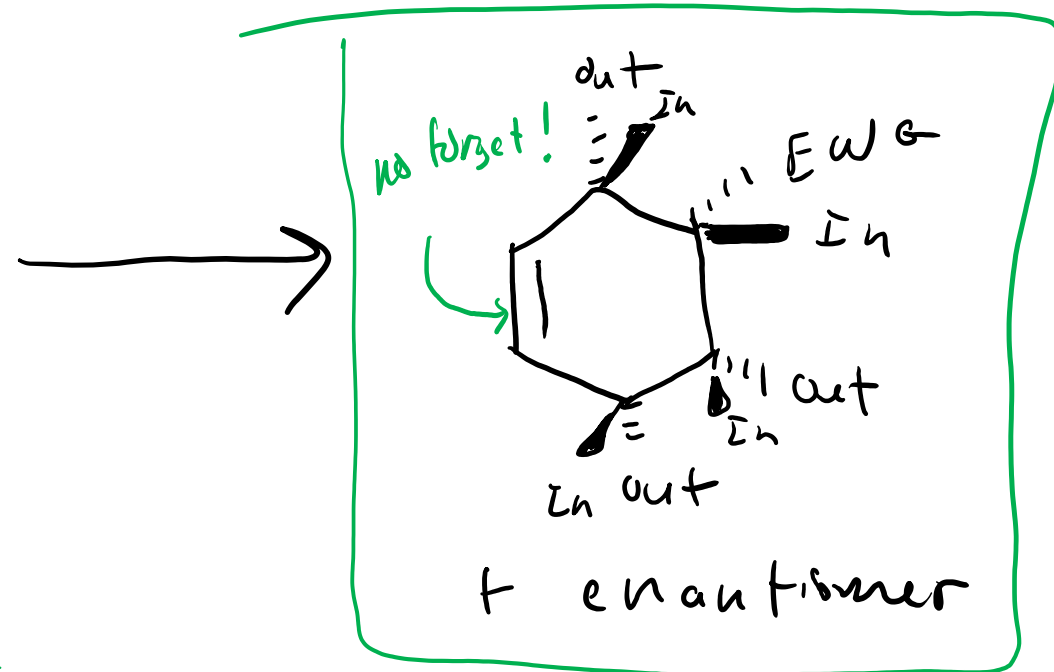
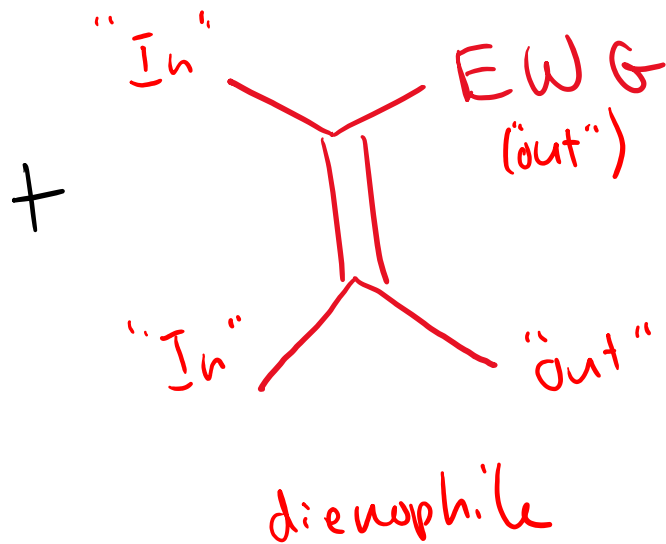
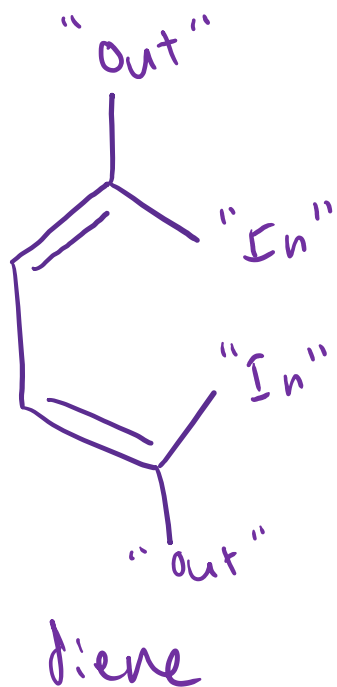
4/10/2023

Exam 2 (Avg = 82.7)



Stereochemistry of Diels-Alder

(always face EWG "out")

