

# Cyclic Hydrocarbons

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



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## Summary

Cyclic alkanes are alkanes which are bonded together in a continuous manner. The prefix 'cyclo-' is used to indicate this shape.

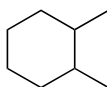
Numbering around the cyclic alkane should always move around the circle. This may be clockwise or counter-clockwise, depending on the configuration which provides the lowest locants possible

## Examples

Number of Carbon atoms	Skeletal Formula	Name
3		cyclopropane
4		cyclobutane
5		cyclopentane
6		cyclohexane
7		cycloheptane
8		cyclooctane

## Worked Examples

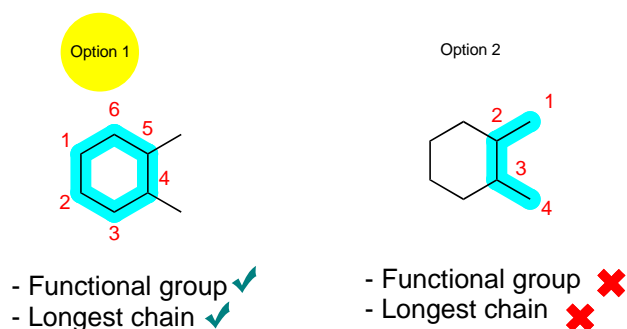
### 1,2-dimethylcyclohexane



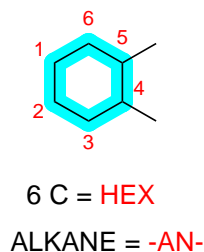
#### STEP 1: Identify the parent hydrocarbon chain

1.1 It should have the functional group with the highest priority

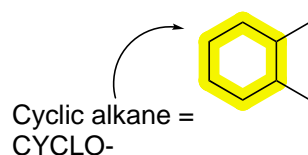
1.2 It should have the maximum length



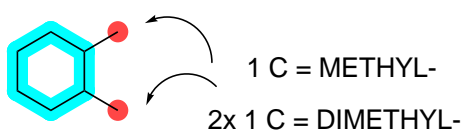
**STEP 2:** Count the number of carbons in the parent hydrocarbon chain and identify the appropriate prefix. If the parent chain is an alkane, add the -an suffix



**STEP 3:** Identify the functional group with the highest priority and its suffix



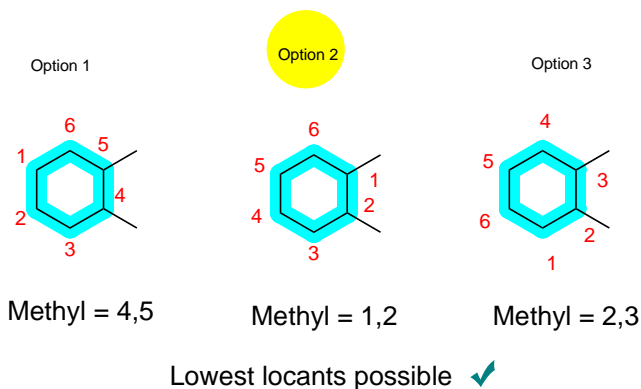
**STEP 4:** Identify side chains. Count the number of carbons and identify their prefix and suffixes



**STEP 5:** Identify any remaining functional groups (including double and triple bonds) and their suffixes

**None**

**STEP 6:** Number the parent hydrocarbon chain from the end that produces the lowest set of locants for, in order of precedence, functional groups, double and triple bonds and side chains

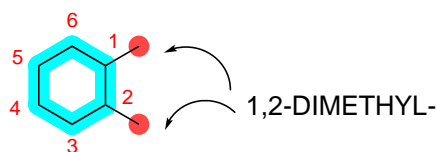


**STEP 7:** Numbers indicating the locant of the functional group are placed directly before the functional group portion of the name.

**7.1** Names are listed alphabetically

**7.2** If there is more than one of the same functional group, the prefix di- (2), tri- (3), tetra- (4) are used. These are not considered for alphabetical listing

**7.3** If the functional group is in a position where no alternative position is possible, no number is required (e.g. ethan-1-ol should be written as ethanol)

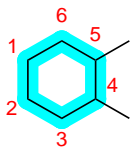


**STEP 8:** Write the complete name

**8.1** Commas are written between numbers

**8.2** Hyphens are written between numbers and letters

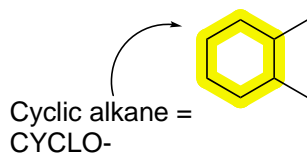
**8.3** Successive words are combined into one word



