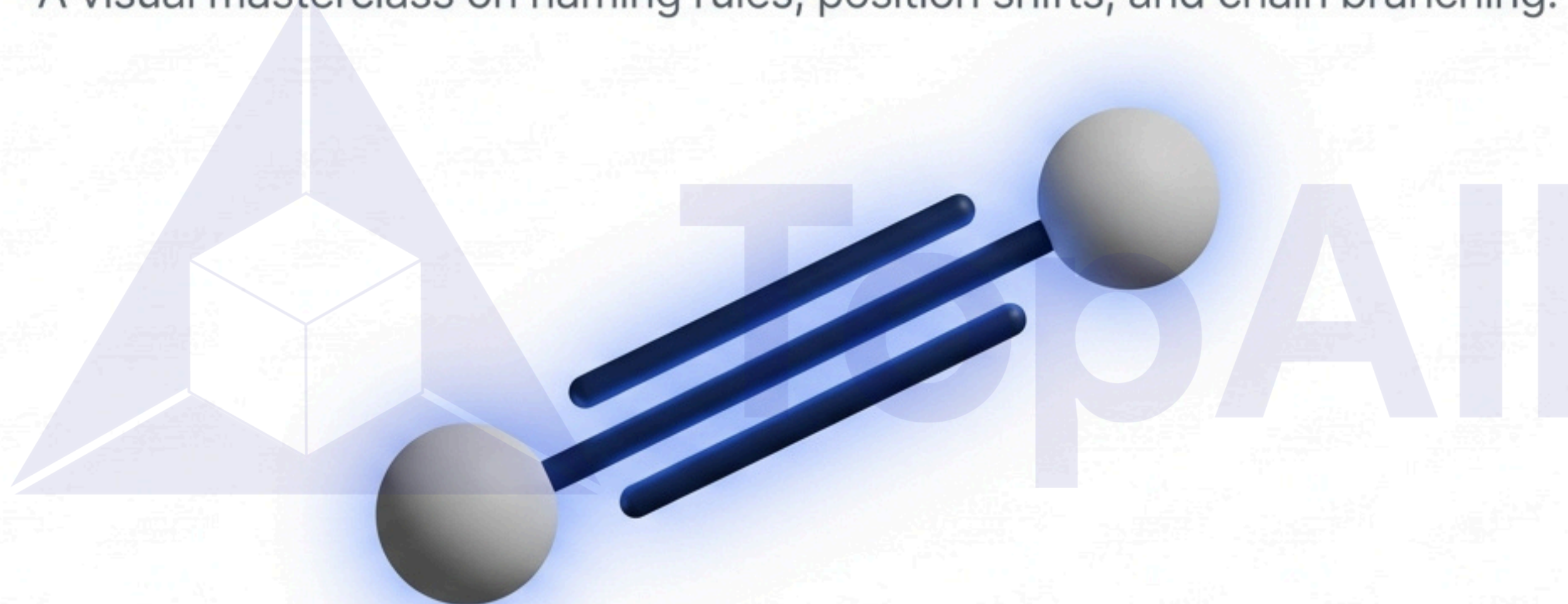


IUPAC NOMENCLATURE & STRUCTURAL RULES

Nomenclature and Isomerism of Alkynes

A visual masterclass on naming rules, position shifts, and chain branching.

