Naming Hydrocarbons

Based on the longest chain of carbon atoms

Prefix + root + suffix

Location and nature of substituents on chain (Table 22.2)

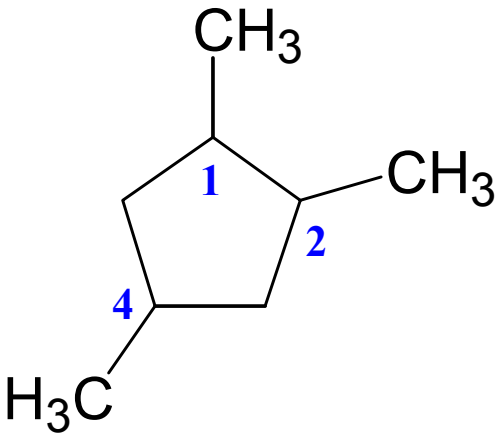
Indicator of the # of C's in the longest chain (Table 22.1)

Class of organic compound

-*ane* for alk*anes*
(-*ene* for alk*enes*
-*yne* for alk*ynes*)

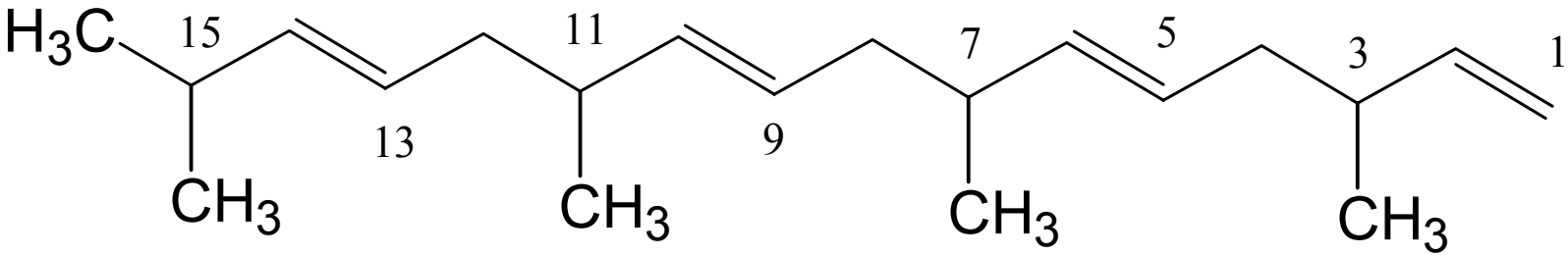
Multiple Substituents of the Same Kind

2 substituents	prefix ***di***
3 substituents	prefix ***tri***
4 substituents	prefix ***tetra***
5 substituents	prefix ***penta***
6 substituents	prefix ***hexa***
7 substituents	prefix ***hepta***
8 substituents	prefix ***octa***
9 substituents	prefix ***nona***
10 substituents	prefix ***deca***



1,2,4-***tri***methylcyclopentane

$C_{20}H_{34}$



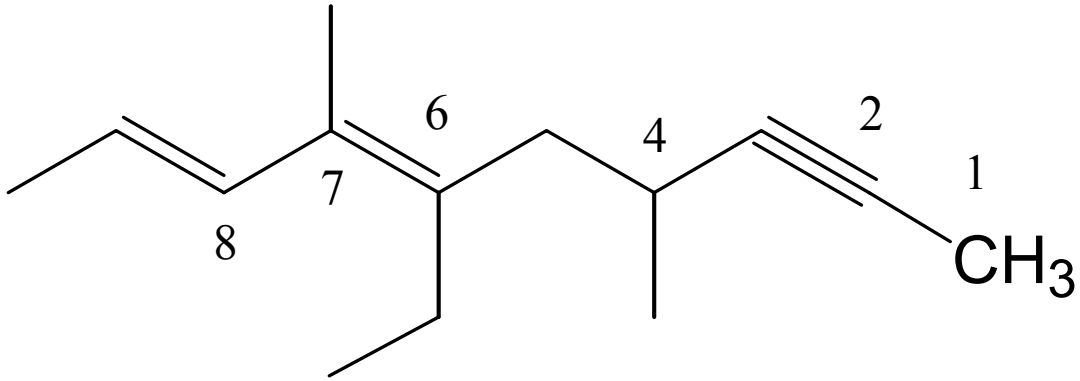
1. Root: C_{16} = hexadec
2. Double bonds: 1,5,9,13-tetraene
3. Alkyl substituents: 3, 7, 11, 15-tetramethyl

