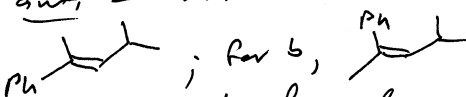

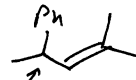
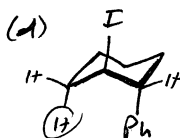
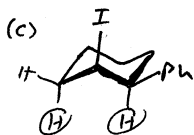


1. a, b - draw the β -H on the sc + look for a conformation that has H + Br anti - make models!

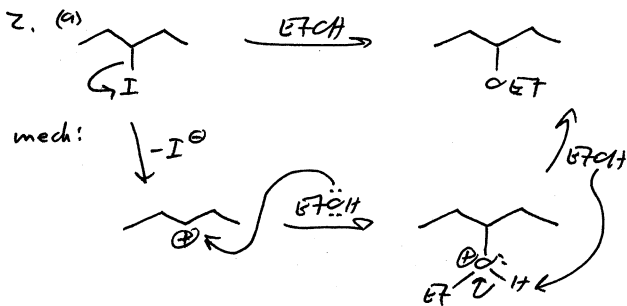
for a, that gives ; for b, . In each case, another alkene can be formed as well...

c, d - make models - each conformation has one chair conf with the l.g. equatorial + anti to no Hs, and one chair with the l.g. axial

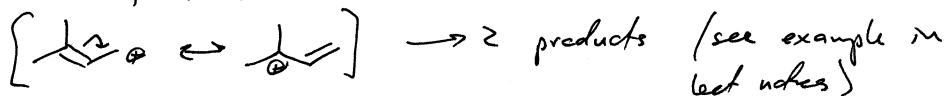

(spectator se is as it was on the reactant)



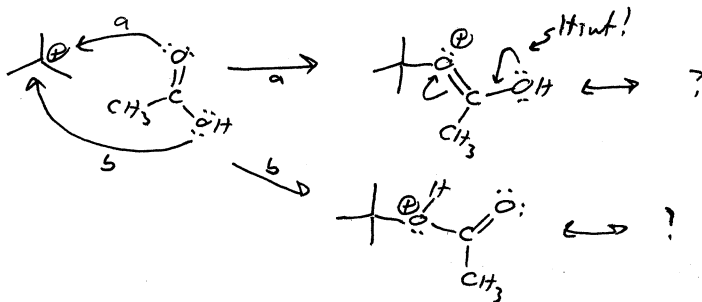
only the circled Hs are anti to the l.g. - get two alkenes in the first case, but only one in the 2nd.



(b) same idea, but vta



(c) same idea... almost - which of these 2 routes is more favorable?

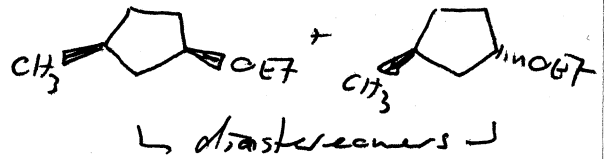
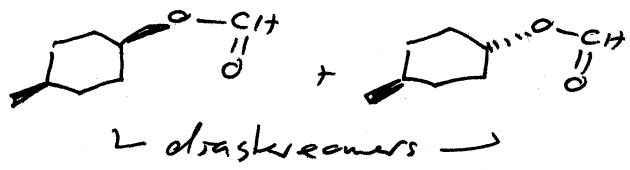


complete the rxns!
note - same prod. either way !!!

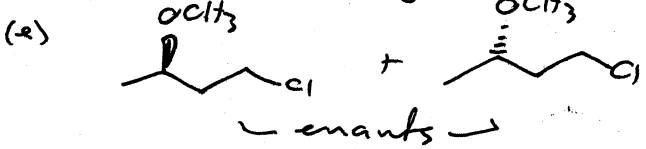
3. (a) racemic mixture of 2-methoxypentanes

(b) spectator SC remains, solvent can add to either face of cationic C of intermediate -

