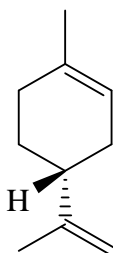


Marks
9

- Consider the isomer of limonene shown below.



Show the major organic products formed when limonene is treated with excess H_2 in the presence of a Pd/C catalyst. Pay particular attention to any relevant stereochemistry. Identify which would be the major product and explain why it forms preferentially.

Use Markovnikov's rule to predict the two major products of the reaction between limonene and excess HBr. Draw these isomers and identify the isomeric relationship between them. Specify the optical activity (active or inactive) of each isomer.

At what m/z would the molecular ion of one of these isomers appear in its mass spectrum? Explain your answer.