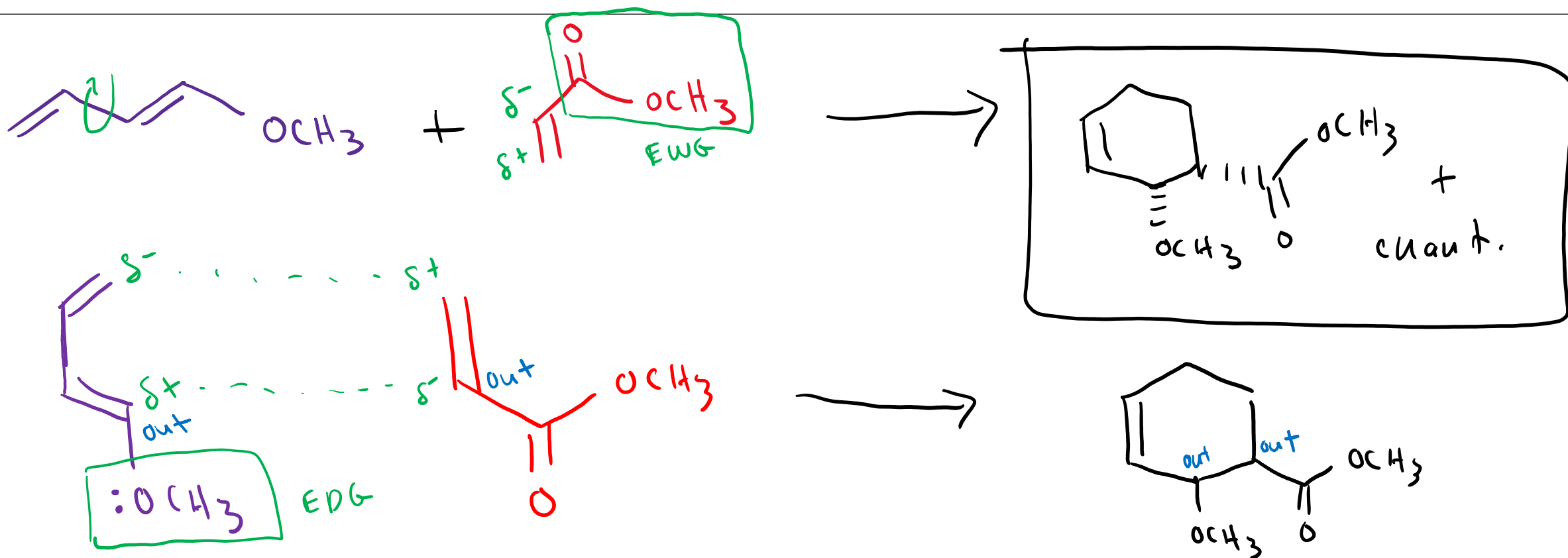


all "In" go to wedge, all "out" go to dash (+ vice versa for the enantiomer)

