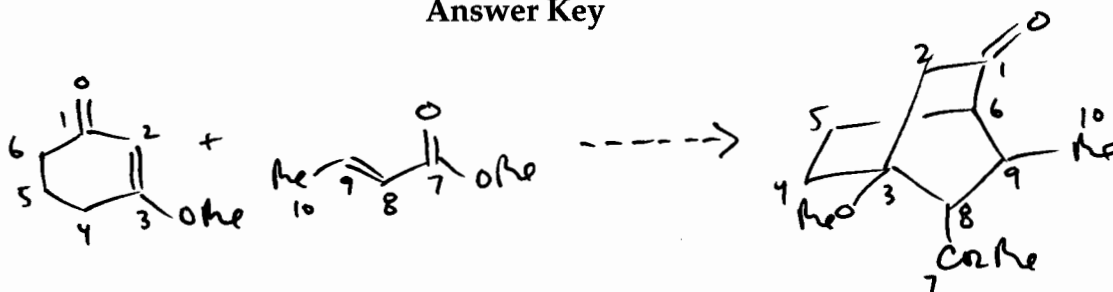
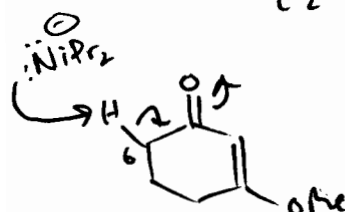


Optional Problem Solving Session
Answer Key

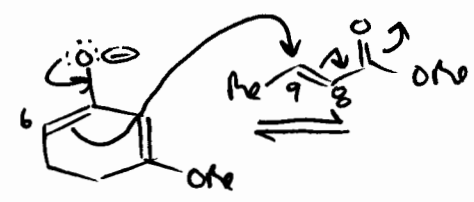
① a)



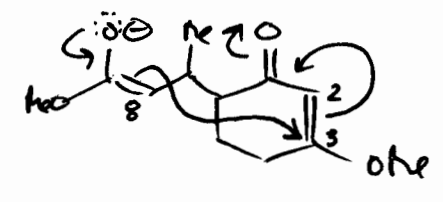
<u>make</u>	<u>break</u>
C6-C9	C2-C3 π
C3-C8	C8-C9 π
C2-H	C6-H



- converts C6 into nuc. (C9 is el \oplus)
- breaks C6-H

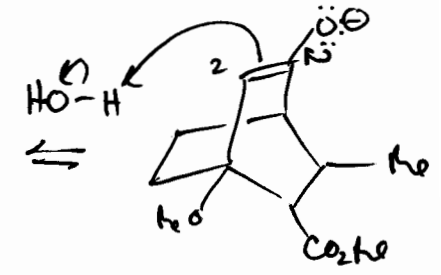


- makes C6-C9
- breaks C8-C9 π
- converts C8 to nuc. (C3 is el \oplus)



- makes C8-C3
- breaks C3-C2 π

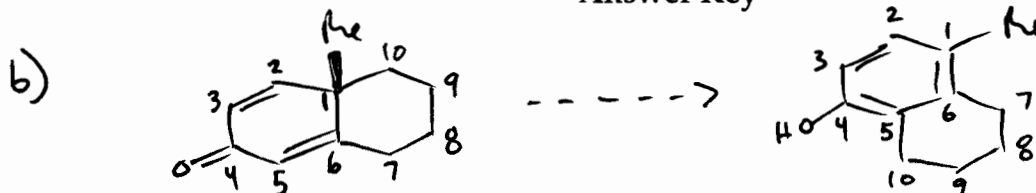
①



- makes C2-H

• This mechanism is closely related to the Robinson annulation, except it involves two Michael rxns instead of one Michael & one aldol. Practice all of the mechanisms from lecture so that you can do them quickly (and recognize them).

