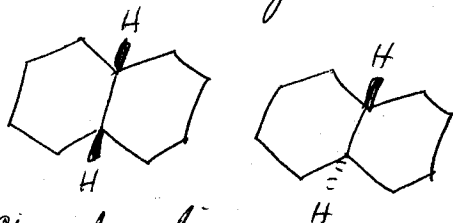


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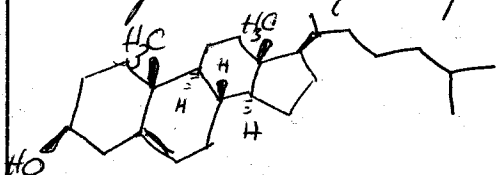
Recall: Molecules containing ≥ 2 rings...

"Fused" rings



cis-decalin trans-decalin

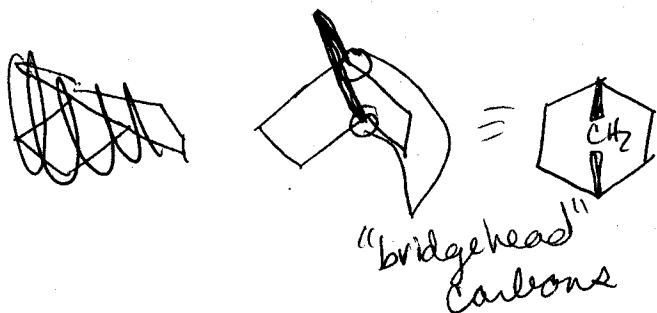
Biological example



contains steroid nucleus

cholesterol

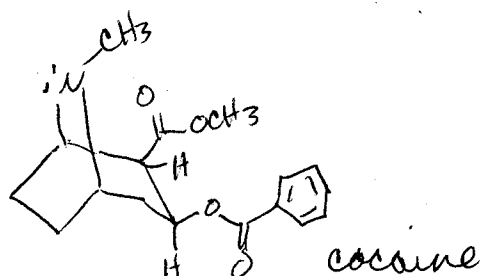
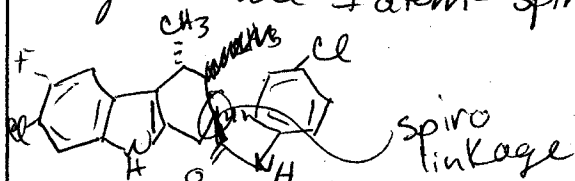
alternative architecture - "bridged bicyclic" compounds



• Don't worry about verbal nomenclature

Biological example:

Rings share 1 atom - "spiro" compounds



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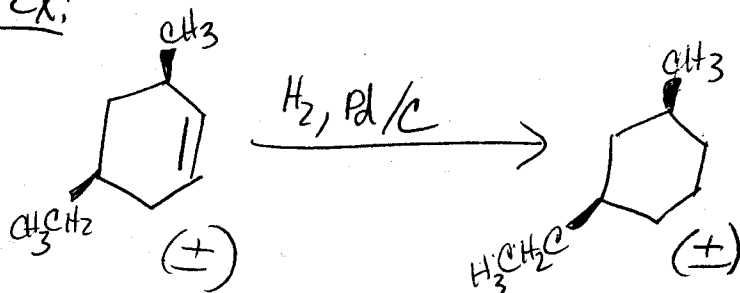
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Interplay Between Stereochemistry + reactivity

- Key principles

1(a) Enantiomeric starting materials (SM) react at identical rates with achiral reagents.

Ex:

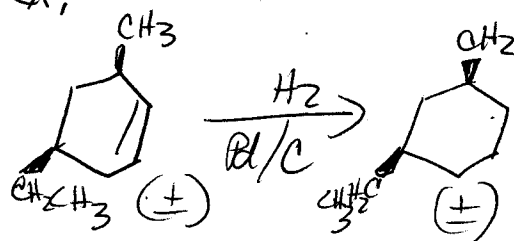


- Racemic SM in $\rightarrow$ racemic product out
- Racemic even if you proceed only part way

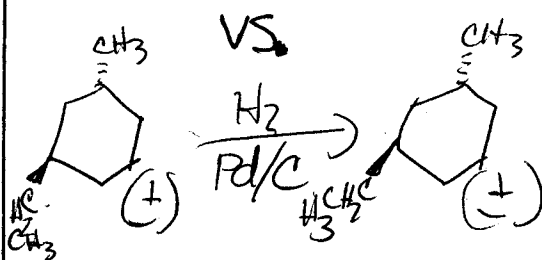
1(b) Enantiomers ~~SM~~ react at different rates w/ chiral reagents (see text)