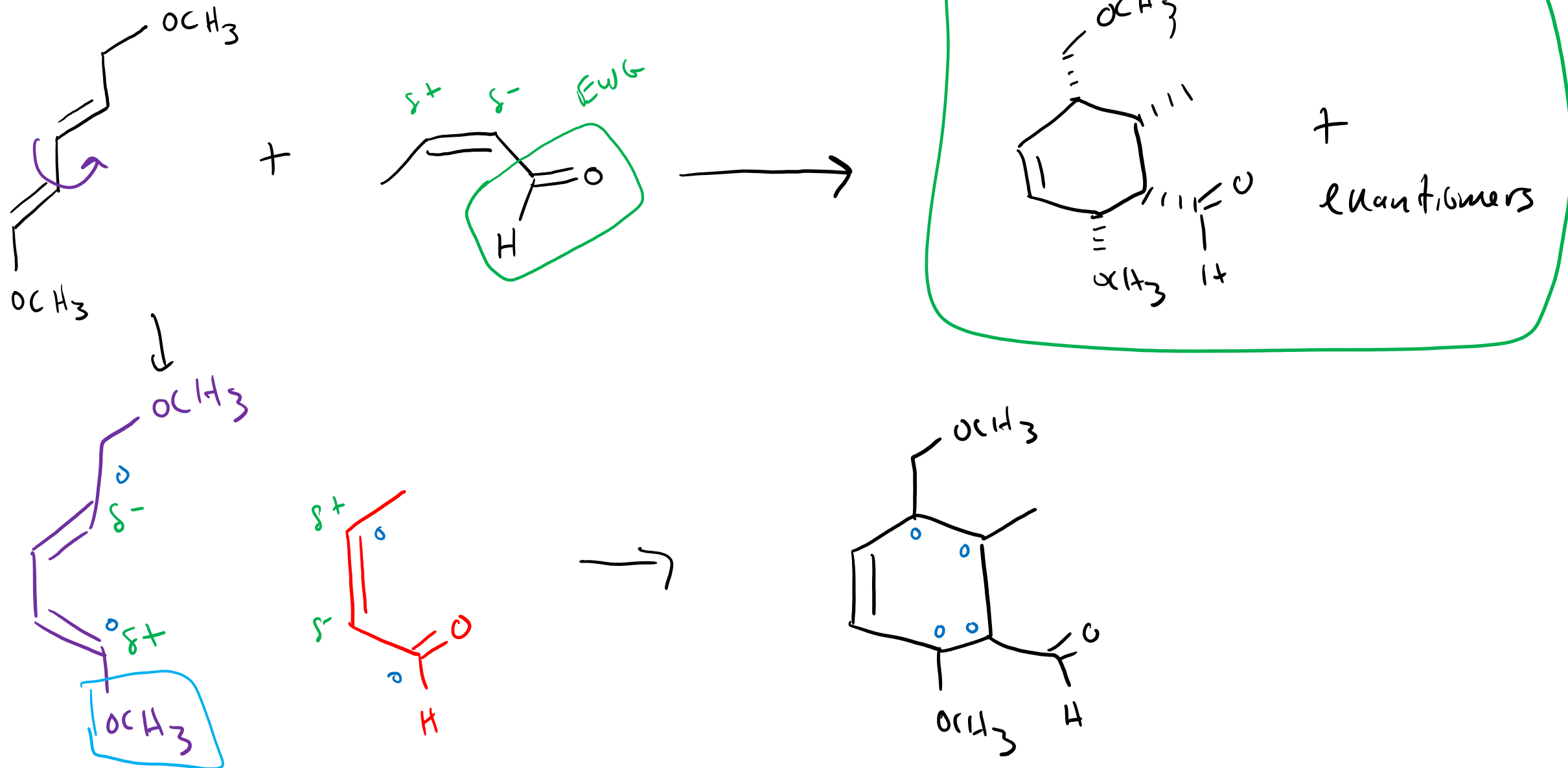
Drawing Diels-Alder Products: Strategy



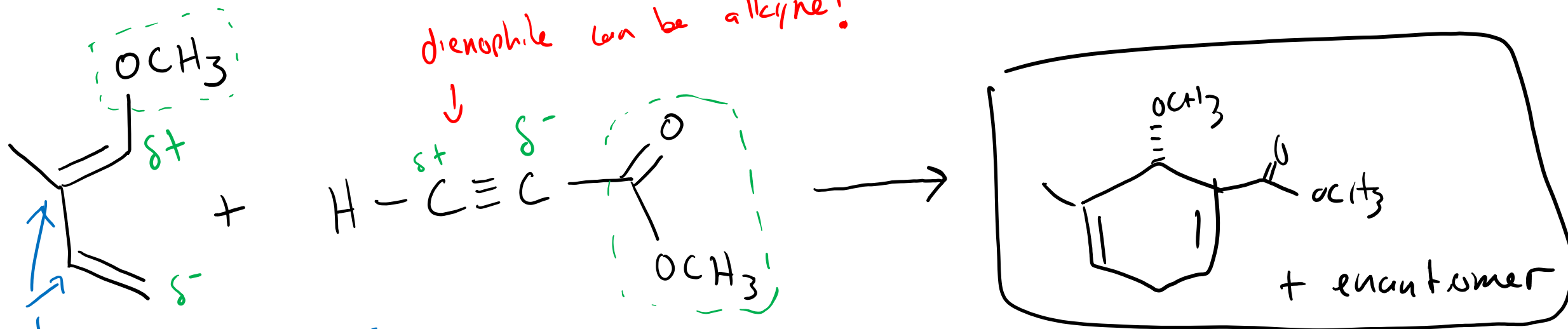
- ① Rotate *diene* to s-cis conformation ✓
- ② Label partial charges & line up regiochemistry ✓
* & place strongest EWG "out" on diene w/ L.U. *
- ③ Use "In/out" to determine stereochemistry (wedges + dashes)



