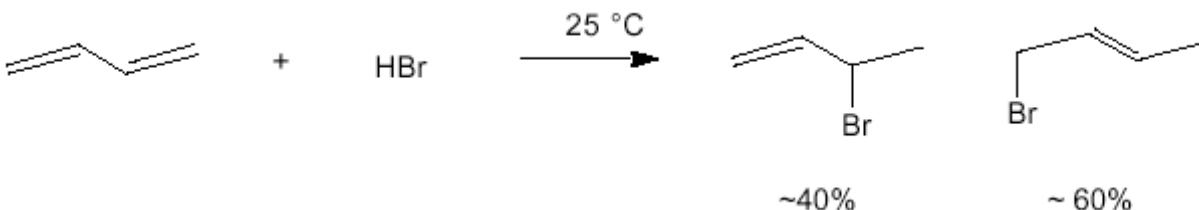


Problem 84, Chemistry 301X - 2006

(a) At 25 °C, HBr adds to 1,3-butadiene to give the two products shown. Carefully, but quickly, show a mechanism for the formation of these two compounds. Why is 1-bromo-2-butene the major product?



(b) C_7H_{12} (**X**) hydrogenates with Pd/H₂ /C to give methylcyclohexane. The ¹³C NMR spectrum of **X** shows five signals. What is the structure of **X**?

this problem uses hydrogenation, the addition of dihydrogen across the pi system of an alkene:

