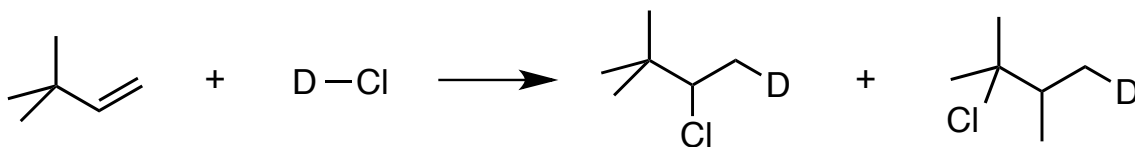


Think-Pair-Share 1

1. Try to solve the problem on your own.
2. Discuss with your partner.

The reaction between deuterated HCl ("D-Cl") and 3,3-dimethylbut-1-ene yields a mixture of products as shown below.

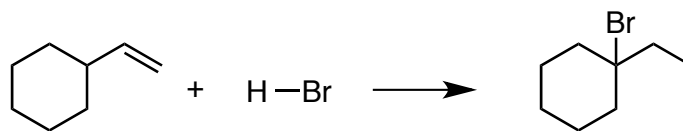
Propose a mechanism for the formation of both products.



Think-Pair-Share 2

1. Try to solve the problem on your own.
2. Discuss with your partner.

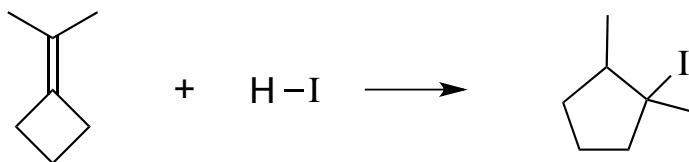
Propose the most suitable mechanism that accounts for the formation of the product below:



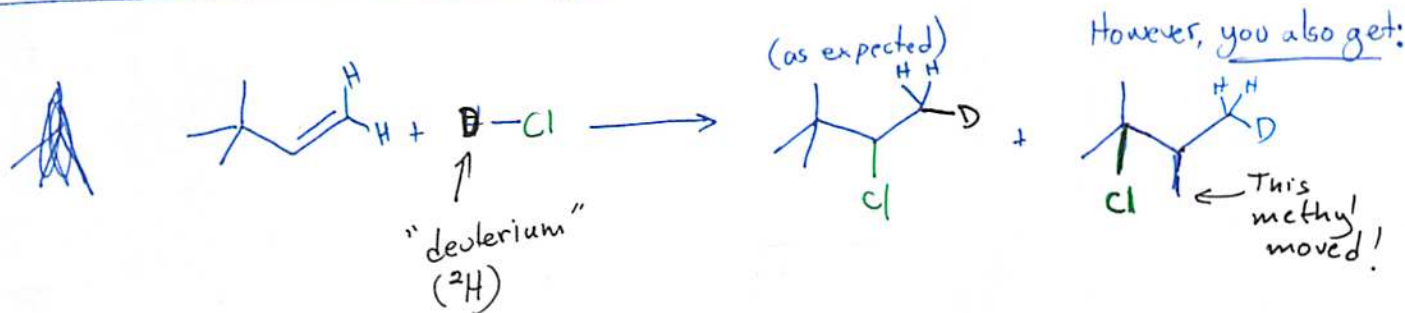
Think-Pair-Share 3

1. Try to solve the problem on your own.
2. Discuss with your partner.

Propose the most suitable mechanism that accounts for the formation of the product below:

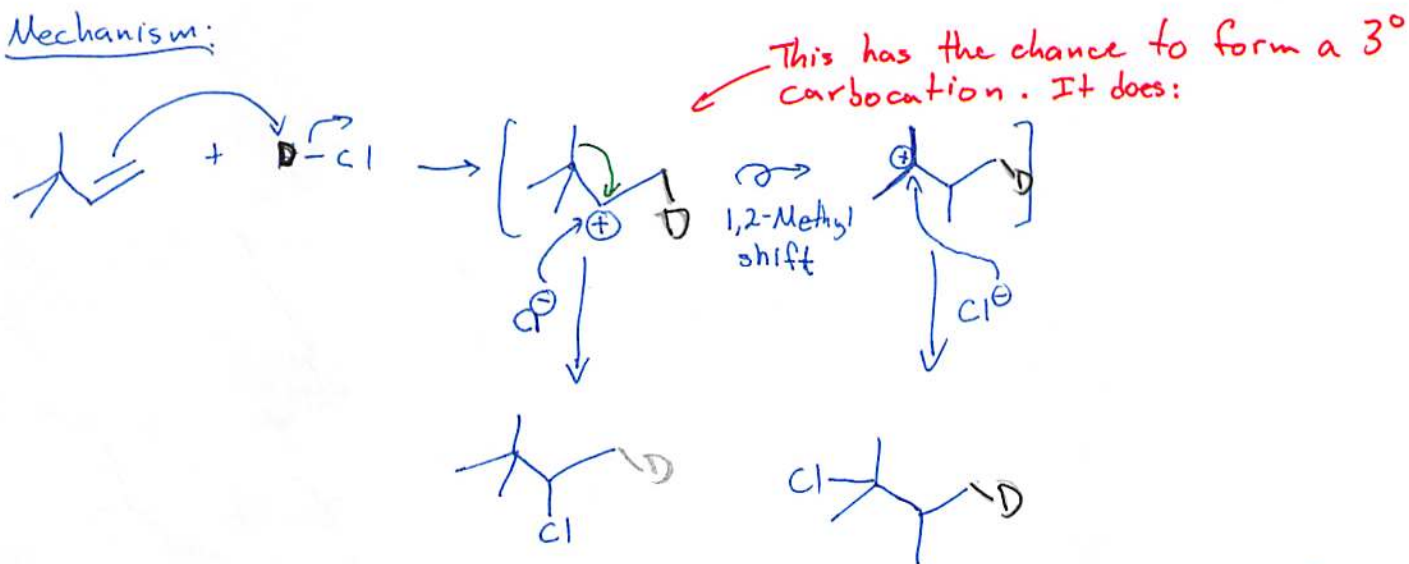


Now, consider the following Rxn:

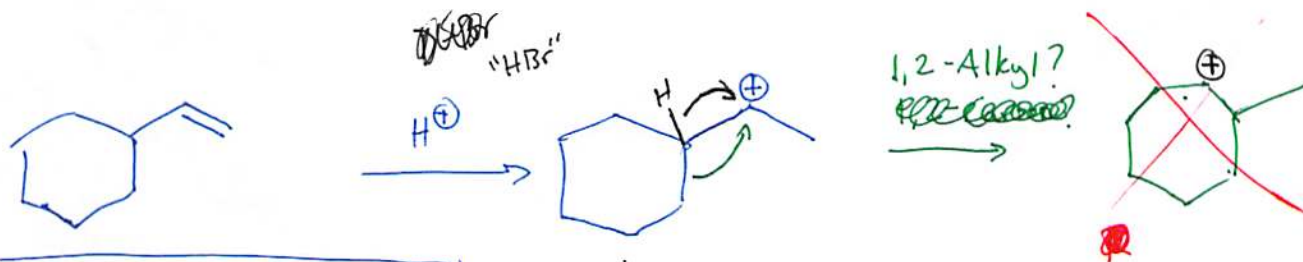


why?

Mechanism:



Carbocation intermediates will rearrange by 1,2-migrations to form the most stable carbocations.



Shifts are faster in the order
 $H > \text{Methyl} > \text{Alkyl}$

- will occur to yield the most stable carbocation and/or

- relieve strain energy from a strained ring (favor 5 & 6 member rings)

Preferred!

* Hydride shift is faster than carbon shift.

(2)

Carbocation Rearrangements are faster in the order of:



↑
faster.

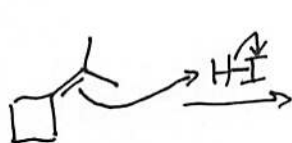
- will occur to yield the most stable carbocation

AND/OR

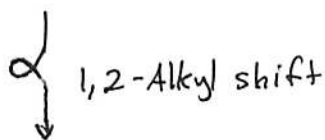
- Relieve strain energy from a strained ring.

- favor 5 & 6 member rings!

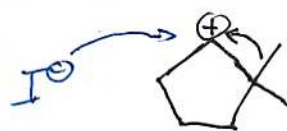
ex:



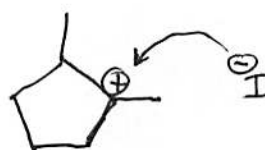
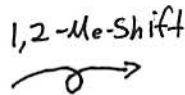
NOT  ← strained 3° carbocation



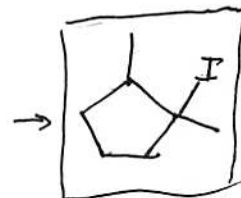
less likely
product
"minor product"



2° carbocation
in a favored
5-member ring



3° carbocation ✓
5-membered
ring ✓



more likely
product
"major product"