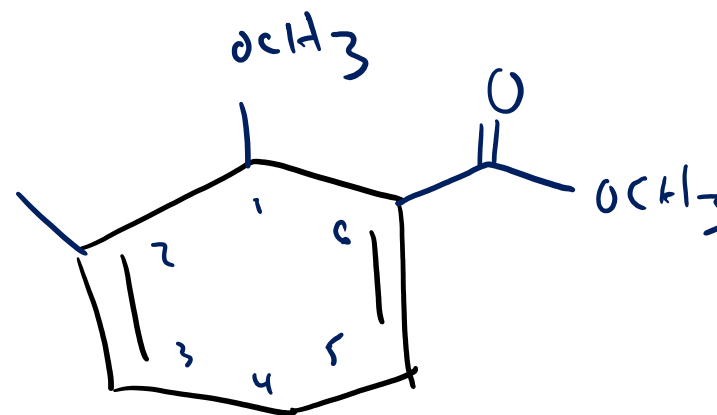
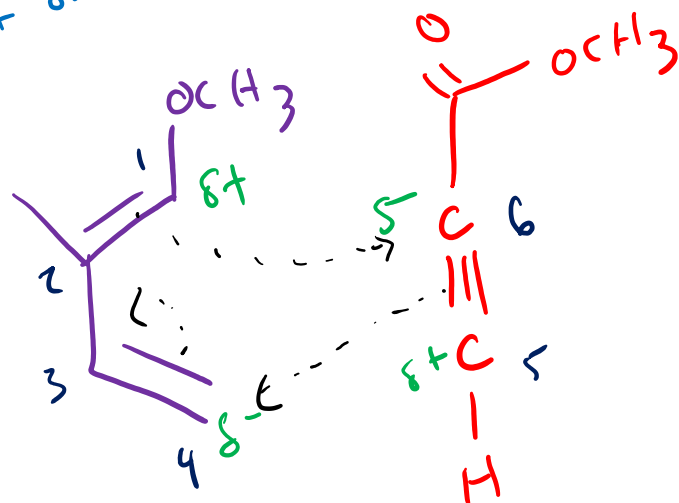
Diels-Alder Examples



