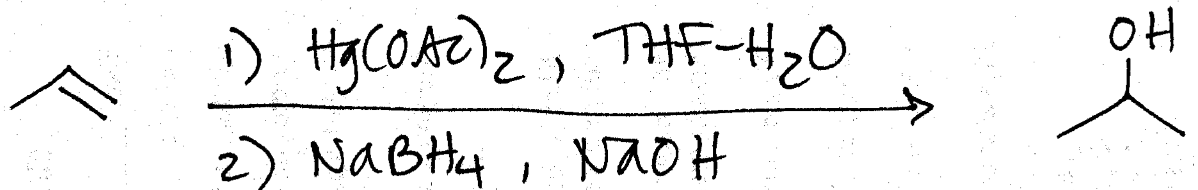
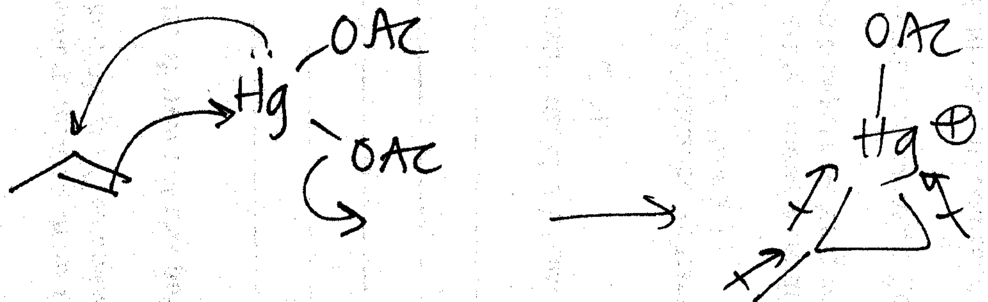
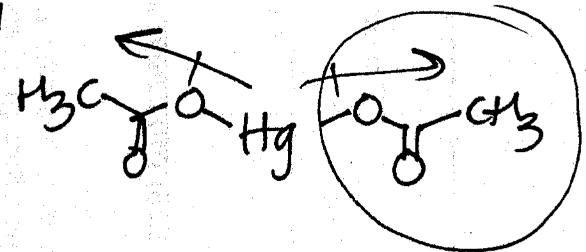
2. oxymercuration- demercuration



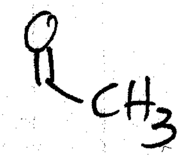


an acetate

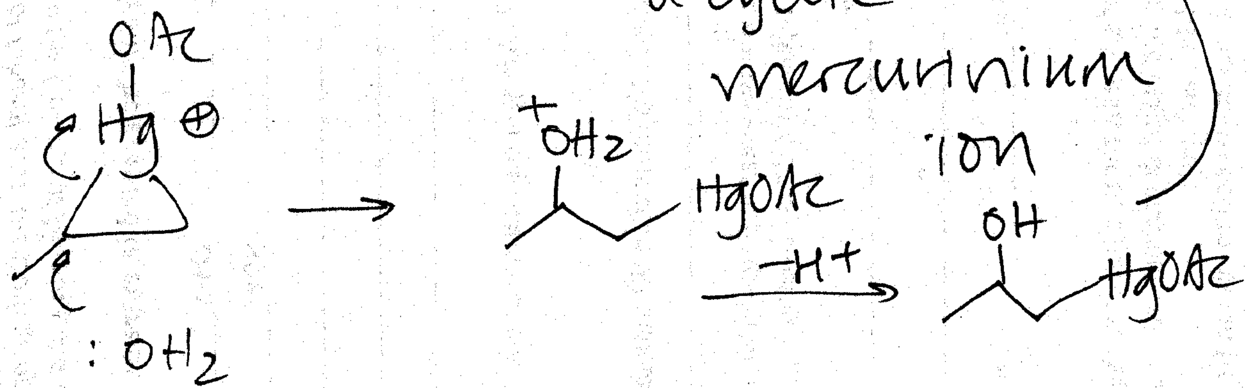


$NaBH_4$

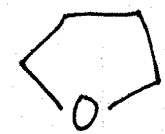
AC = acetyl



a cyclic mercurinium ion



THF
tetrahydrofuran



why does the nucleophile (water) attack the more subst. position?

