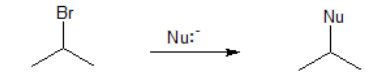
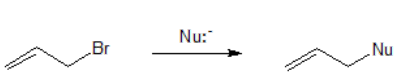
16.5: SN2 REACTIONS OF ALLYLIC HALIDES AND TOSYLATES

S_N2 REACTIONS OF ALLYLIC HALIDES AND TOSYLATES

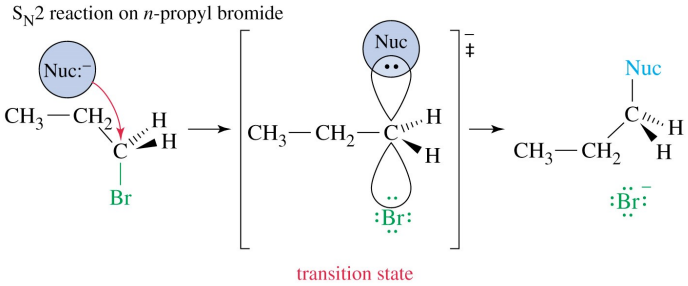
Allylic halides and tosylates are excellent electrophiles for bimolecular nucleophilic substitution reactions (S_N2).

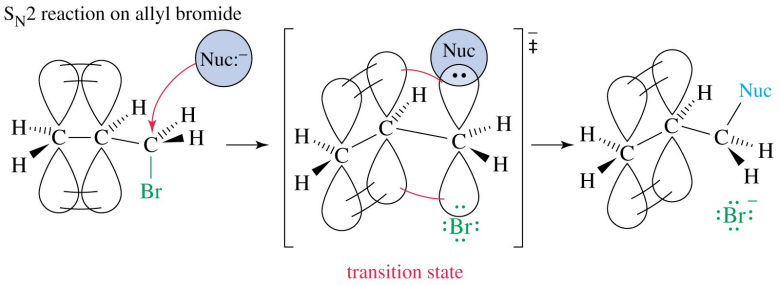




Faster reaction rate because of resonance stabilized transition state through hyperconjugation between the p orbitals of the pi bond system and the orbital of the nucleophile.

They exhibit faster S_N2 reactivity than secondary alkyl halides because the bimolecular transition state is stabilized by hyperconjugation between the orbital of the nucleophile and the conjugated pi bond of the allylic group as shown in the diagram below.



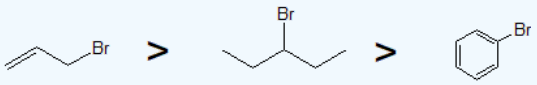


Exercise

6. Arrange the compounds 3-bromopentane, bromobenzene, and 3-bromo-1-propene in order of decreasing S_N2 reactivity using their bond-line structures.

Answer

6.



CONTRIBUTORS AND ATTRIBUTIONS