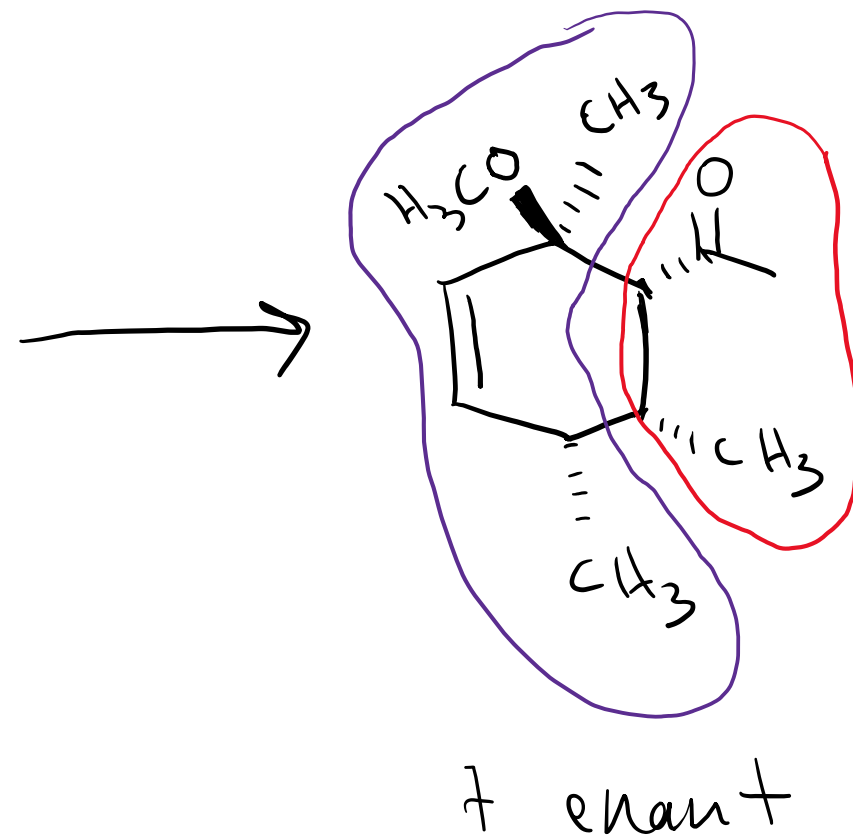
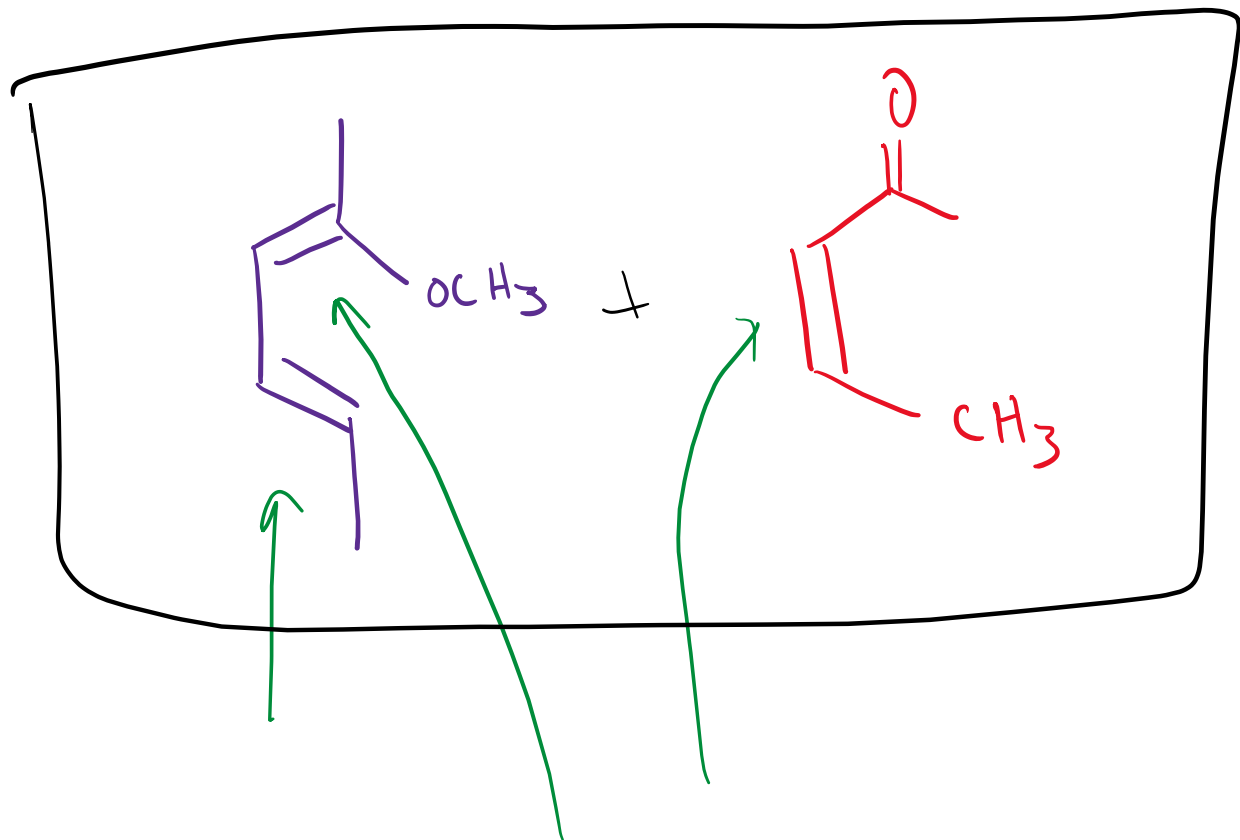
Diels-Alder Examples



