

Problem 20. Cyclobutanes

20.1 Draw all possible isomers of substituted cyclobutanes with the molecular formula C_7H_{14} , including enantiomers.

20.2 Mark all the asymmetric carbon atoms in the molecules from question 20.1 with an asterisk.

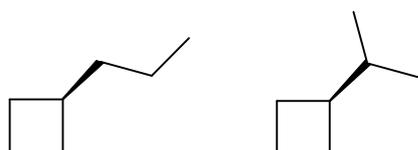
20.3 List all the compounds from question 20.1 that do **not** show optical activity.

20.4 List all pairs of enantiomers from question 20.1.

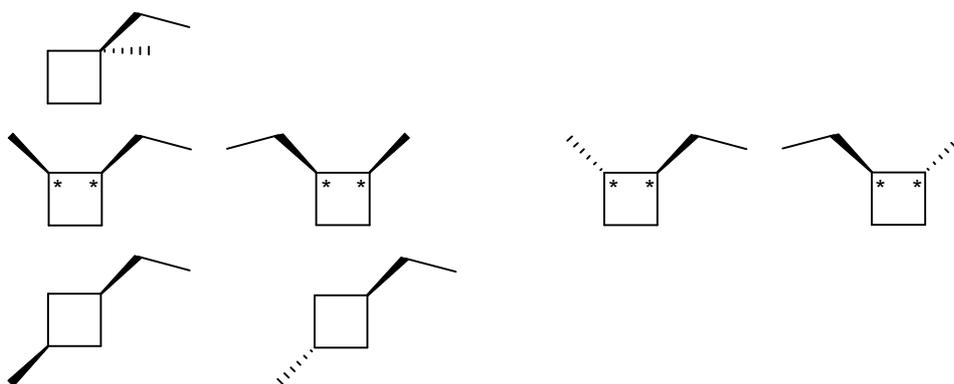
20.1 e 20.2

Si possono disegnare 16 diversi isomeri. I carboni asimmetrici sono marcati con un asterisco.

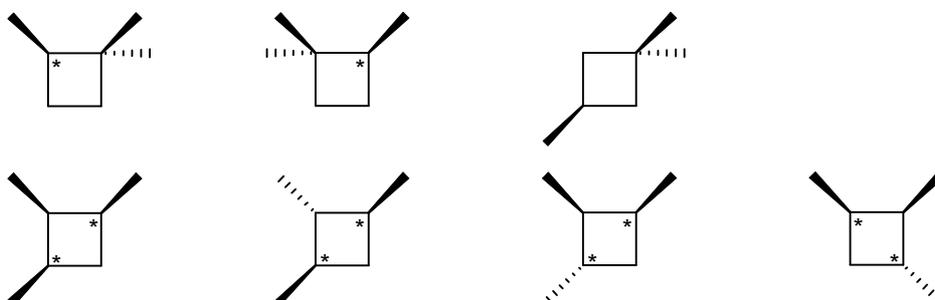
Vi sono due isomeri con catena laterale di tre carboni:



Vi sono sette isomeri con catena laterale di due carboni:

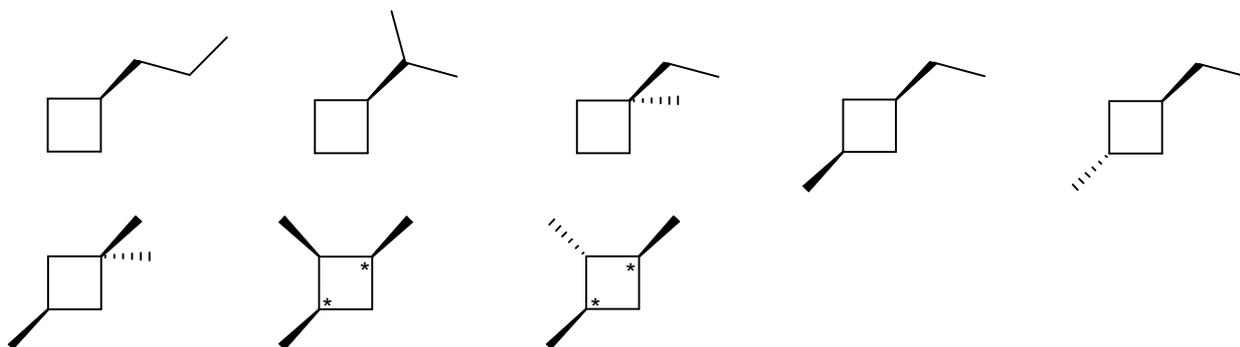


Vi sono sette isomeri con catene laterali di un solo carbonio:



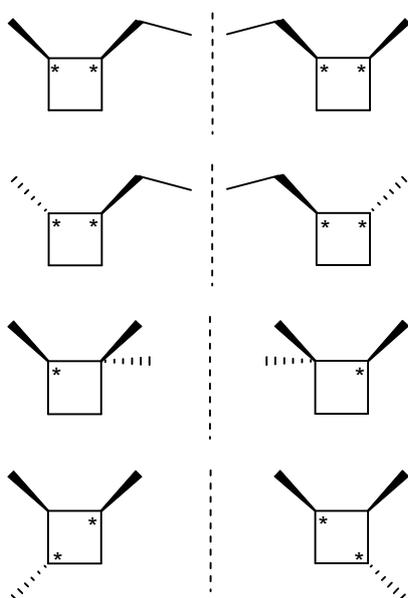
20.3

Le molecole prive di attività ottica sono le seguenti:



20.4

Le coppie di enantiomeri sono le seguenti:



Soluzione proposta da Mauro Tonellato - Padova