(c) same rules →



(d) racemic 3-methyl-3-hexanol

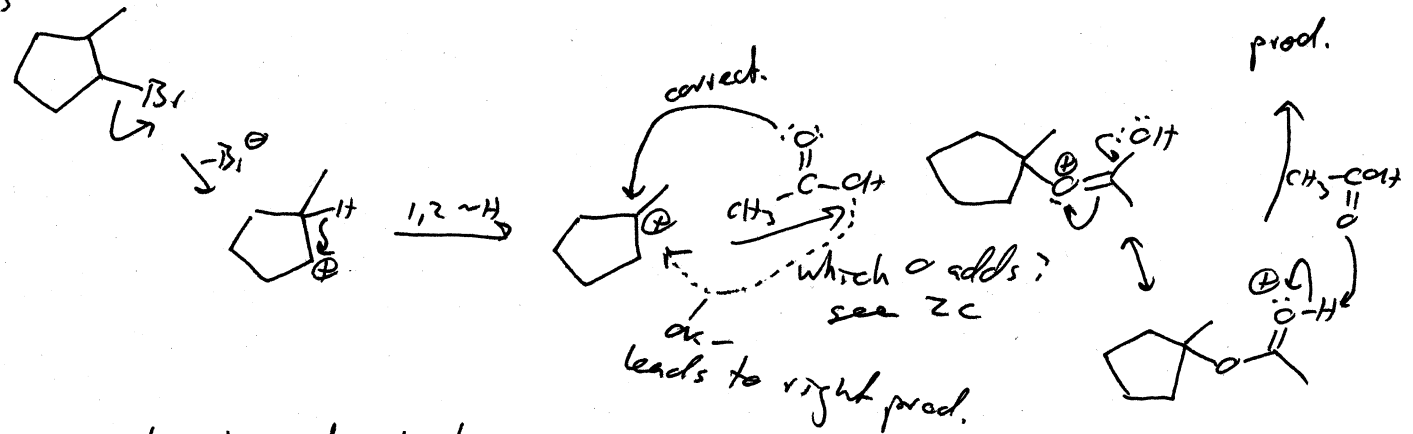


(f) (a) → 1-pentene + cis + trans 2-pentene

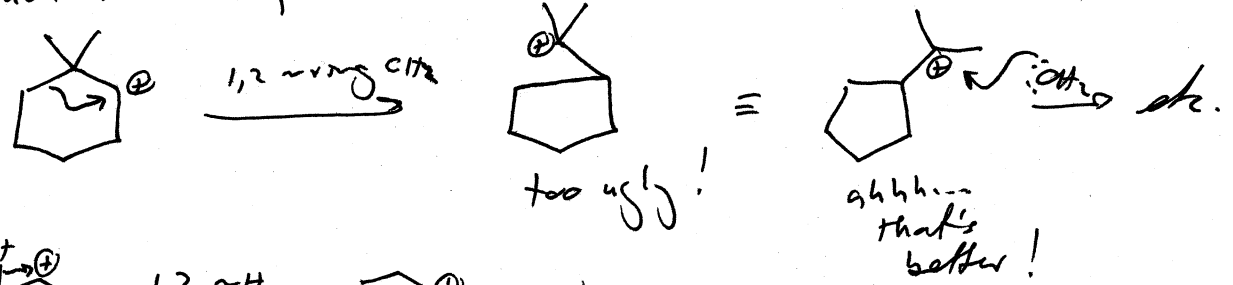
(b) → (achiral, ∴ wedge/dash superfluous)
note: these two are constitutional isomers!

(c) → enantiomers

4. (a)

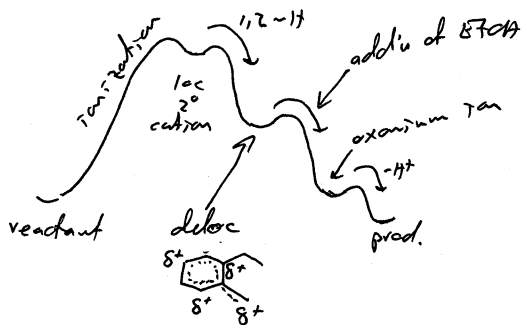


(b) usual S_N1 route, but ...

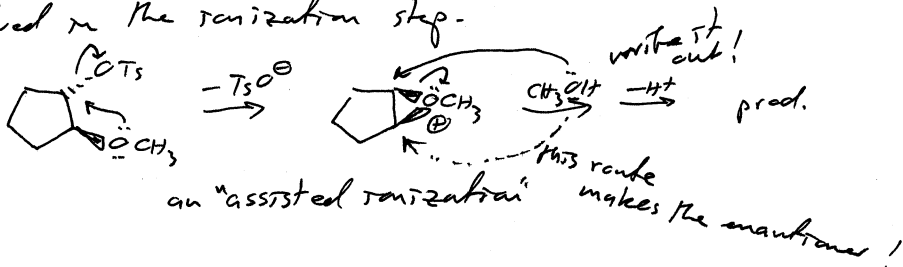


(c) → draw the res. structs!

4.(1)



5. overall retention of config?! How can that happen? The CH_3O group must be involved somehow. That the trans solvolyzes faster than the cis suggests that the OCH_3 is involved in the ionization step.



6. (a) S_N2 + E2 - draw the products

(b) S_N2 only

(c) No rxn

(d) S_N2 (prob E2 also) → CCCC=C

(e) E2 only

(f) S_N2 + E2 (mostly)

(g) S_N2 (mostly) + E2

(h) S_N2 only

(i) Ionize → res-stabilized carbocation, then S_N1 (mostly) → CCCC(=O)C

+ a bit of E1



(j) E2 only

(k) S_N2 + E2

(l) lig. TS on a quaternary C, so no rxn! (actually ... acid-base rxn!)

(m) No rxn!