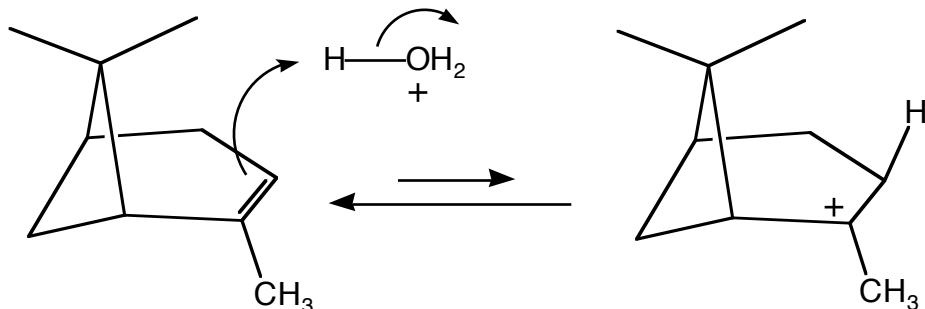
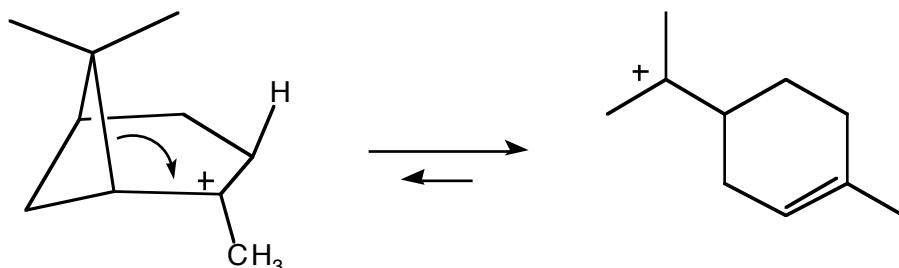


Answers to Problem 88, Chemistry 301X, 2006

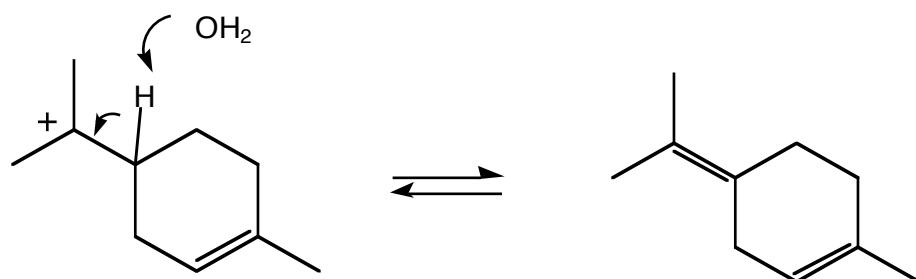
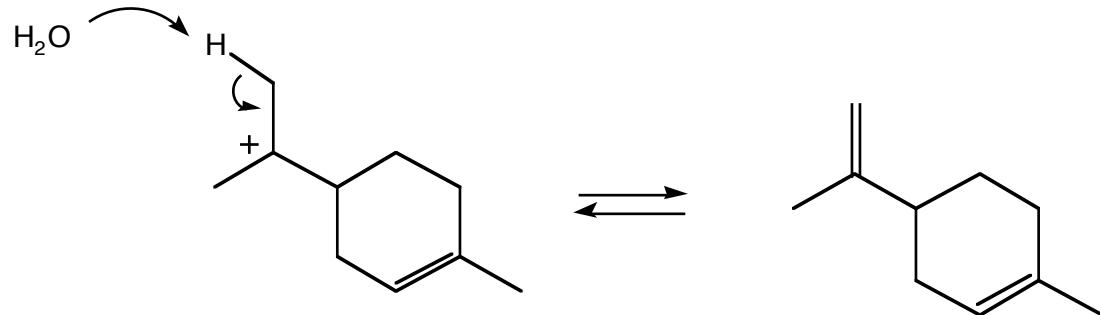
(a) Analyze! Clearly at some point you must open the four-membered ring. Neither product has it! The first step is surely protonation of the double bond to give the more stable carbocation.



Now all sorts of strain can be relieved if a carbon-carbon bond breaks, opening the four-membered ring as we know we must do.



Deprotonation in the two possible ways leads to the two products.



3b. Either of the carbocations can be captured by bromide to give a product.