3,7,11,15-tetramethyl-1,5,9,13-hexadecatetraene

or

3,7,11,15-tetramethylhexadeca -1,5,9,13-tetraene

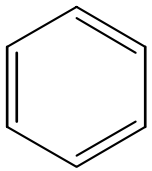
$C_{14}H_{22}$



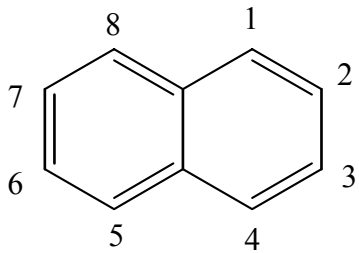
1. Longest chain: C10 = dec
2. Triple bond: 2-yne
3. Double bonds: 6,8-diene
4. Substituents: 6-ethyl-4,7-dimethyl

6-ethyl-4,7-dimethyldeca-6,8-diene-2-yne

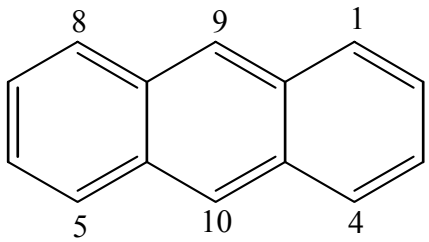
Aromatic Hydrocarbons



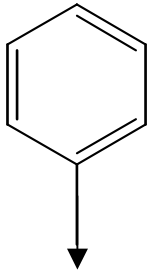
Benzene



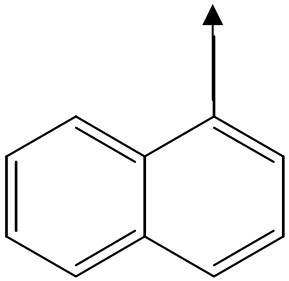
Naphthalene



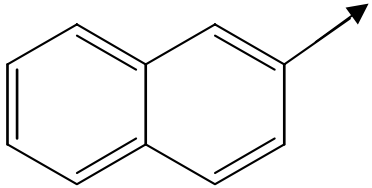
Anthracene



Phenyl

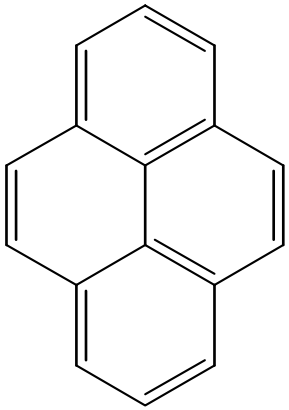


1-Naphtyl



2-Naphtyl

Pyrene



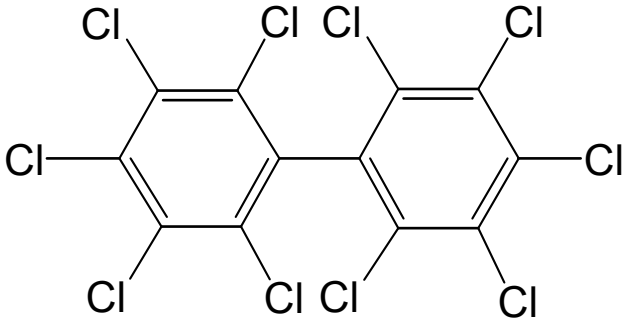
Halogen Substituents

F = fluoro

Cl = chloro

Br = bromo

I = iodo



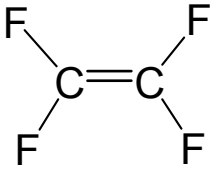
Decachlorobiphenyl

Poly**C**hlorinated **B**iphenyls

PCB's

CH_3Br Bromomethane (Methyl bromide)

$CH_2{=}CH{-}Cl$ Chloroethylene (Vinyl chloride) → PVC polymer



Tetrafluoroethylene → Teflon polymer