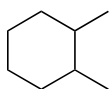
6 C = **HEX**

ALKANE = **-AN-**

**Steps 1,2**

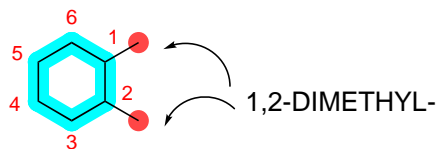


**Step 3**



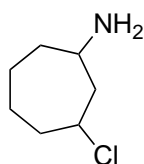
1,2-dimethylcyclo**hexane**

**Step 8**



**Steps 4,6,7**

### 3-chlorocycloheptan-1-amine



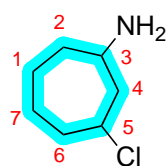
**STEP 1:** Identify the parent hydrocarbon chain

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**1.2** It should have the maximum length

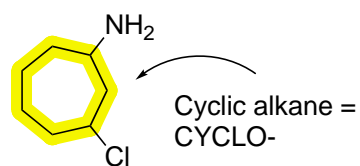


**STEP 2:** Count the number of carbons in the parent hydrocarbon chain and identify the appropriate prefix. If the parent chain is an alkane, add the -an suffix



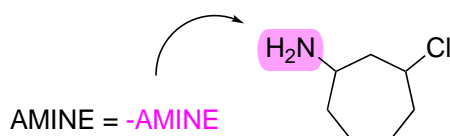
7 C = **HEX**

ALKANE = **-AN-**



Cyclic alkane =  
**CYCLO-**

**STEP 3:** Identify the functional group with the highest priority and its suffix

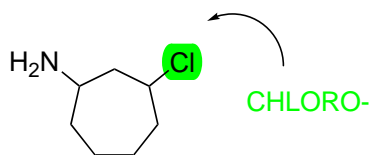


AMINE = **-AMINE**

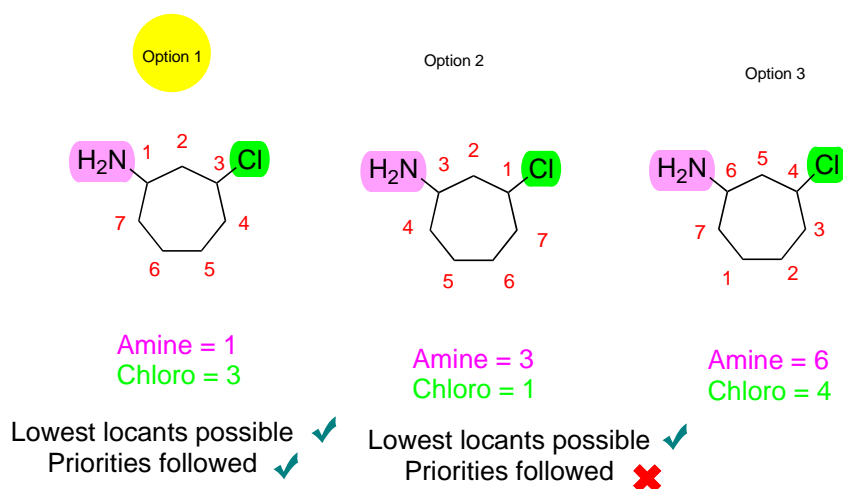
**STEP 4:** Identify side chains. Count the number of carbons and identify their prefix and suffixes

**None**

**STEP 5:** Identify any remaining functional groups (including double and triple bonds) and their suffixes



**STEP 6:** Number the parent hydrocarbon chain from the end that produces the lowest set of locants for, in order of precedence, functional groups, double and triple bonds and side chains

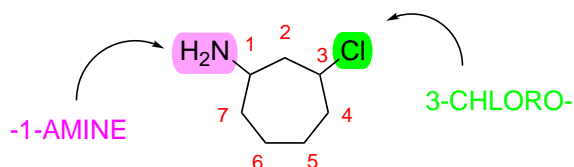


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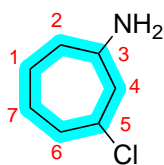


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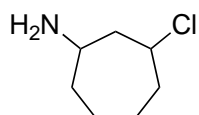
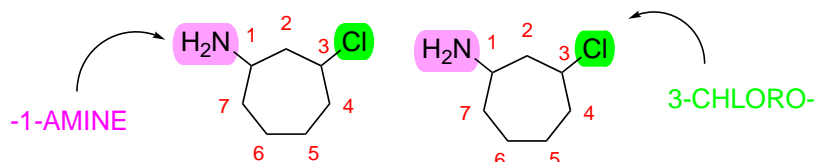
ALKANE = **-AN-**

Cyclic alkane =  
**CYCLO-**

**Steps 1,2**

**Steps 3,6,7**

**Steps 5,6,7**



**3-chlorocycloheptan-1-amine**

**Step 8**