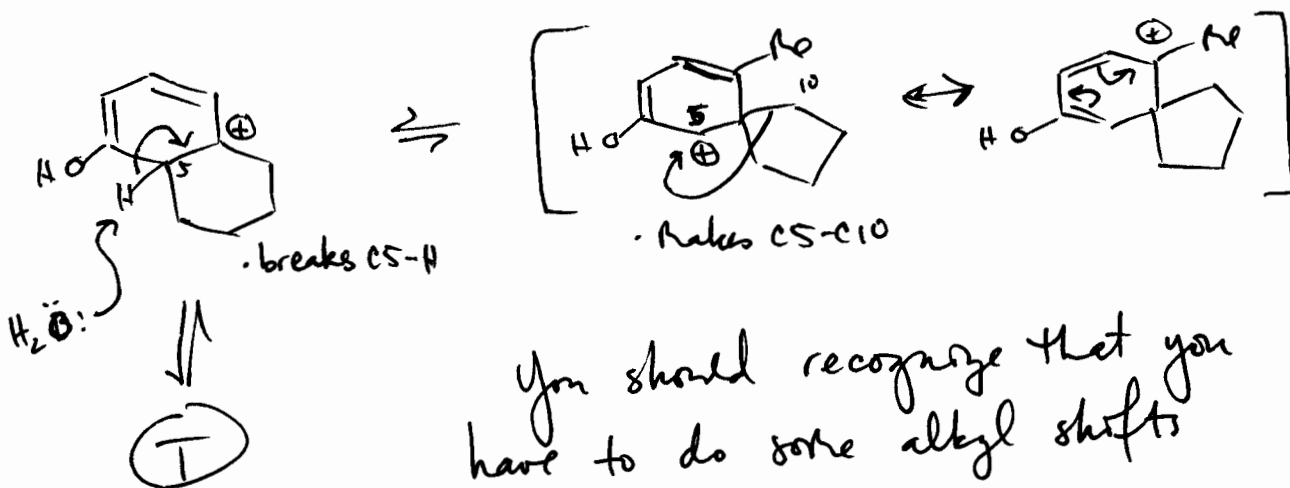
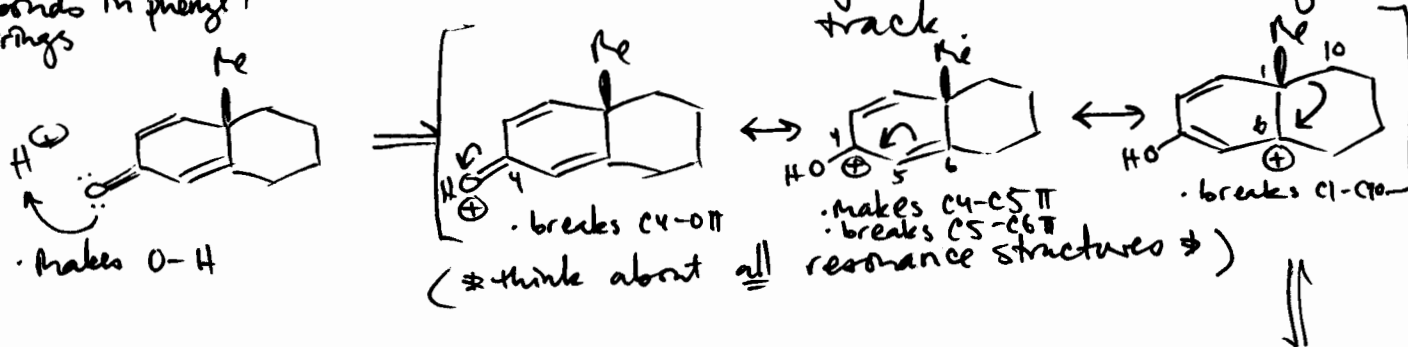
Optional Problem Solving Session
Answer Key



sometimes confusing to keep track of π -bonds in phenyl rings

Make	break
O-H	C4-O π
(C4-C5 π)	(C5-C6 π)
(C6-C1 π)	C1-C10
C10-C5	C5-H

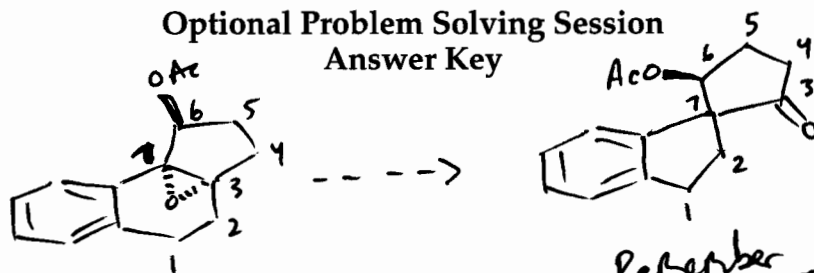
≠ Under acidic conditions, always protonate first!
This will usually get you started on the right track



You should recognize that you have to do some alkyl shifts just from looking at the rxn. Make sure you do successive 1,2-migrations, not 1,3-migrations.

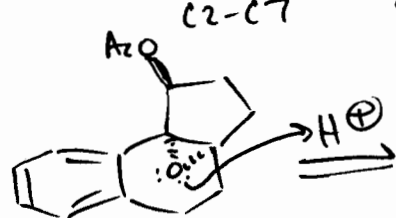
Optional Problem Solving Session
Answer Key

c)



make
O-C3π
C2-C7

break
C3-C2
C7-O



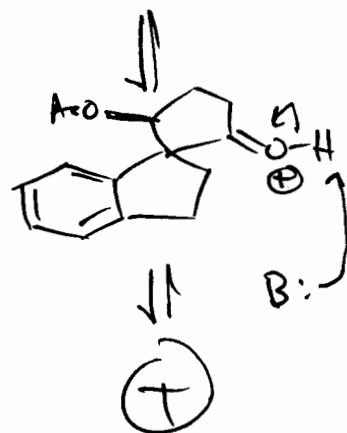
• when the epoxide opens, which R⁺ will form preferentially?
(• breaks O-C7)

Remember: protonate first: always keep R⁺ stability in mind



benzyl!