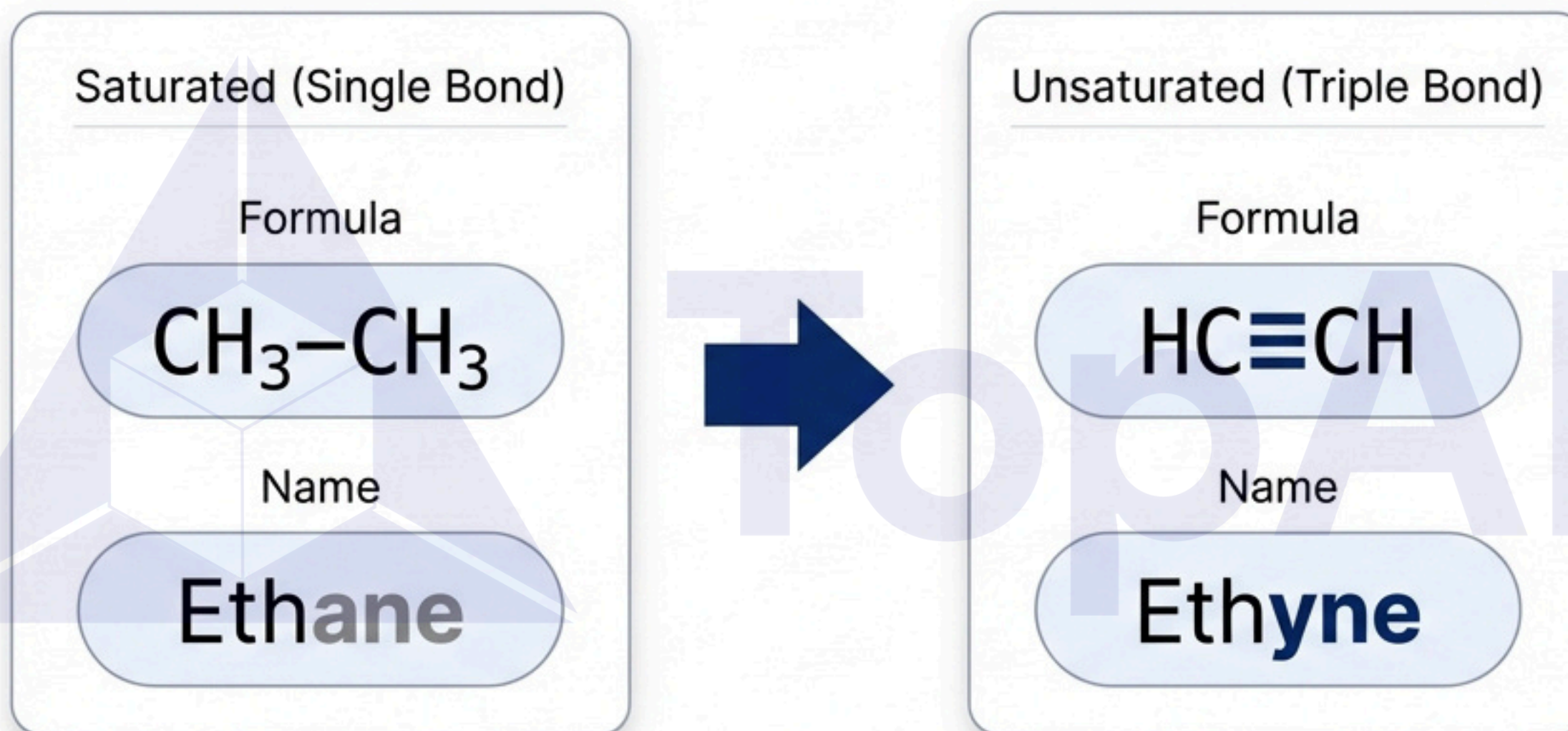


[Class 11 Chemistry]

[Exam Summary]

[Algorithmic Approach]

The Suffix Rule: Replace “ane” with “**yne**”



Alkynes are named as derivatives of their corresponding alkanes. The suffix -yne instantly communicates the presence of at least one $\text{C}\equiv\text{C}$ triple bond.