Think of it as pseudo carbocations- which side makes the better cation? Nucleophile attacks there.

* markovnikov addition
* 1st step is an anti addition
* 2nd step is random

} net effect = racemic

* no carbocations ⇒ no rearrangement

(don't worry about solvomercuration)

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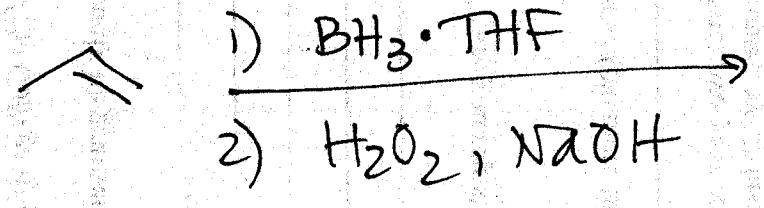
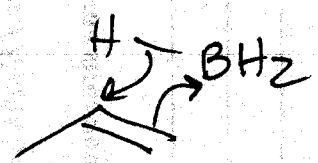
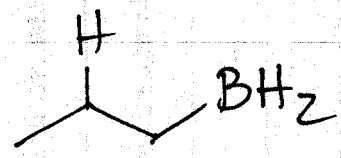
3. hydroboration – oxidation

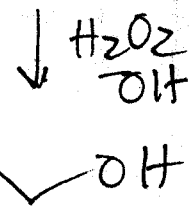


anti-markovnikov

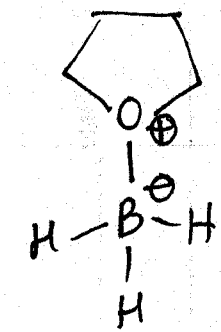


syn addition

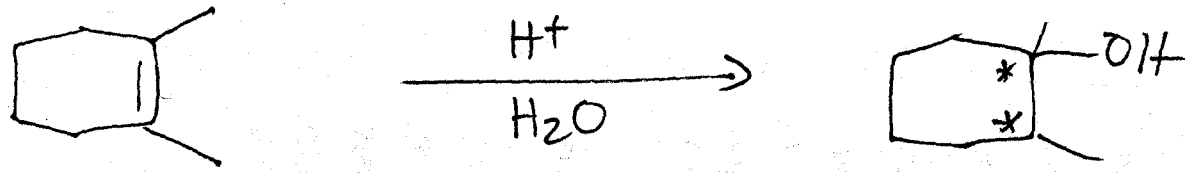




boron has 3 hydrides; can do this 3 times.

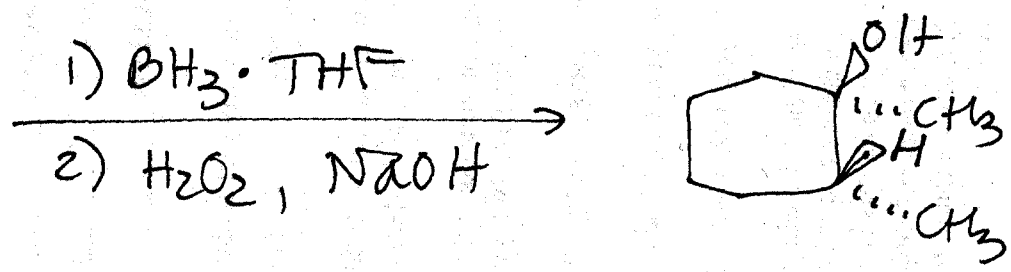


* goes with retention



4 products

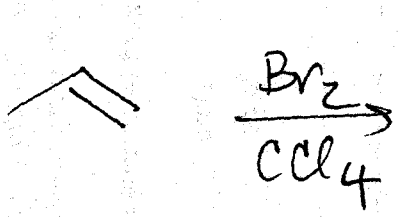
"



