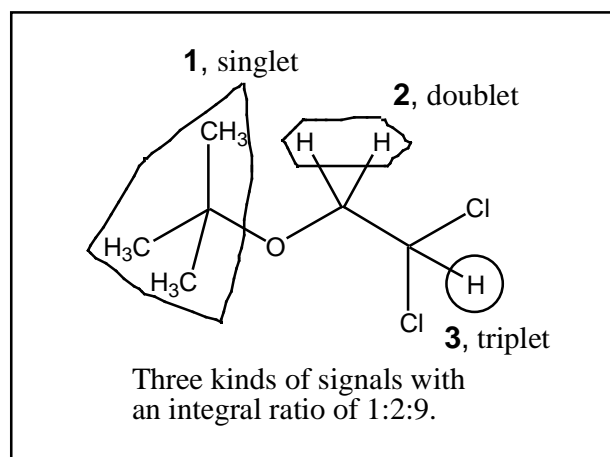
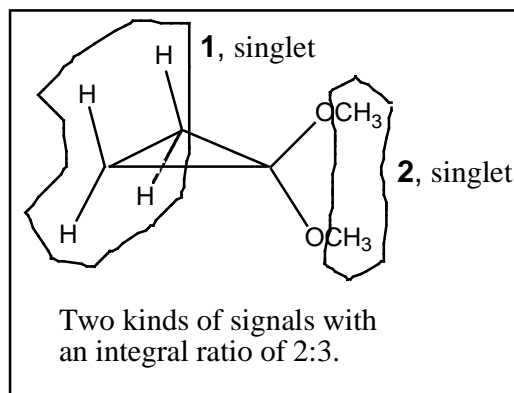
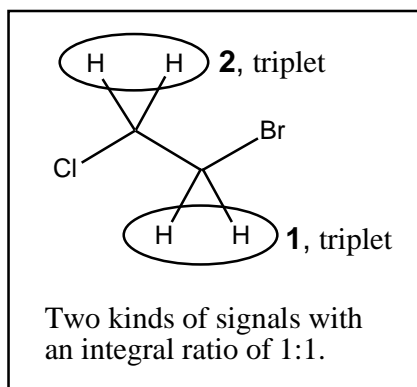


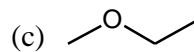
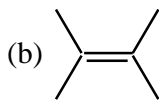
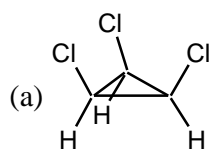
Answers to Problem Set #5
CH241-2001F

[1]



- [2] (a) One possibility is to note that the methyl singlet in the first compound would be somewhat more upfield than the methyl singlet in the second compound. Why? Look up Table 14.4 on page 664 in your text.
- (b) The value of the coupling constants should settle the issue. The *E* isomer would display a larger *J* than the *Z* isomer.
- (c) The olefinic protons in cyclobutene would be split into a triplet whereas those of methylenecyclopropane would be a singlet. Furthermore the CH₂ groups of cyclobutene would appear as a doublet whereas those of methylene cyclopropane would appear as a singlet. [Note: Slight allylic coupling could occur in both compounds but the basic premise of the analysis would not be significantly affected.]
- (d) The proton from the aldehyde group would be distinctly different from the proton attached to the double bond. Again, see Table 14.4 on page 664.

[3] Please calculate the degree of unsaturation first.



[4] See below.

$C_5H_{10}O$