The Numbering Rule: Prioritize the Triple Bond

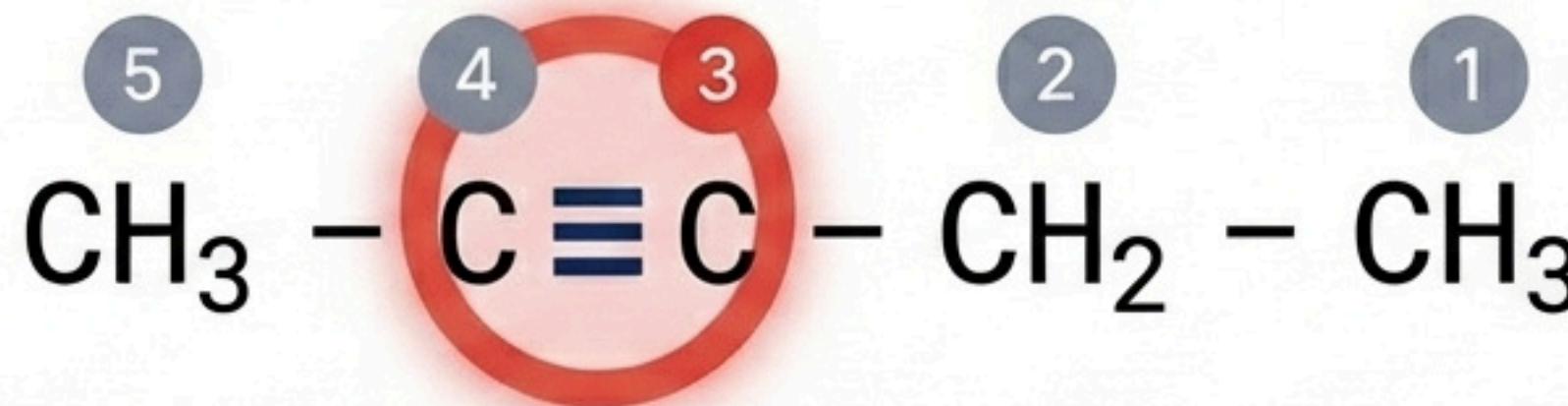
Number the longest continuous carbon chain from the end that gives the first triply bonded carbon the lowest possible locant (number).



[Correct: **Pent-2-yne**]



[Incorrect: **Pent-3-yne**]





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$$E=mc^2$$



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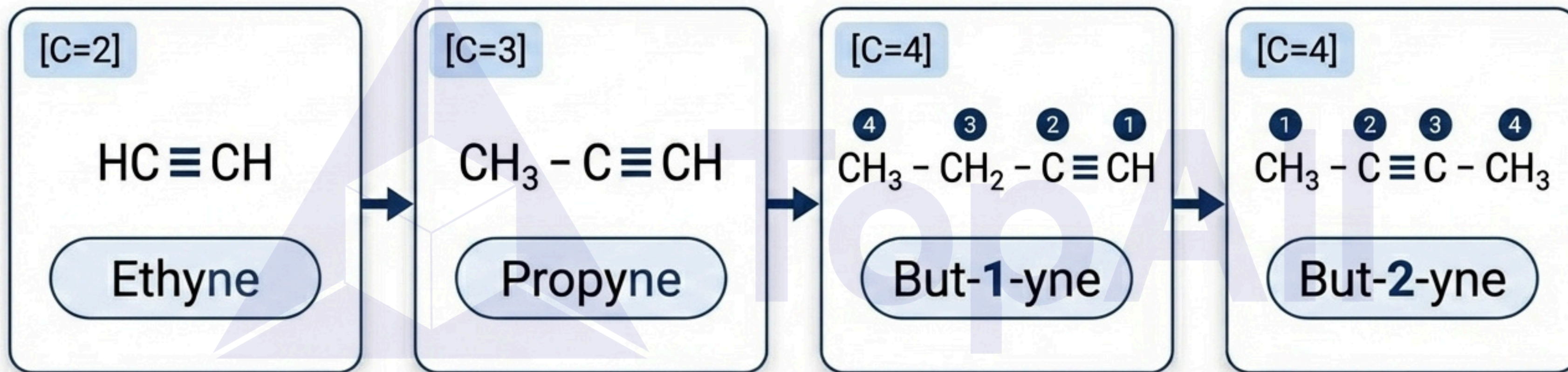
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Example Series: Building Complexity