not in or out on these positions



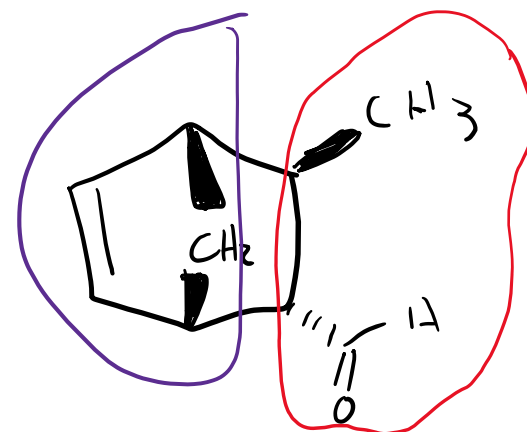
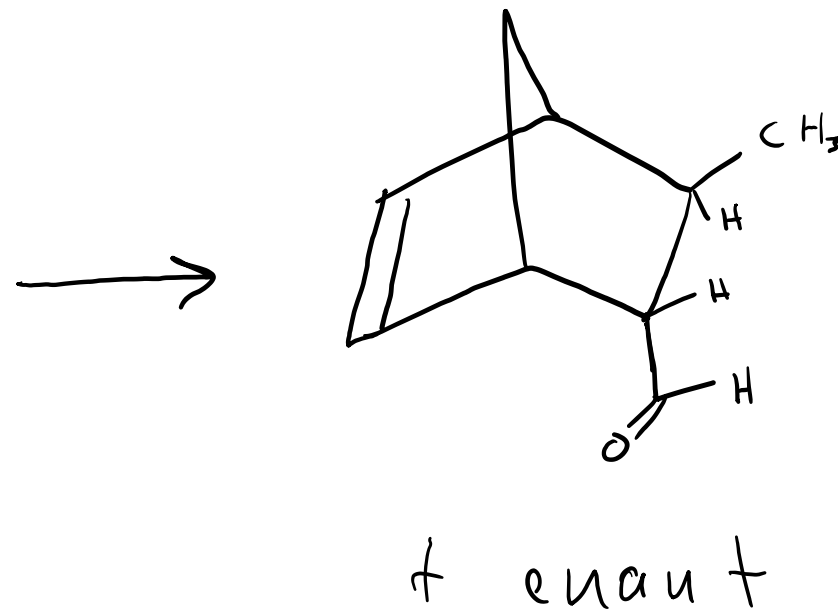
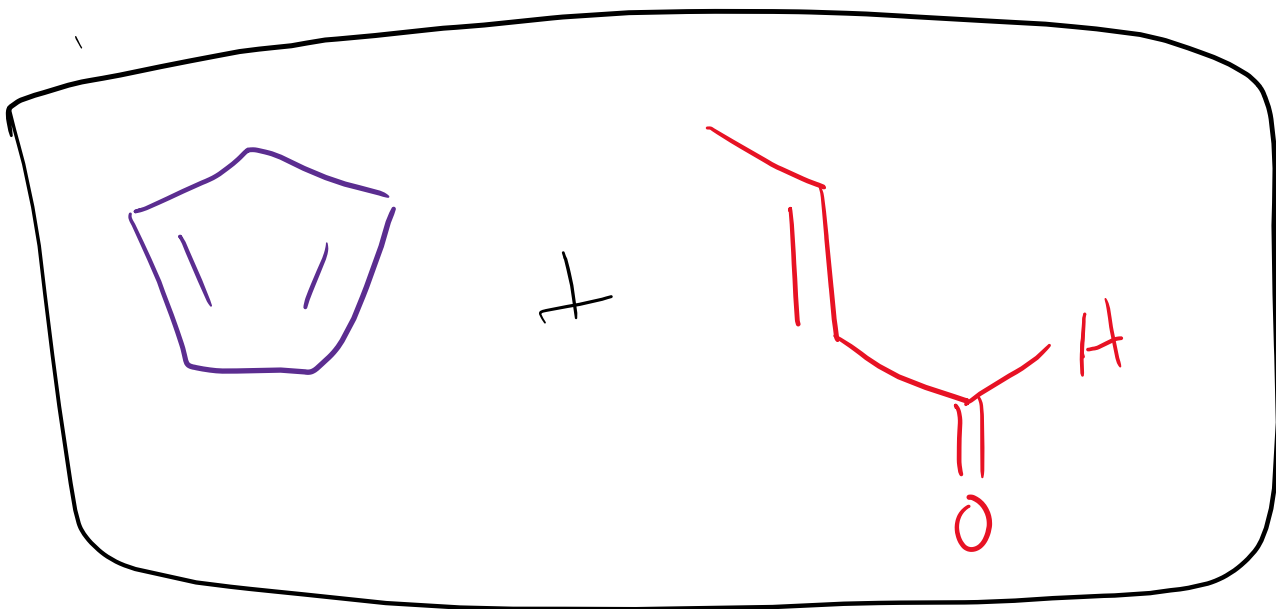
Diels-Alder Examples



