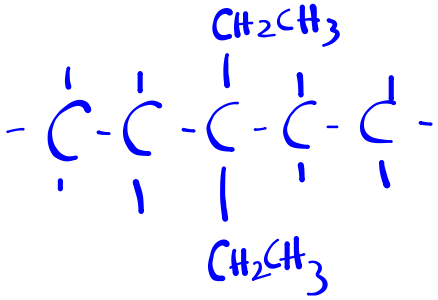
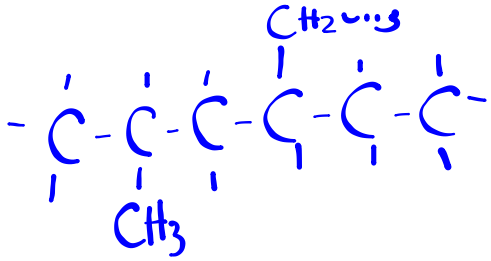
Warm Up

Draw the following compounds:

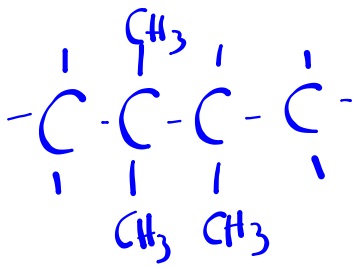
a) diethylpentane



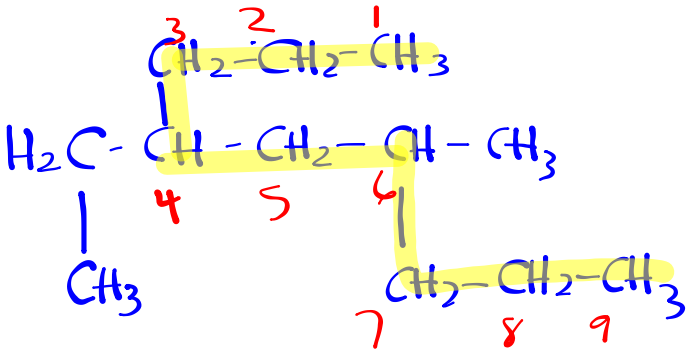
b) 4-ethyl-2-methylhexane



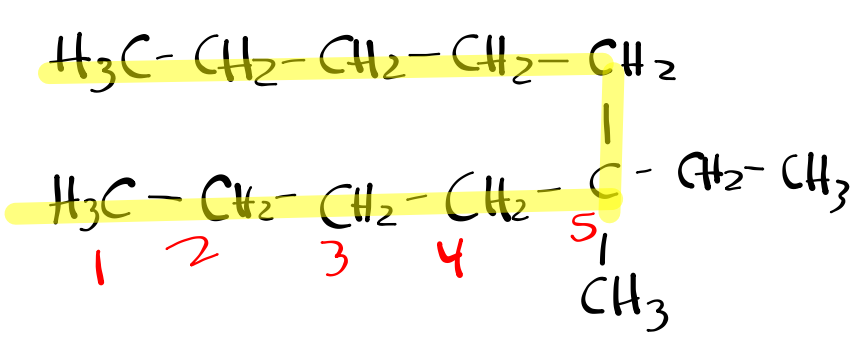
c) trimethylbutane



Worksheets - Naming Alkanes



(b)



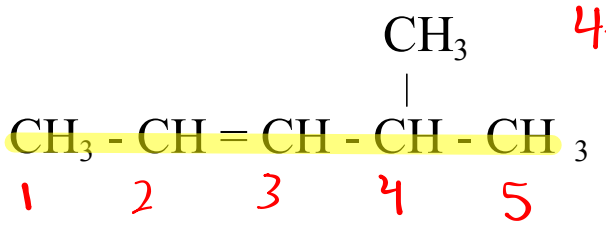
Naming Alkenes / Alkynes

Naming alkenes (double bonds) and alkynes (triple bonds) are very similar to alkanes. When naming, take these two points into consideration:

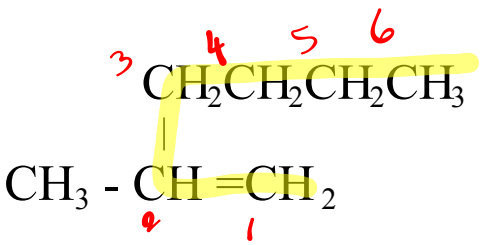
- the longest parent chain of carbon atoms must include the multiple bond, and the chain is numbered from the end closest to the multiple bond
- the name of the compound's parent chain is preceded by a number that indicates the position of the multiple bond on the parent chain.

Ex. $CH_2 = CH - CH_2 - CH_3$ (1 2 3 4) 1- butene

$CH_3 - C \equiv C - CH_3$ 2- butyne



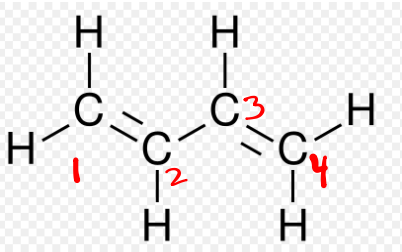
4-methyl-2-pentene



2-methyl-1-hexene

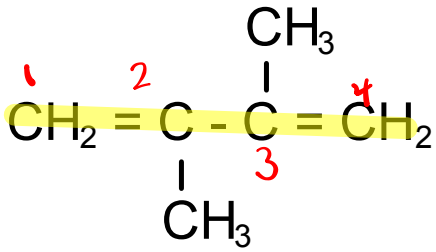
Multiple Multiple Bonds

If there is more than one multiple bond in an organic compound, the name of the compound is changed to a _____ diene, with the placing of the double bonds indicated at the beginning of the parent name.



1,3-butadiene

dimethyl-1,3-butadiene



Homework

Worksheet 46

Trend of boiling points of hydrocarbons

- the boiling point of hydrocarbons vary as their structure varies. (isomers)
- the boiling point and melting points of hydrocarbons increase with the number of carbons.

(see attached)

http://www.elmhurst.edu/~chm/vchembook/501hcboilingpts.html

In general most unsubstituted hydrocarbons are non-polar and are therefore soluble in other non-polar solvents (are not soluble in polar solvents)

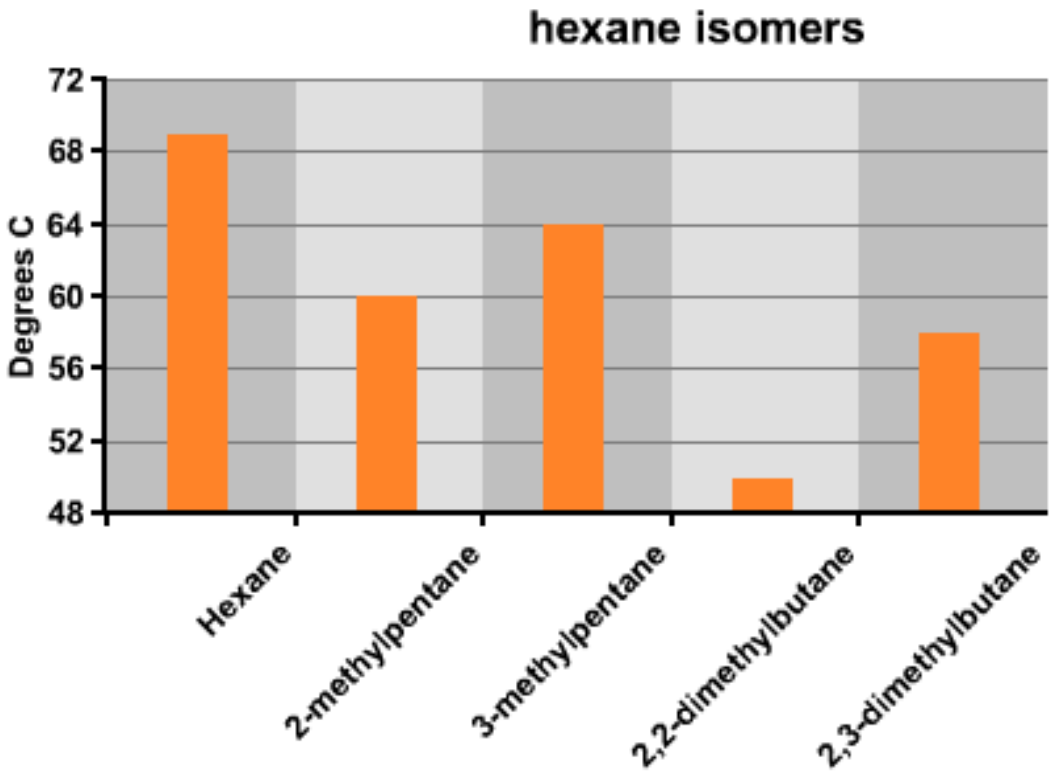
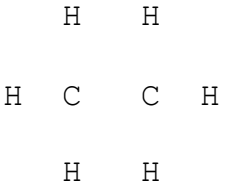

hexane isomers
Degrees C
72
68
64
60
56
52
48
Hexane
2-methylpentane
3-methylpentane
2,2-dimethylbutane
2,3-dimethylbutane

Table 1 *Hydrocarbon Boiling Points*

Hydrocarbon	Formula	Boiling Point (°C)
Butane	C_4H_{10}	-0.5
Decane	$C_{10}H_{22}$	174.0
Ethane	C_2H_6	-88.6
Heptane	C_7H_{16}	98.4
Hexane	C_6H_{14}	68.7
Methane	CH_4	-161.7
Nonane	C_9H_{20}	150.8
Octane	C_8H_{18}	125.7
Pentane	C_5H_{12}	36.1
Propane	C_3H_8	-42.1

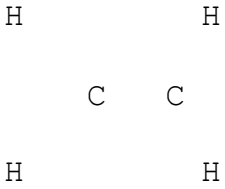
Electron Dot Formulas

(i) ethane



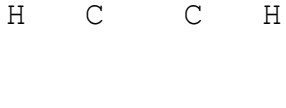
Tetrahedral
sp^3

(ii) ethene



Planar
sp^2

(iii) ethyne



Linear
sp

- show the **sharing** of electrons between atoms
- two shared electrons = one bond