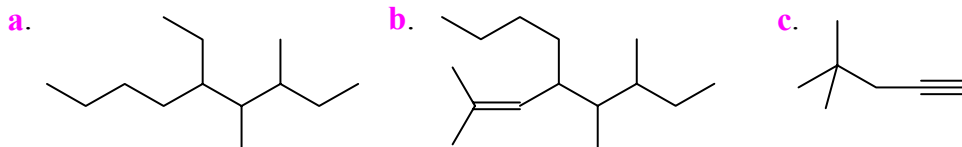


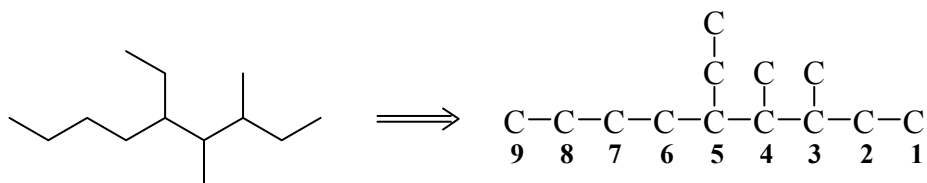
Examples

Give the IUPAC name for the compounds below:



a. STRATEGY

Redraw the structure



Fill out the nomenclature template

	OBSERVATION	IMPLICATION
Parent Group and Site	Alkane	-ane
Longest Carbon Chain/Ring	9 carbons	non.....
# C=C or C≡C bonds and Site	None	nonane
Final Word		nonane
Substituents and Sites	2 CH ₃ 's at C-3, C-4 1 CH ₂ CH ₃ at C-5	3,4-dimethyl-...* 5-ethyl-...
Alphabetizing Substituents		5-ethyl-3,4-dimethyl-...**

* Remember to number ALL substituents, even if they occur more than once. Remember to include the appropriate prefix, *i.e.*, 'di', 'tri' *etc.* to confirm the multiple substituents of the same type

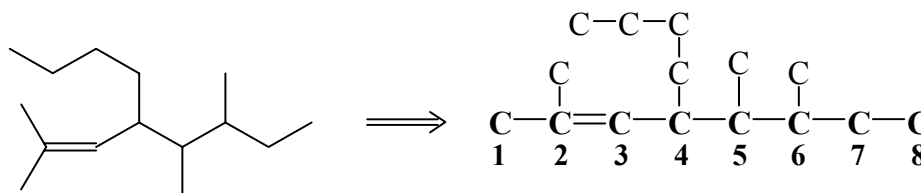
** **Do not include the prefixes 'di', 'tri' *etc.* in placing the substituents in alphabetical order. Thus, 'dimethyl' is treated as beginning with 'M'.**

SOLUTION: Compound is **5-ethyl-3,4-dimethylnonane**

[Note, **the last substituent, or the only substituent in a name is combined with the final 'word'.**]

b.
STRATEGY

Redraw the structure



Fill out the
nomenclature template

	OBSERVATION	IMPLICATION
Parent Group and Site	C=C \Rightarrow Alkene at C-2	2-...ene*#
Longest Carbon Chain/Ring	8 carbons	oct-...
# C=C or C \equiv C bonds and Site	C=C at C-2	2-octene
Final Word		2-octene
Substituents and Sites	3 CH ₃ 's at C-2, C-5 & C-6 1 CH ₂ CH ₂ CH ₂ CH ₃ at C-4	2,5,6-trimethyl-... 4-butyl-...
Alphabetizing Substituents		4-butyl-2,5,6-trimethyl-...

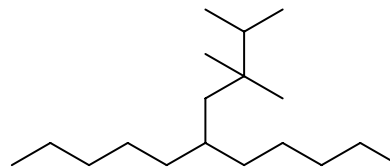
*In this example, the longest carbon chain contains nine carbons, but it does not contain the parent group. **Thus the longest carbon chain, eight carbons, bearing the parent group is selected.** This problem is still more complex because there are two ways to generate the longest carbon chain. The more-substituted chain is the correct one to choose, see **Section IV**. **Use the lower-numbered of the two carbons in the double bond to define the site of that group on the molecule.**

The number '2' designating the site of the alkene is placed at the beginning of the 'final word'

SOLUTION: Compound is **4-butyl-2,5,6-trimethyl-2-octene**

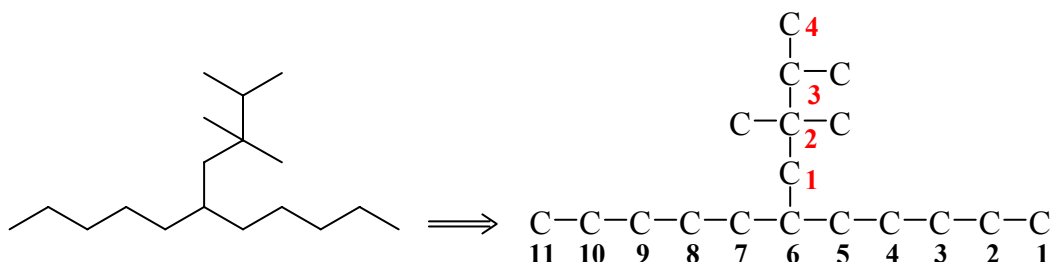
Example

Name the compound:



OBSERVATIONS/STRATEGY

Redraw the structure



Note that the branched substituent is numbered in red, and the longest chain is in black bold face.

Fill out the Nomenclature template MATERIAL I.M.F. QUIRKE 9/1/1999

	OBSERVATION	IMPLICATION
Parent Group and Site	Alkane	-ane
Longest Carbon Chain/Ring	11 carbons	undec-...
# C=C or C≡C Bonds and Site	None	undecane
Final Word		undecane
Substituents and Sites	Branched substituent at C-6 $\text{CH}_3\text{CHCH}_3\text{C}(\text{CH}_3)_2\text{CH}_2$ Longest chain of branch: 4 Branch Substituents: 3 CH_3 's at C-2, C-2 & C-3	6-(...) 6-(...butyl)..... 6-(2,2,3-trimethylbutyl)-
Alphabetizing Substituents		6-(2,2,3-trimethylbutyl)-

Note: We **must** assign the CH_2 of the branch as C-1 for the branched substituent because it is directly bonded to the longest chain.

SOLUTION Compound is 6-(2,2,3-trimethylbutyl)-undecane