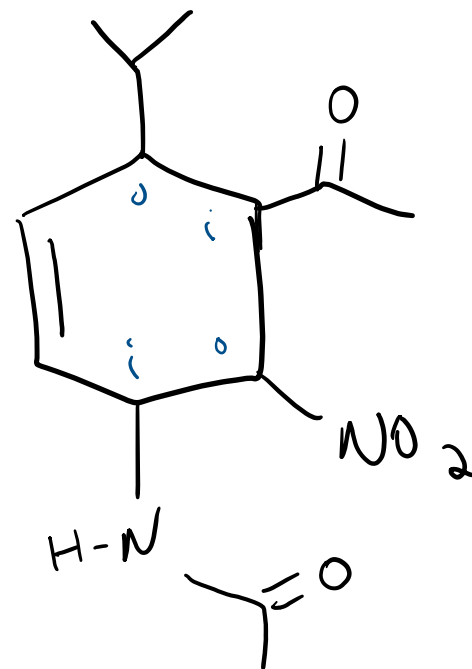
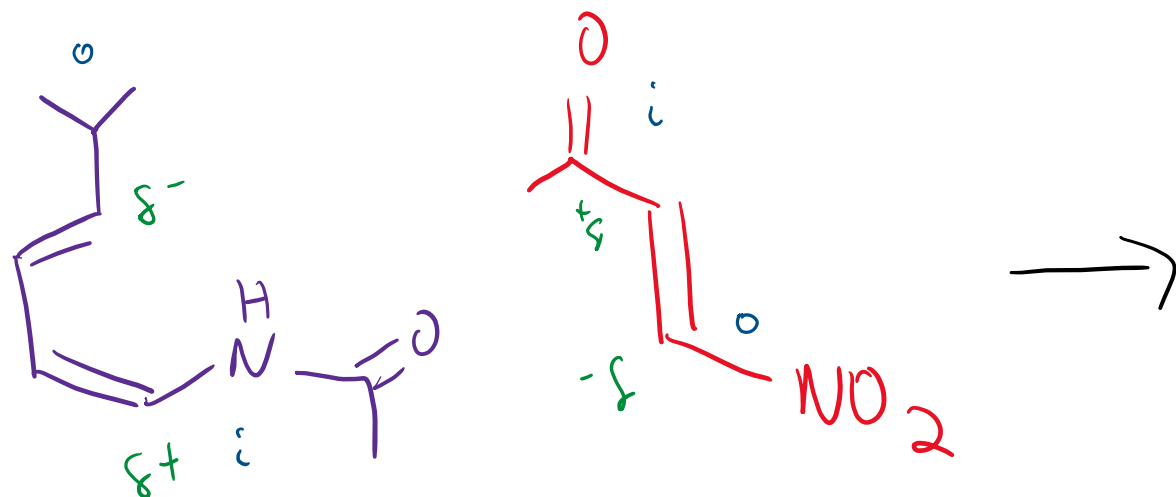
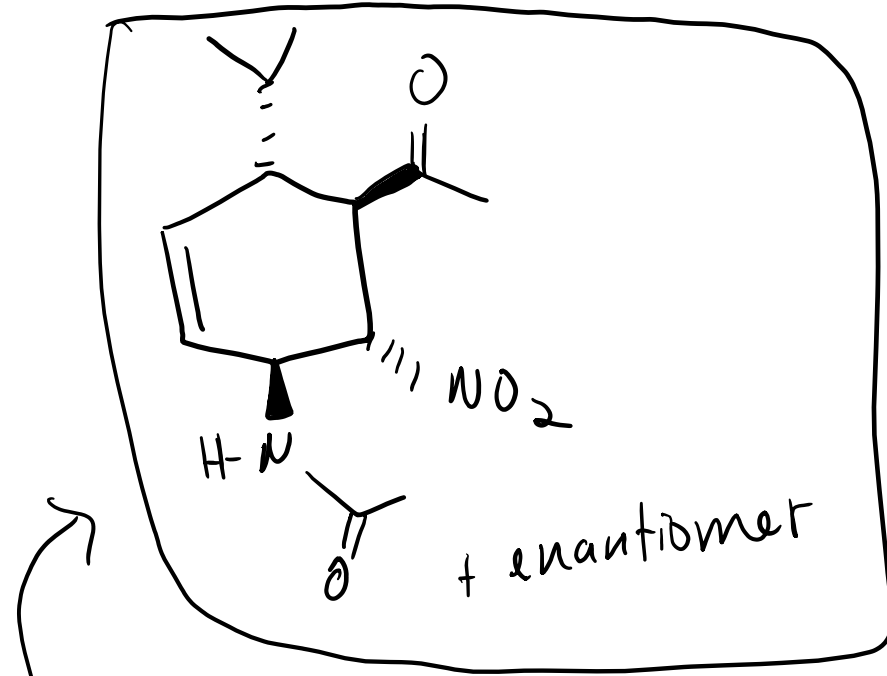
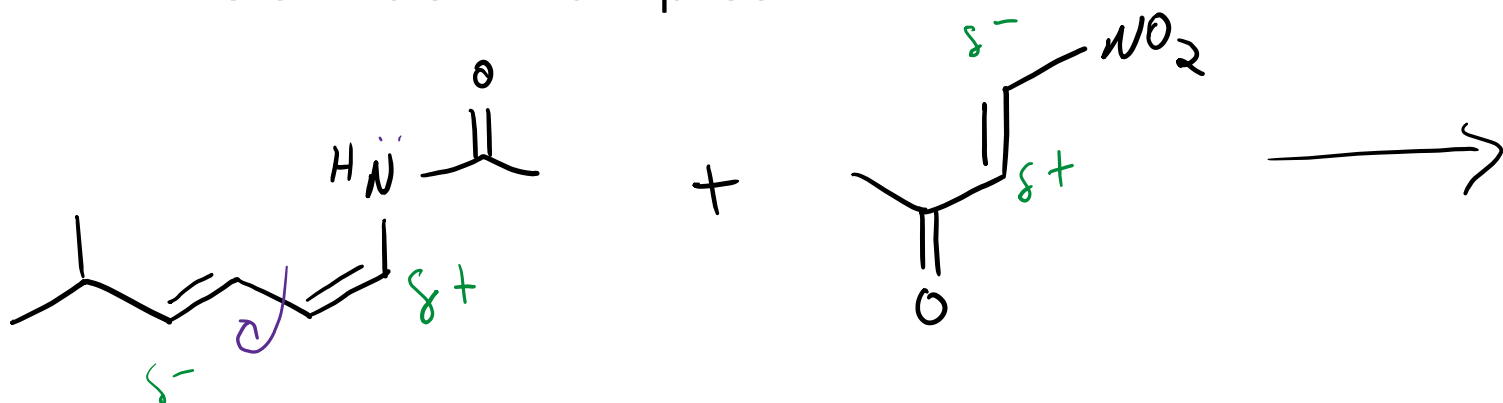
Don't forget to place
* π bonds! *

