IUPAC Nomenclature

Naming of alkanes forms basis for all the organic compound names.

1. Find the longest chain-
   the number of carbons forms the parent name
   CH_3 groups at end of chain!!!

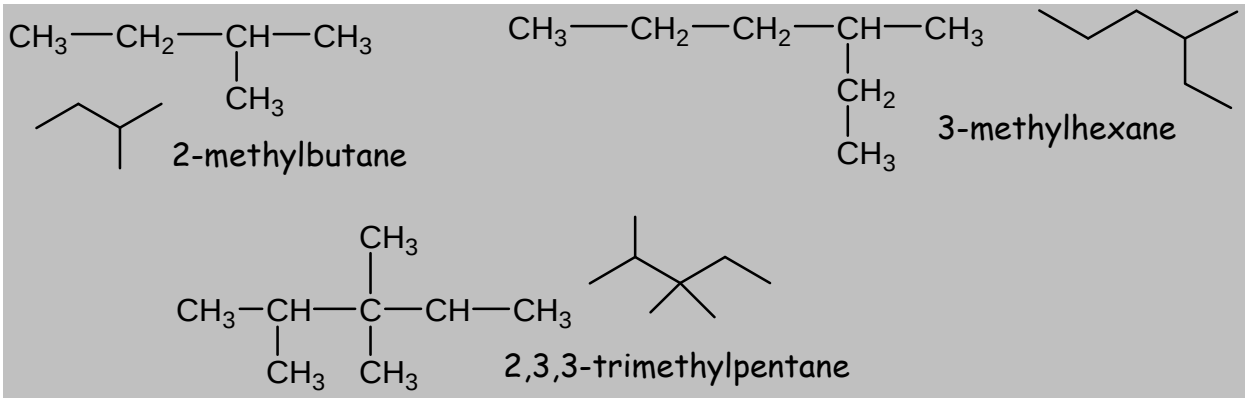
2. Identify all groups (substituents) on the chain.
   Learn the concept of alkyl groups: methyl, ethyl, propyl, butyl

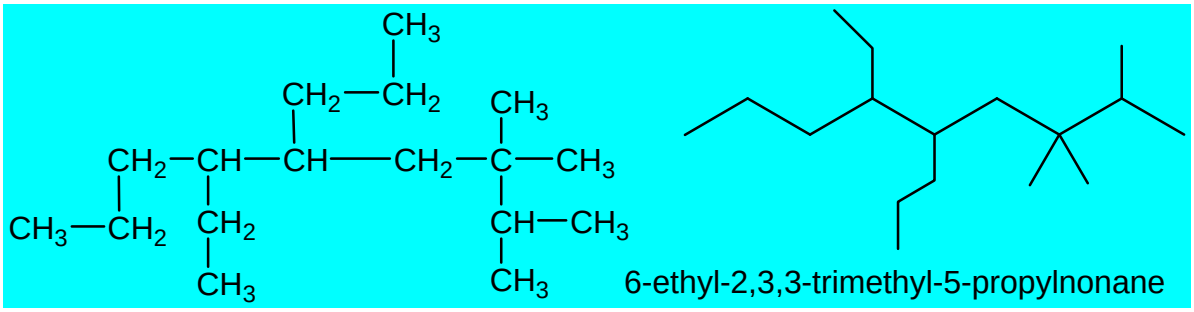
3. Number the longest chain and give each group a number to locate its position on the chain.

4. Use prefixes if a group appears more than once,
   (di, tri, tetra, etc.).

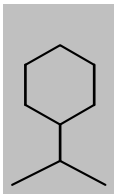
5. Alphabetize the groups when writing the name
   Ignore prefixes except iso for alphabetizing

Examples:

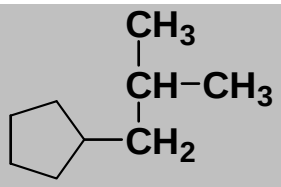




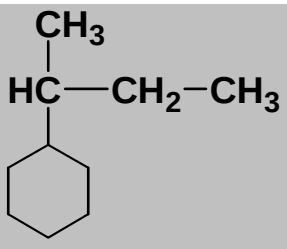
Cycloalkanes- use prefix "cyclo" on parent hydrocarbon:



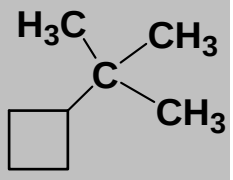
isopropylcyclohexane



iso-butylcyclopentane

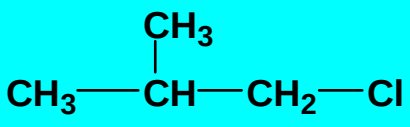


s-butylcyclohexane

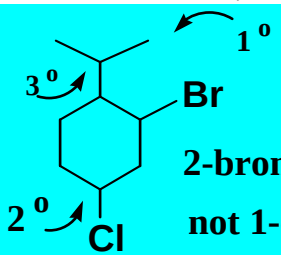


t-butylcyclopropane

Halides- as substituents these are fluoro, chloro, bromo, iodo groups:



1-chloro-2-methylpropane



2-bromo-4-chloro-1-isopropylcyclohexane

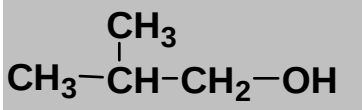
not 1-chloro-3-bromo-4-isopropyl

Alcohols- OH group takes precedence over other substituents;

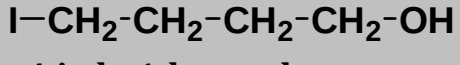
i.e. OH group gets lowest possible number

suffix changes from "ane" → "ol"

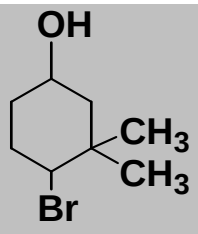
"ol" suffix identifies an alcohol



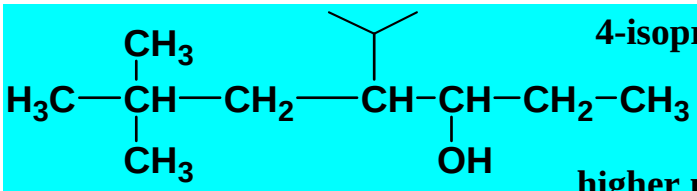
2-methyl-1-propanol



4-iodo-1-butanol



4-bromo-3,3-dimethylcyclohexanol



4-isopropyl-6,6-dimethyl-3-heptanol

2,2-4-5 vs. 3-4-6,6

higher numbers since OH takes precedence

Recall classification of hydrogen atoms: primary, secondary, tertiary (1°, 2°, and 3°)