

# Alkenes and Alkynes

## Naming Alkenes

- These are straight open chains of hydrogen and carbon made up of at least one carbon-carbon **double bonds**.
- Alkenes are considered to be unsaturated.

## IUPAC Names

Examples:

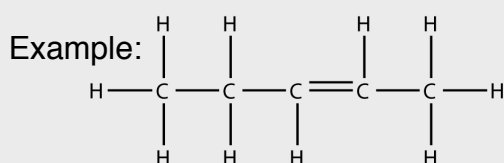


- The general formula for the series is



## Naming Alkenes

- 1) Identify the base number of carbons.
- 2) Use the appropriate IUPAC prefix with the ending 'ene.'
- 3) Use numbers to identify the location(s) of the double bonds. Number the carbon so that the double bond has the lowest possible number. This takes precedence over the need to get the lowest possible side chain. The number will appear directly before the 'ene' suffix separated by hyphens.
- 4) Name any additional side chains as you would in an alkane.



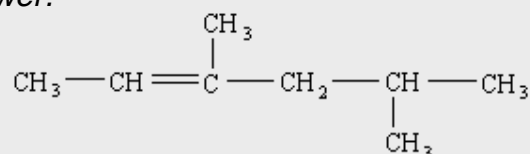
Answer: pent-2-ene

## Alkenes

- 1) Start by drawing the base chain. Draw the number of carbons as indicated by the prefix.
- 2) Add the double bond as indicated by the number before 'ene.'
- 3) Add any side chains as indicated.
- 4) Saturate the remaining carbons with hydrogen.

Example: 3,5-dimethylhex-2-ene

Answer:



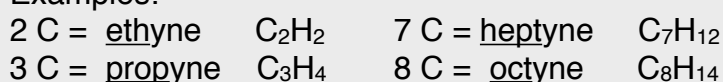
## Drawing

## Naming Alkynes

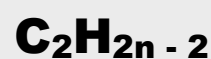
- These are straight open chains of hydrogen and carbon made up of at least one carbon-carbon **triple bonds**.
- Alkynes are considered to be unsaturated.

## IUPAC Names

Examples:



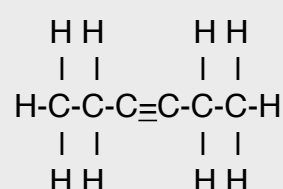
- The general formula for the series is



## Naming Alkynes

- 1) Identify the base number of carbons.
- 2) Use the appropriate IUPAC prefix with the ending 'yne.'
- 3) Use numbers to identify the location(s) of the triple bonds. Number the carbon so that the double bond has the lowest possible number. This takes precedence over the need to get the lowest possible side chain. The number will appear directly before the 'yne' suffix separated by hyphens.
- 4) Name any additional side chains as you would in an alkane.

Example:

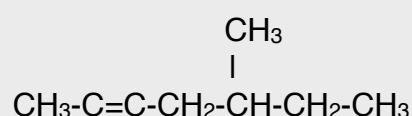


## Alkynes

- 1) Start by drawing the base chain. Draw the number of carbons as indicated by the prefix.
- 2) Add the triple bond as indicated by the number before 'yne.'
- 3) Add any side chains as indicated.
- 4) Saturate the remaining carbons with hydrogen.

Example: 5-methylhept-2-yne

Answer:



## Drawing