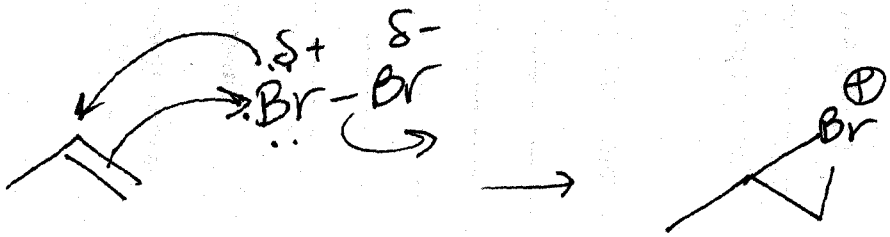
(+ enantiomer)

(SKIP 8.11)

Addition of Halogens (Br_2, Cl_2, I_2)

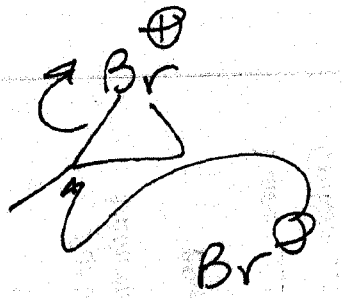


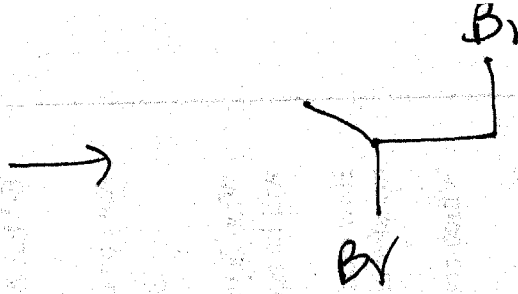
- makes vicinal dibromide
- Markovnikov's Rule does not apply (symmetrical reagent)



- anti addition

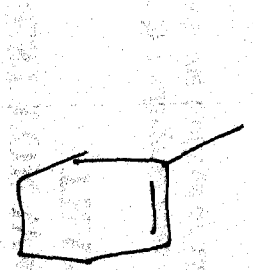
cyclic halonium ion



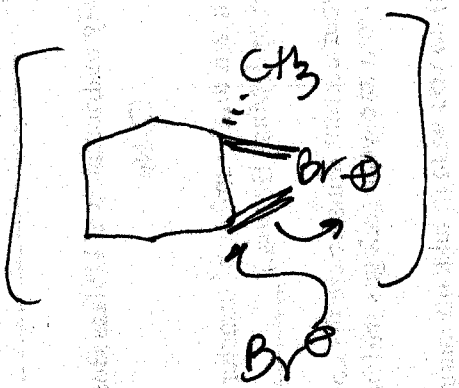


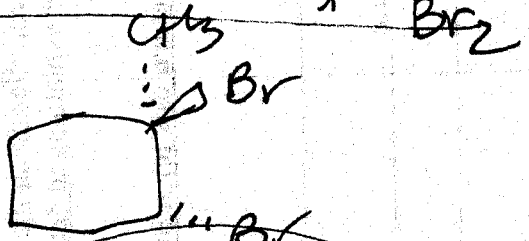
This is also a functional group test (for alkenes + alkynes).

