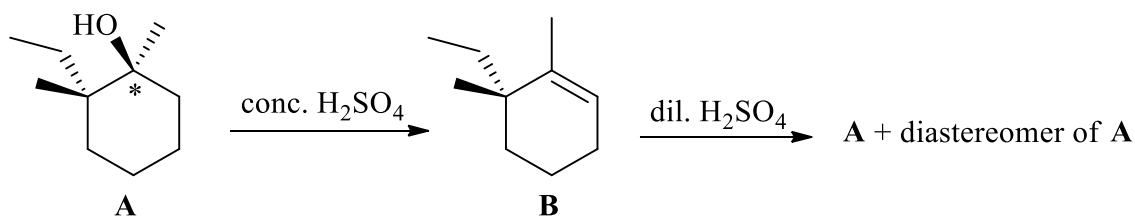


Marks

7

- Shown below is a reaction sequence beginning with the chiral alcohol, **A**.



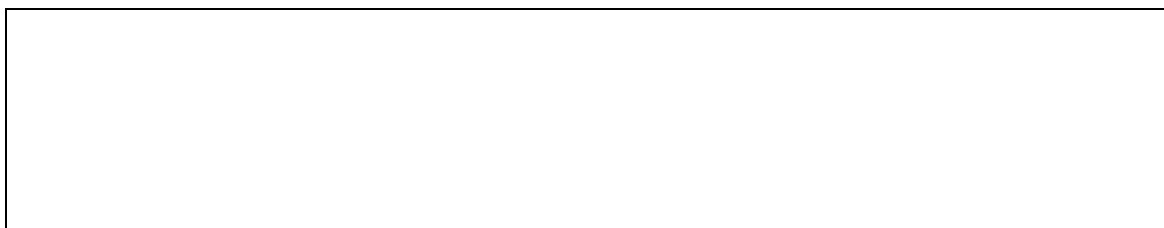
Draw the enantiomer of **A**.



The specific optical rotation of **A** is +30. If equal amounts of **A** and its enantiomer are mixed, what is the optical rotation of the mixture?



Assign the stereochemistry of the atom in alcohol **A** indicated by the asterisk (*), showing how you arrived at your answer.



Alcohol **A** is dehydrated to give the alkene **B**. Is alkene **B** chiral? Why/why not?



Alkene **B** is hydrated with dilute sulfuric acid, to give a sample that contains **A** and a diastereomer of **A**. Draw this diastereomer. In this sample, what do you expect to be the ratio of **A** and its diastereomer? Why?