No number needed,
position is always 1

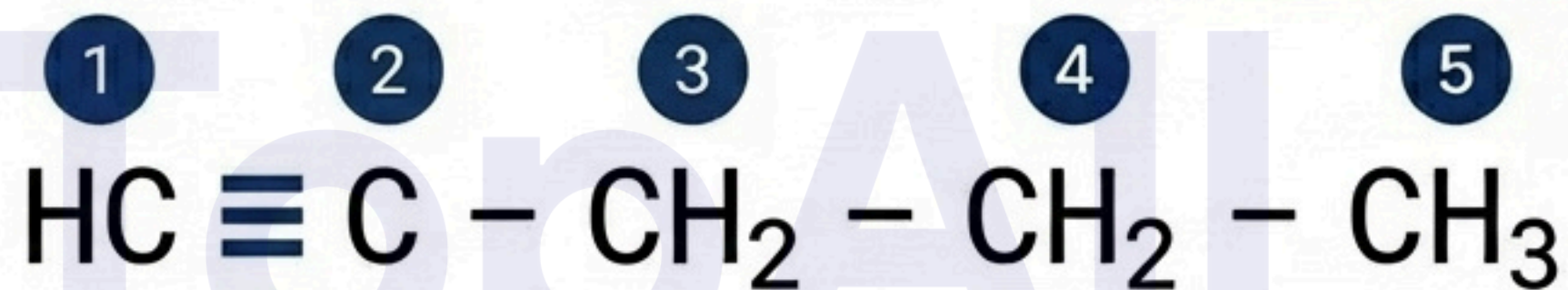
Notice how **locants (numbers) become mandatory** starting at 4 carbons (Butyne) because positional ambiguity arises.

Position Isomerism: Moving the Bond

Position isomers share the same molecular formula and identical carbon chains, but the triple bond occupies a different position.

[Formula: C₅H₈]

Pent-1-yne



[Formula: C₅H₈]

