

Solutions

Original marking guidance: M1 method, A1 accuracy, B1 explanation.

2.1 Br, H, CH₃ and CH₂CH₃.

2.2 Propan-2-ol has two identical CH₃ groups at its central carbon; butan-2-ol has four different groups at carbon 2.

2.3 -12° ; 0° .

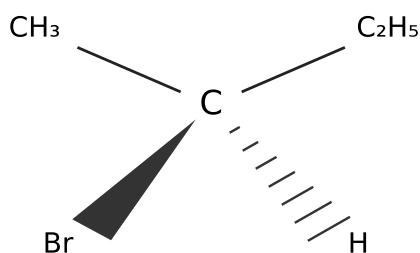
3.1 Supports S_N2, with concerted backside attack and inversion. Rotation sign cannot be inferred solely from a wedge/dash configuration and requires measurement/other structural evidence.

3.2 An achiral product, or equal amounts of two enantiomers. Establish structure and whether four different groups occur at a tetrahedral carbon; suitable enantiomer-resolving evidence can distinguish an enantiomer mixture.

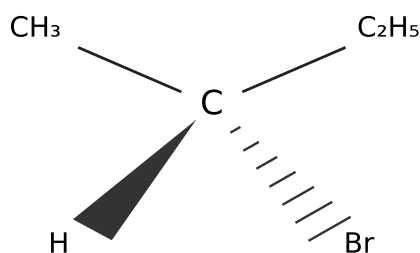
3.3

Swap two groups to obtain the other enantiomer

One enantiomer of 2-bromobutane



Opposite configuration



B1 for each correctly connected four-group centre; B1 for a complete wedge/dash representation; B1 for opposite configurations.