

Question #54993 – Chemistry – Organic Chemistry

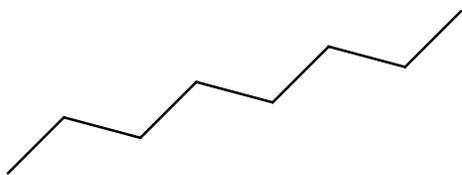
Question:

How many of the 18 C₈ alkane constitutional isomers are named using the following base-chain names? a. Octane b. Heptane c. Hexane d. Pentane

Answer:

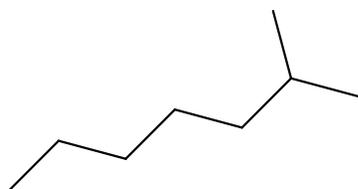
There are 18 constitutional isomers for octane.

a) Only 1

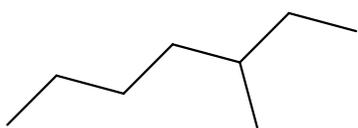


n-octane

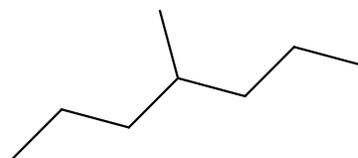
b) Three isomers



2-methylheptane

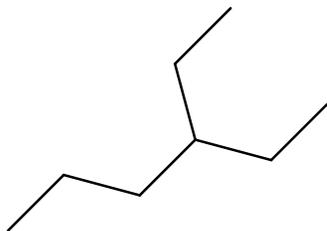


3-methylheptane

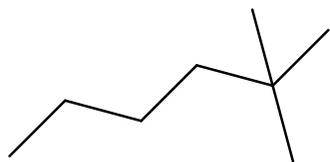


4-methylheptane

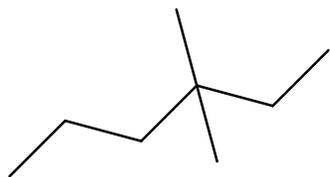
c) Seven isomers:



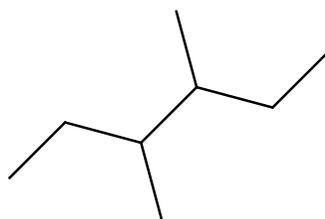
3-ethylhexane



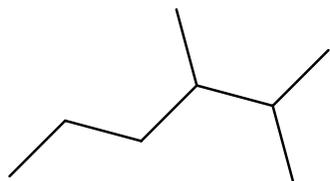
2,2-dimethylhexane



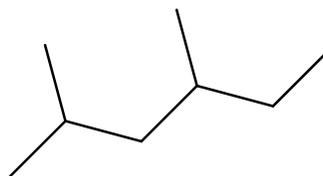
3,3-dimethylhexane



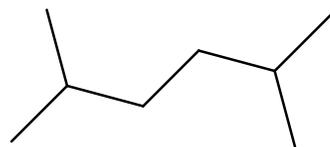
3,4-dimethylhexane



2,3-dimethylhexane

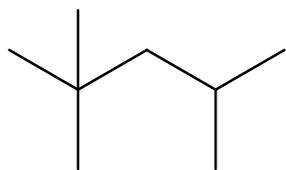


2,4-dimethylhexane

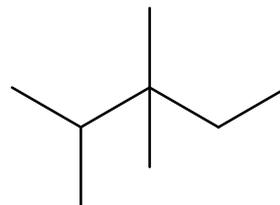


2,5-dimethylhexane

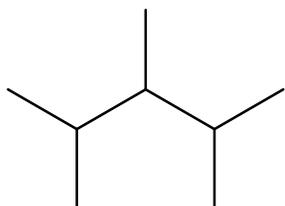
d) Six isomers:



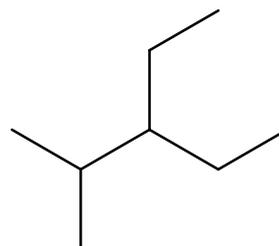
2,2,4-trimethylpentane



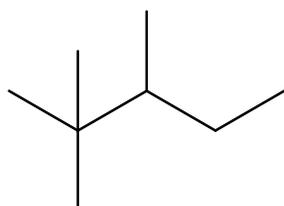
2,3,3-trimethylpentane



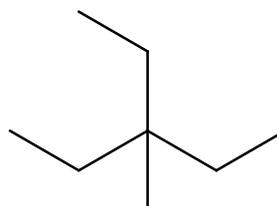
2,3,4-trimethylpentane



3-ethyl-2-methylpentane



2,2,3-trimethylpentane



3-ethyl-3-methylpentane