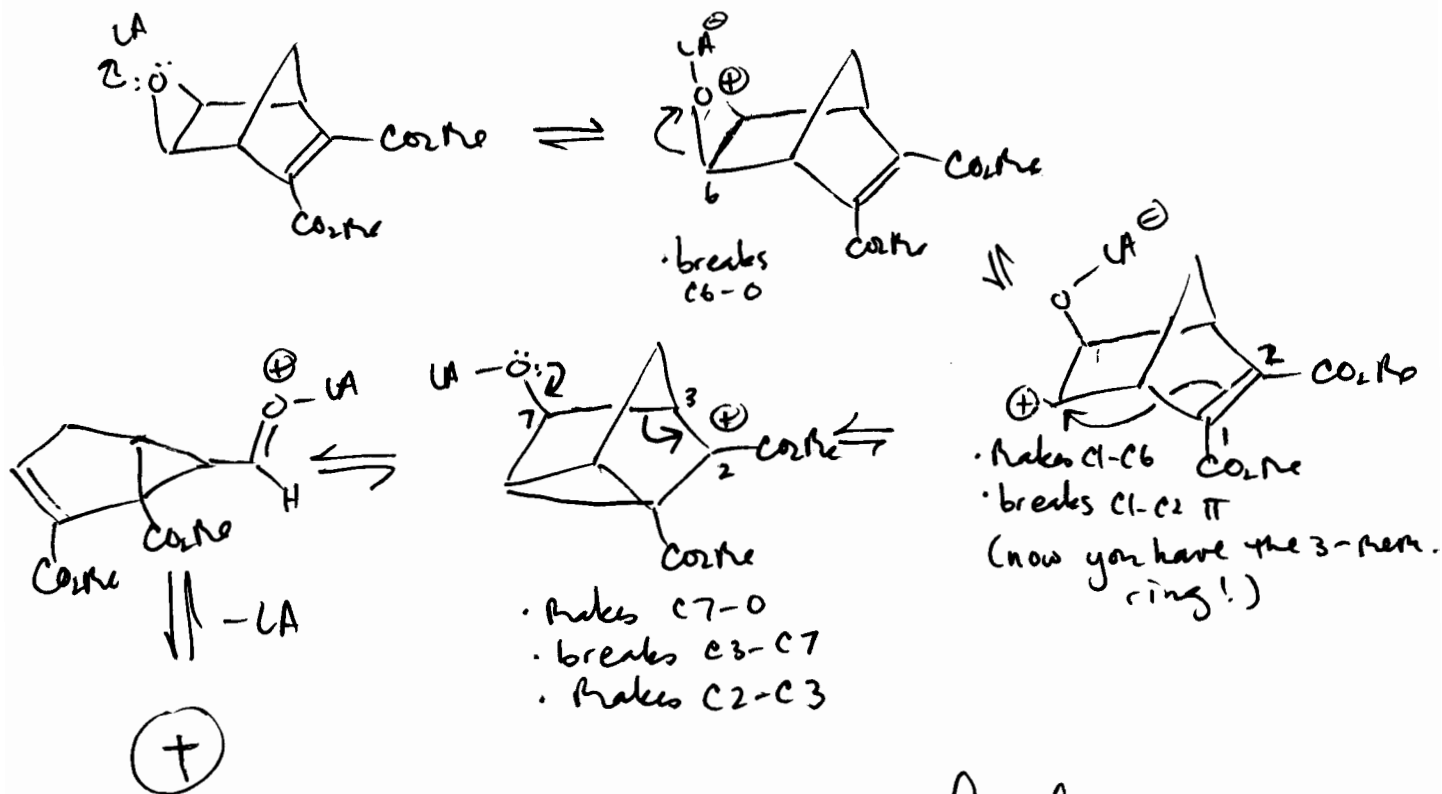
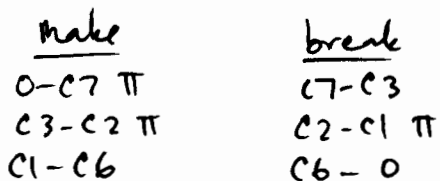
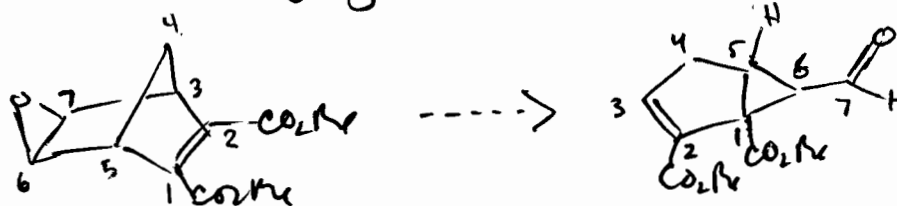
- makes O-C3π
- breaks C3-2
- makes C2-C7



• Be able to recognize common rearrangements of R⁺, that we have discussed in lecture.
(like the Pinacol!)

Problem Set 7 (Optional) Answer Key

d) This one is challenging!



In this rxn, the familiar fragmentation is the Grob.