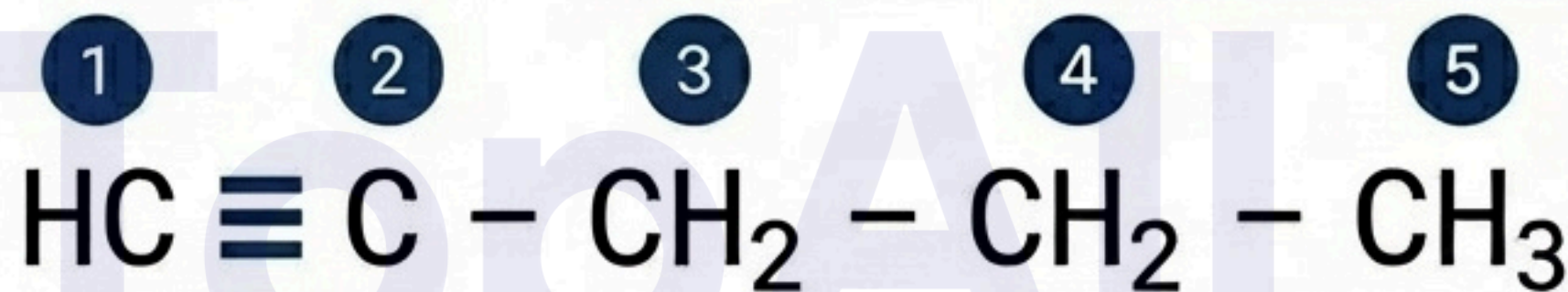
Pent-2-yne



Chain Isomerism: Branching the Spine

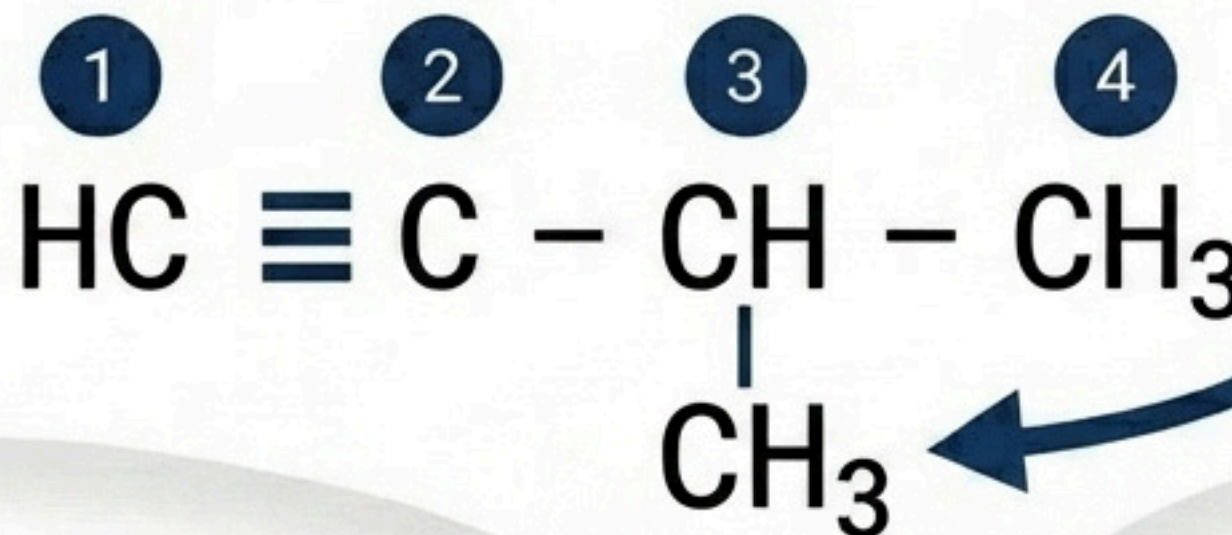
Chain isomers share the same molecular formula, but the arrangement of the carbon skeleton (continuous vs. branched) differs.

Pent-1-yne
(Continuous Chain)



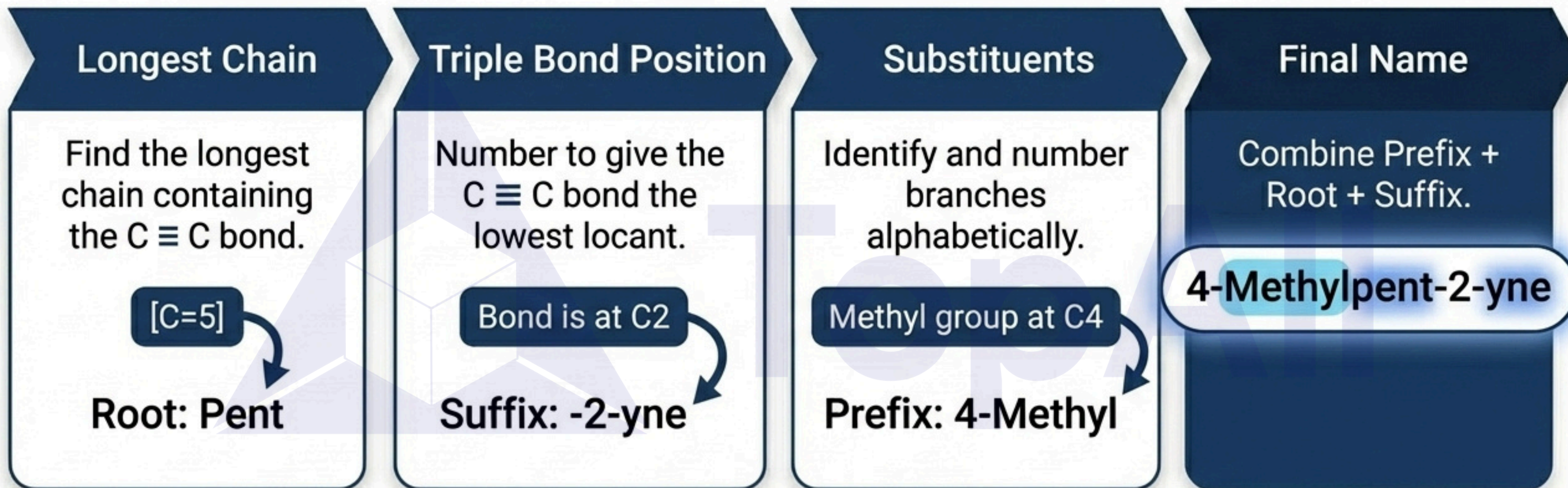
[Formula: C_5H_8]

3-Methylbut-1-yne
(Branched Chain)



[Formula: C_5H_8]

The IUPAC Alkyne Algorithm



Exam Recap

Always prioritize the lowest number for the triple bond over alkyl substituents.



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