* Decolorizing Br_2



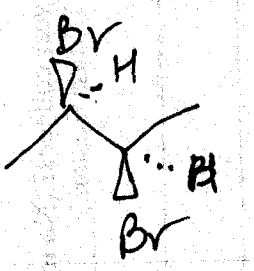
Br_2 / CCl_4

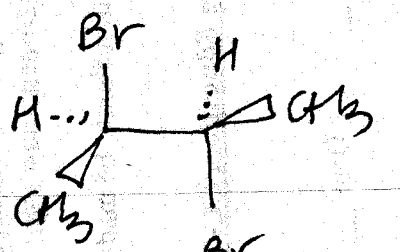


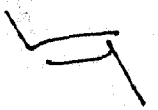


Br's always anti to each other.

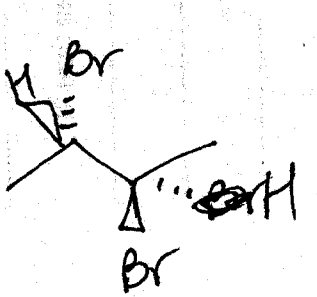
Br_2 / CCl_4

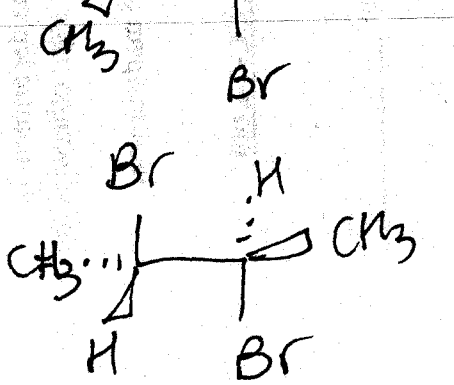




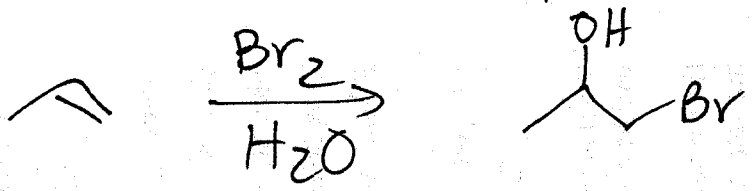


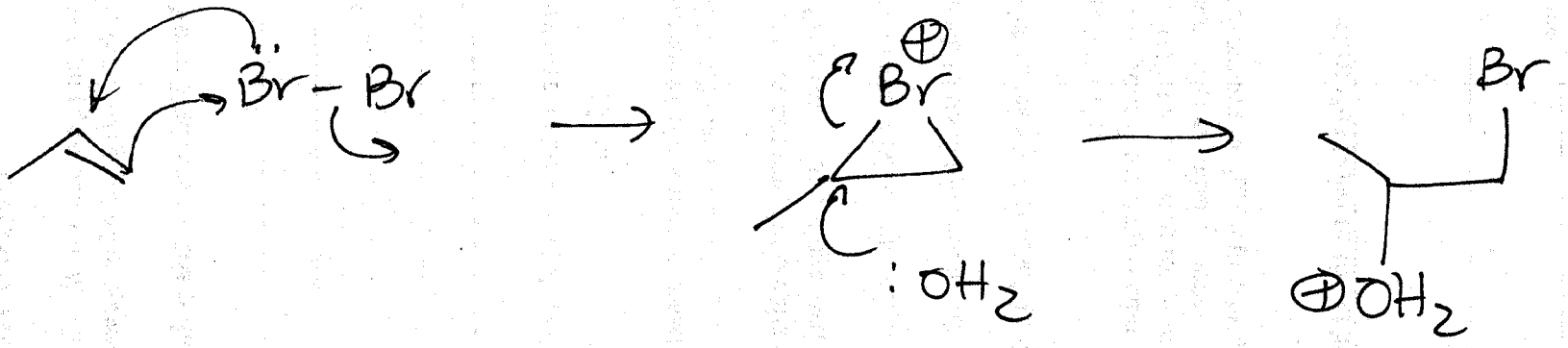
Br_2 / CCl_4





Variation: Halohydrins — (OH + X) on adjacent C's





still anti addition

H_2O attacks more subst side