2) Diastereomers react at different rates w/ all reagents

Ex:

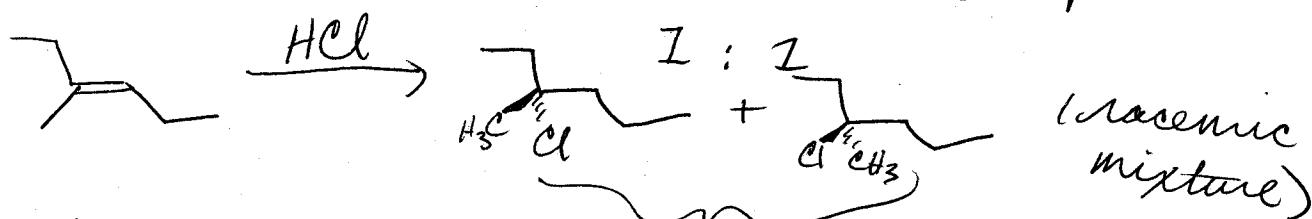


- one rxn will be faster than the other

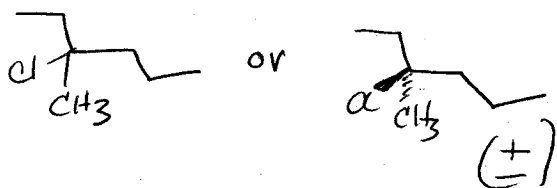
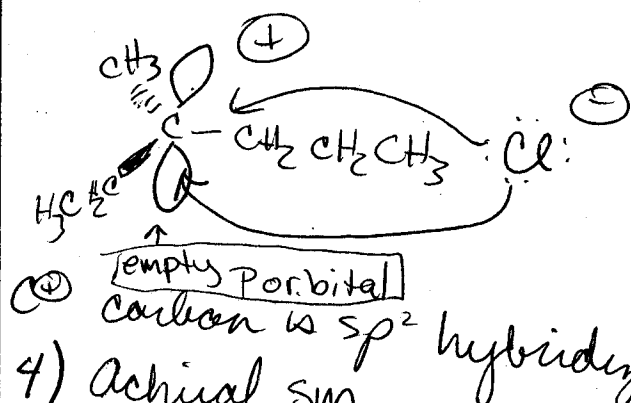


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3. Achiral SM $\rightarrow$ product containing 1 stereogenicEx: $\Rightarrow$ product will be racemic $sp^3 C$ 

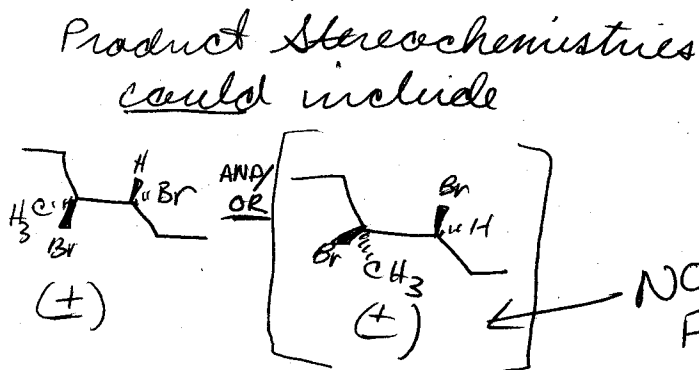
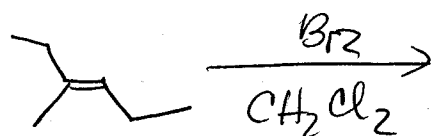
Ways to show racemic mix: enantiomers

Mechanistic rationale (why product is racemic)Recall: $\oplus$ intermediate

• Cl has two choices: attack from "top" or "bottom" -

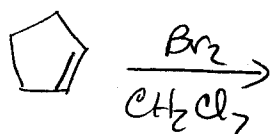
• Both choices equally likely

• Top attack generates one enantiomer
Bottom attack generates the other4) Achiral SM $\rightarrow$ product containing ≥ 2 stereogenic carbons $\Rightarrow$ Diastereomeric products are possible

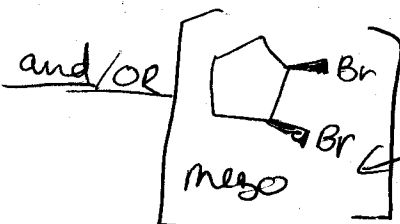
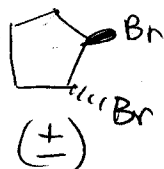
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Another example:



Prod. stereochem. could include:



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Origin of diastereoselectivity?

Mechanistic explanation

