

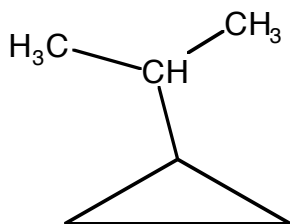
Problem 48, Chemistry 301X - 2006

You drew compound **1** on the last hour test, and probably used it (correctly) as an isomer that would show four signals in the  $^{13}\text{C}$  NMR spectrum.

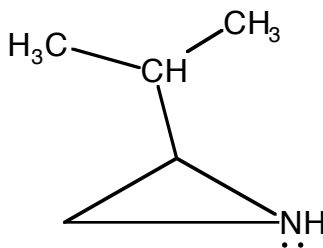
Good. Now explain why compound **2** shows five signals in the  $^{13}\text{C}$  NMR spectrum.

Tough problem.

Hint: use Newman projections. Look from the isopropyl group toward the ring.



**1**



**2**