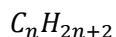


# C11 - 6.1 - Alkane/Alkyl Notes

HydroCarbon

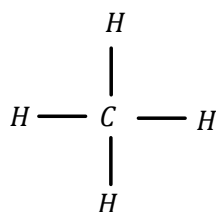


$$H = 2C + 2$$

Alkane: A Hydrocarbon where Carbon is attached by single bonds.

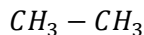
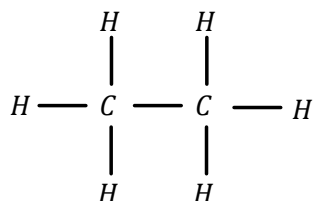
Naming: *ane*

Methane:  $CH_4$



Full

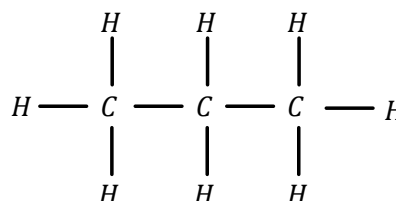
Ethane:  $C_2H_6$



Condensed

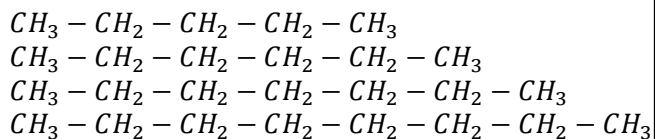
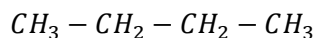
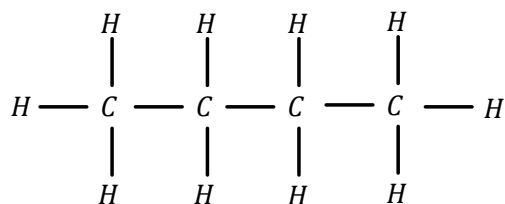
Line

Propane:  $C_3H_8$



# C	
Meth	1
Eth	2
Prop	3
But	4
Pent	5
Hex	6
Hept	7
Oct	8
Non	9
Dec	10

Butane:  $C_4H_{10}$

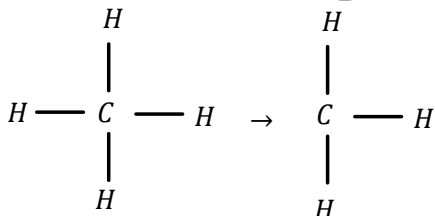


$C_5H_{12}$  Pentane:  
 $C_6H_{12}$  Hexane:  
 $C_7H_{14}$  Heptane:  
 $C_8H_{18}$  Octane:

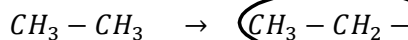
Alkyl: An Alkane that has lost a Hydrogen Atom

Naming: *Ane* → *yl*

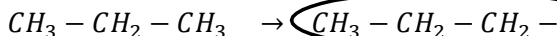
methane → methyl



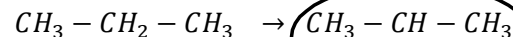
ethane → ethyl



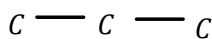
propane → propyl



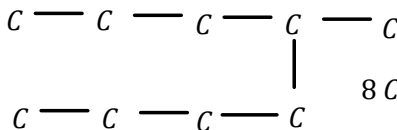
OR



Parent: Longest Chain

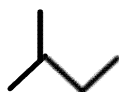
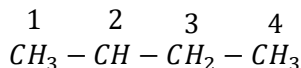


3 Carbons → propane



8 Carbons → octane

Each Carbon needs a combination of dashes and H's attached to add to 4!



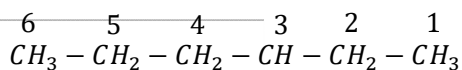
2 - methylbutane  
(aka methylbutane)

1) butane: Longest Alkane Chain  
 2) methyl: Attached Alkyl  
 2) 2 - Location of attached methyl

Alphabetical

Smallest Number

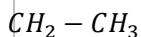
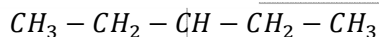
# C11 - 6.1 - Alkane/Alkyl/Structural Isomers Notes



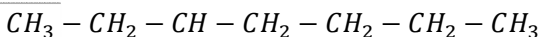
3 - methylhexane

(≠ 4 - methylhexane)

Smallest Number

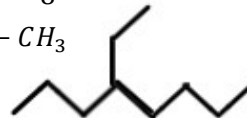


3 - ethylpentane



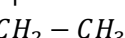
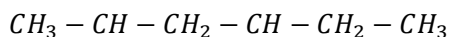
1

8



4 - ethyloctane

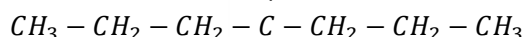
E < M



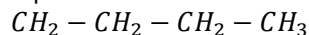
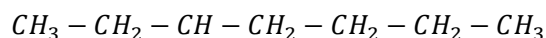
3 - ethyl - 5 - methylhexane

≠ 2 - methyl - 4 - ethylhexane

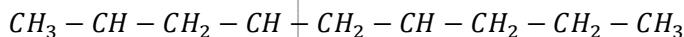
1) Alphabetical  
2) Smallest #



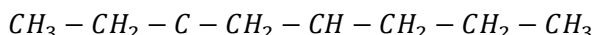
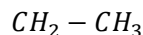
4 - methyl - 4 - propylheptane



5 - ethyl - 3 - methylnonane



2,4,6 - trimethylnonane



Di-is not in alphabetical!

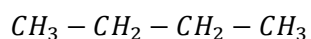
3 - ethyl - 3,5 dimethyloctane

E < M

3 - ethyl - 5 ethyl = 3,5 dimethyl

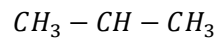
Structural Isomers: Structurally different with the same molecular formula.

C<sub>4</sub>H<sub>10</sub>



OR

C<sub>4</sub>H<sub>10</sub>

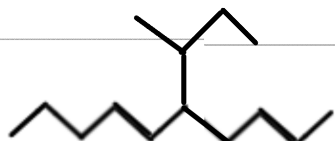


Butane



2 - methylpropane

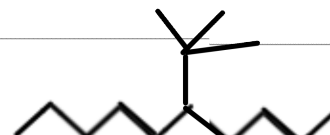
sec 1  
iso 2  
tert 3



5 sec butyl decane



5 iso butyl decane



5 tert butyl decane