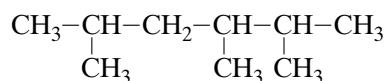


Alkane Nomenclature

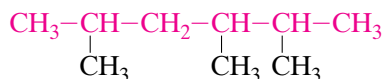
- 1. Name the parent hydrocarbon.** Find the longest continuous chain of carbon atoms that have straight-chain branches. Add the suffix *-ane* to the prefix corresponding to the number of carbon atoms in the chain.
- 2. Add the names of the alkyl groups.** Add the names of the alkyl groups in front of the name of the parent hydrocarbon in alphabetical order. When there is more than one branch of the same alkyl group present, attach the appropriate numerical prefix to the name: *di* = 2, *tri* = 3, *tetra* = 4, and so on. Do so after the names have been put in alphabetical order.
- 3. Number the carbon atoms in the parent hydrocarbon.** If one or more alkyl groups are present, number the carbon atoms in the continuous chain to give the lowest numbers possible in the name. If there are two equivalent lowest positions with two different alkyl groups, give the lowest number to the alkyl group that comes first in the name. (This will be the alkyl group that is first in alphabetical order, *before* any prefixes are attached.)
- 4. Insert position numbers.** Put the position numbers of each alkyl group in front of the name of that alkyl group.
- 5. Punctuate the name.** Use hyphens to separate the position numbers from the names. If there is more than one number in front of a name, use commas to separate the numbers.

SAMPLE PROBLEM A

Name the following simple branched-chain alkane:



SOLUTION 1. Identify and name the parent hydrocarbon.



Because the longest continuous chain contains six carbon atoms, the parent hydrocarbon is *hexane*.

2. Identify and name the alkyl groups attached to the chain.



There is only one type of alkyl group, with one carbon atom. Alkyl groups with one carbon atom are methyl groups. Add the name *methyl* in front of the name of the continuous chain. Add the prefix *tri-* to show that there are three methyl groups present.

trimethylhexane