

Already learned:

alkanes

branched alkanes

alkyl halides

Next: alcohols

Recall:  $R-OH$

So far we've used:

locants (numbers)

prefixes (substituents)

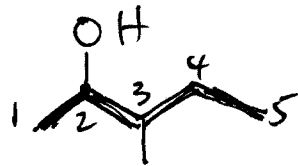
parent compound (base name)

Now, we add a 4<sup>th</sup> component to the name:

suffix (indicates primary functional group)

Alcohol: change ~~ane~~ "e" to "ol"

1. Longest chain - must have functional gp. attached.



a pentane

2. Number chain - carbon w/ func gp. gets lowest possible #.

3. Identifies other subjects.

4. change the ending to indicate the Funct. gp.

5. Need a # to indicate position of funct. gp.

6. Finally, add in other  
substs. as before -  
alphabetically, each w/ a #.

are  $\text{CH}_3$  - methyl

pentane becomes  
pentanol

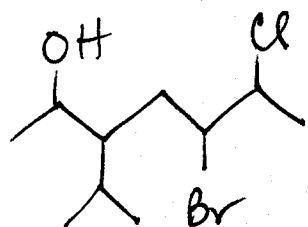
2-pentanol

3-methyl-2-pentanol

$\swarrow$   $\uparrow$   $\uparrow$   
 alt on #C S-C-S alcohol

Draw the structure for:

5-bromo-6-chloro-3-isopropyl-2-heptanol



What about cyclic compounds? Base name is determined by ring size.

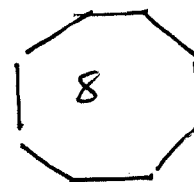
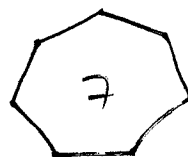
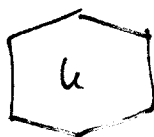


propylcyclopentane

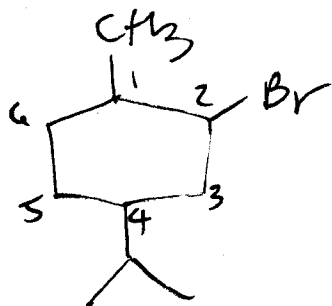
cyclopentane

↑  
means a ring

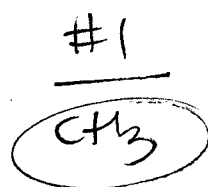
how many atoms  
in the ring



one substituent - don't need a locant  
two (or more) - need #s.

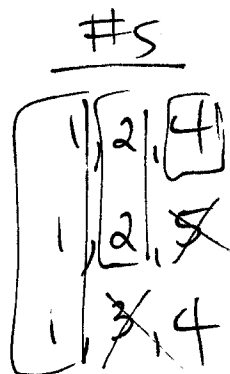


Go with the lowest set of #s.

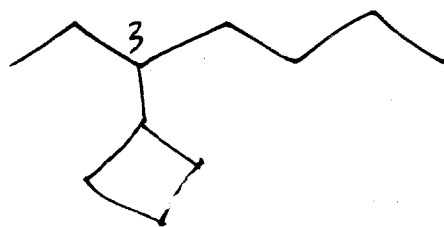


Br

iPr



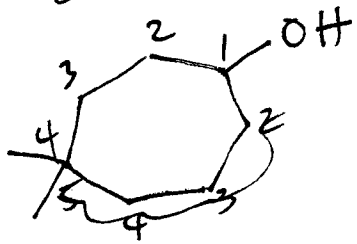
2-bromo-4-isopropyl-1-methylcyclohexane



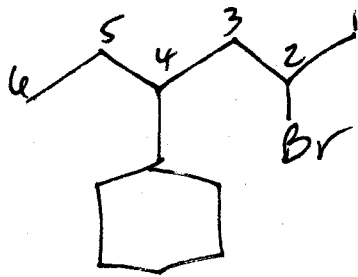
If the linear part has more carbons than the ring, name it as a linear alkane - ring becomes a substituent

3-cyclobutylheptane

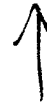
cyclic alcohols - OH determines #1 on the ring. The rest is the same.



4,4-dimethylcycloheptanol



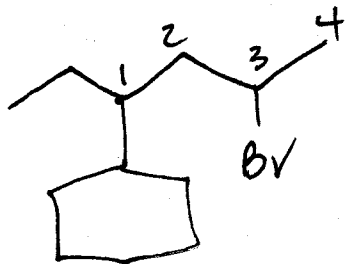
2-bromo-4-cyclohexylhexane



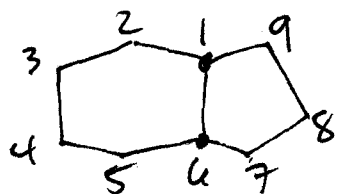
SAME COMPD.



(3-bromo-1-ethylbutyl)cyclohexane

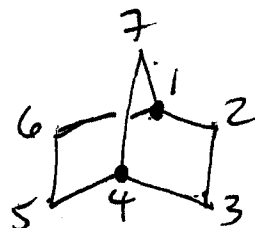


Bicyclic compounds - fused/bridged - the two rings have at least two atoms in common.



fused  
bicyclic

9 C's



bridged  
bicyclic

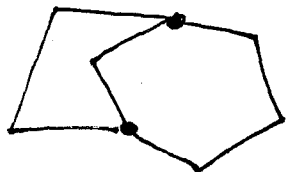
7 C's

Bicyclo[4.3.0]nonane



Bicyclo[2.2.1]heptane

Bicyclo[3.2.1]octane ~~heptane~~

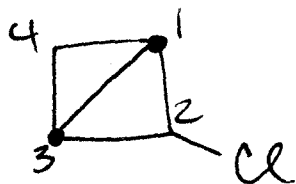


Parent name is determined by the total # of C's in bicyclic system. (Not counting substs.)

Carbons indicated w/ • are called bridgehead carbons.

one is #1 - go along longest path to the other one - then along next longest, then shortest.

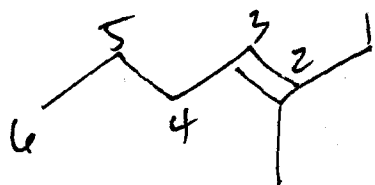
Substituents:



2-chlorobicyclo[1.1.0]butane

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Alkenes / cycloalkenes



Find longest chain w/ alkene  
Number it so as to give alkene  
lowest #

Change "ane" to "ene"

Use the # of the first carbon  
in the C=C as the locant

All other substs. go on as before  
(prefixes)

2-methyl-2-hexene