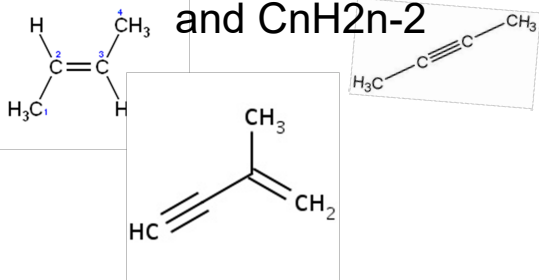


## Chem Unit 7.2 Notes - Alkenes, -ynes

### 7.2 - Alkenes and Alkynes

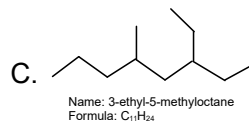
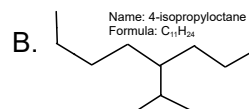
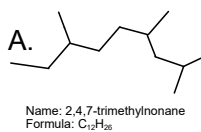
Add  $C_nH_{2n}$

and  $C_nH_{2n-2}$



### 1. Review!

Identify and write the formulas of the following



Hal! I have an army of clones!

### Saturated vs. Unsaturated Hydrocarbons

It was discovered that bromine ( $Br_2$ ) reacted with some organic oils, but not others.

These were called unsaturated: they were "absorbent" like a sponge, and reacted with bromine at particular sites.

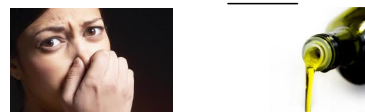
These sites are locations of pi bonds (double or triple). Those bonds open, and react with bromine.

Non-reactive fats were called saturated (they did not absorb bromine).

### Saturated and Unsaturated Hydrocarbons

Fats are saturated or unsaturated based on the presence of multiple bonds.

Unsaturated fats are more reactive, and have a shorter shelf-life. Ever smelled rancid oil? Demo:



Saturated fats react slower: used in foods that can be preserved for a long time.

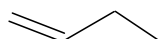
### Naming Alkenes & Alkynes

Naming rules are similar to alkanes:

1. Number carbon atoms of parent chain, starting closest to a multiple bond.
2. Include the first carbon of multiple bond in name.
3. Hydrocarbons with double bonds end in *ene*.

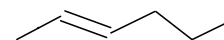
Those with triple bonds end in *yne*.

Ex: is 1-butene.



### 2. Guided Example

Name the following:



6 carbon chain with double bond = hexene  
Bond on second carbon = 2-hexene

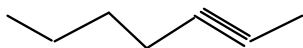
What's the formula?



## Chem Unit 7.2 Notes - Alkenes, -ynes

### 3. Example

Name this, and determine the formula:



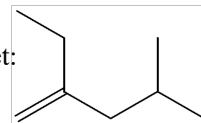
7 carbons; one triple bond on 2<sup>nd</sup> carbon:  
2 - heptyne.

Formula:  $C_7H_{12}$ .

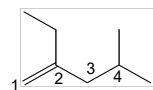
### Naming Branched Alkenes/Alkynes

Parent chain must contain pi bond, and is numbered from the end closest to that bond.

Add, and name this in your Booklet:



Parent chain has 5 carbon atoms and double bond: 1-pentene.

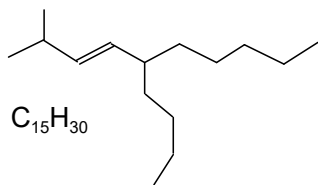


Side groups (alphabetically): ethyl on 2<sup>nd</sup> carbon, methyl at 4<sup>th</sup>.

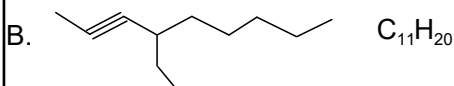
Name: 2-ethyl-4-methyl-1-pentene.

### 4. Examples

A. Draw 5-butyl-2-methyl-3-decene and determine the formula



B. Draw 4-ethyl-2-nonyne and determine the formula



### Homework

7.2 Problems in your Booklet  
Due next class.