Diels-Alder Examples

“retro” Diels-Alder reactions are sometimes possible. We will just do this as “fill in the missing starting material” style question.

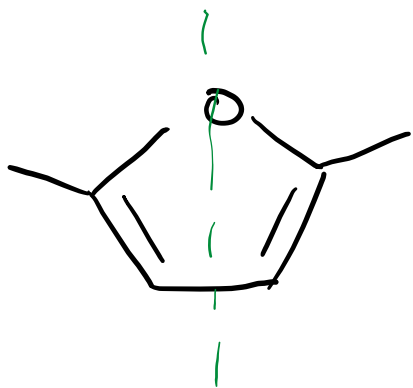


Diels-Alder Examples

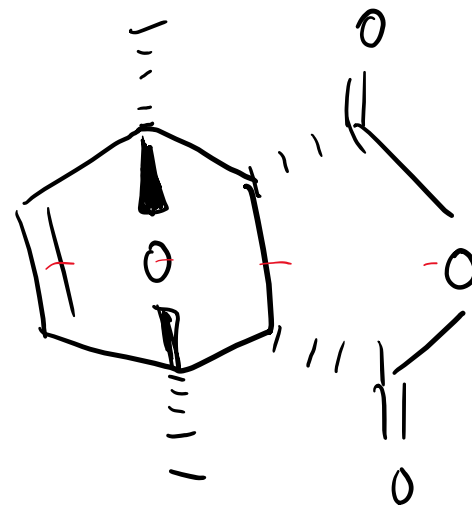
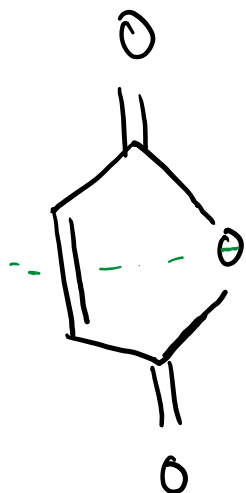


Diels-Alder Examples

both
Symmetrical! hooray!

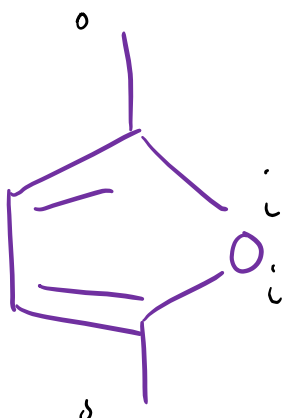


+



meso

(no + enantiomer)



+

