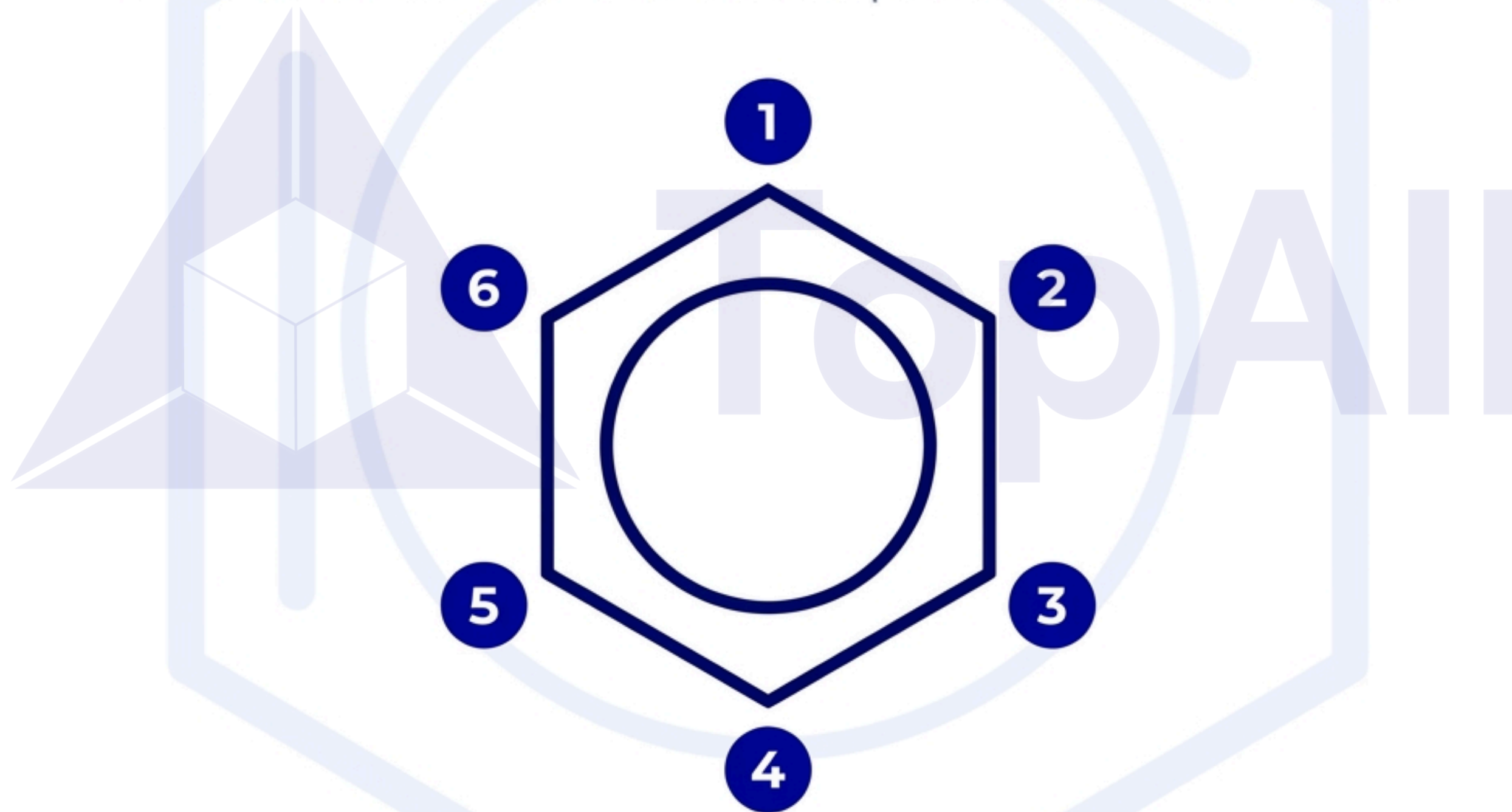


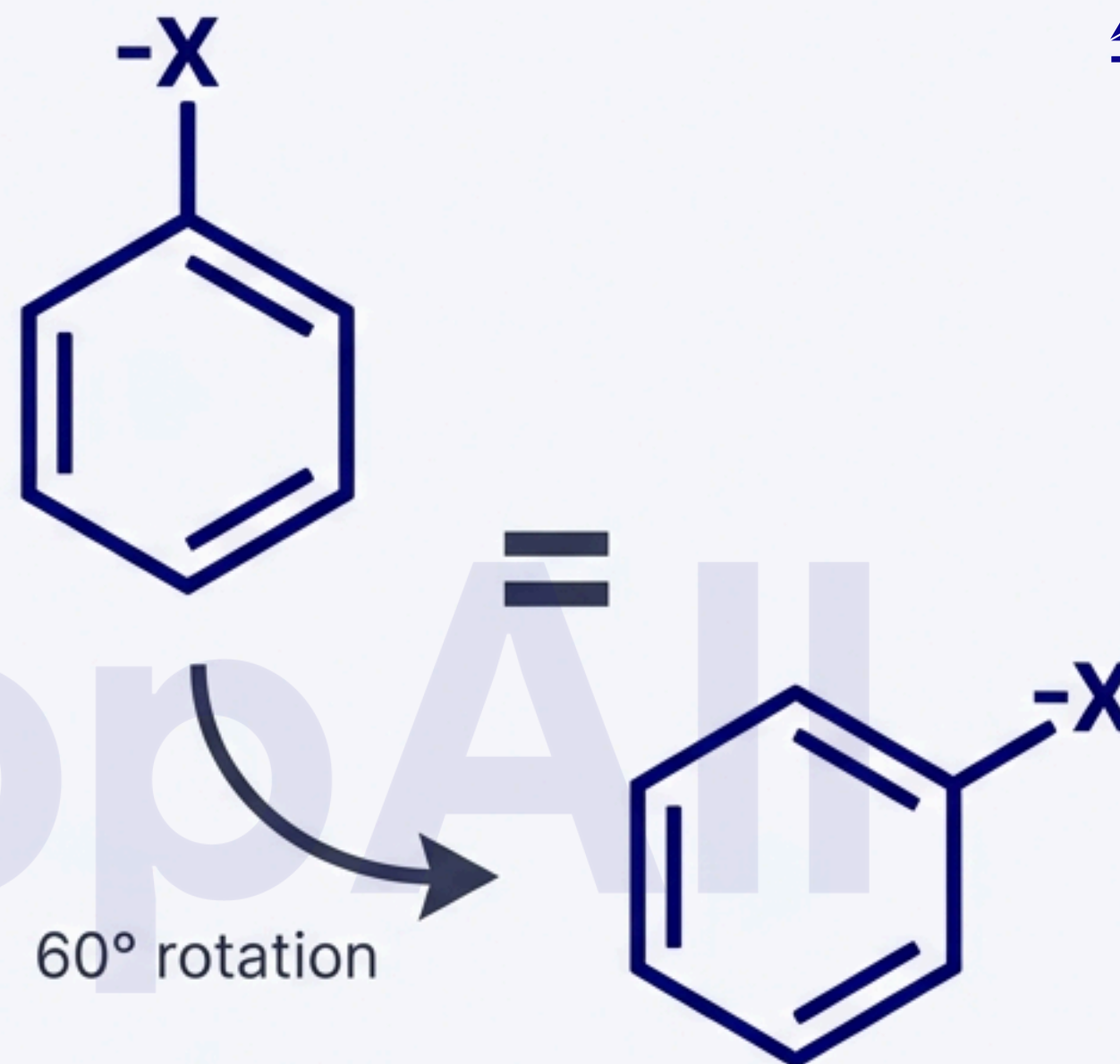
Ortho, Meta & Para

Benzene Position Isomerism | **CONCEPT 19 — 9.5.1**



Monosubstitution: The Illusion of Choice

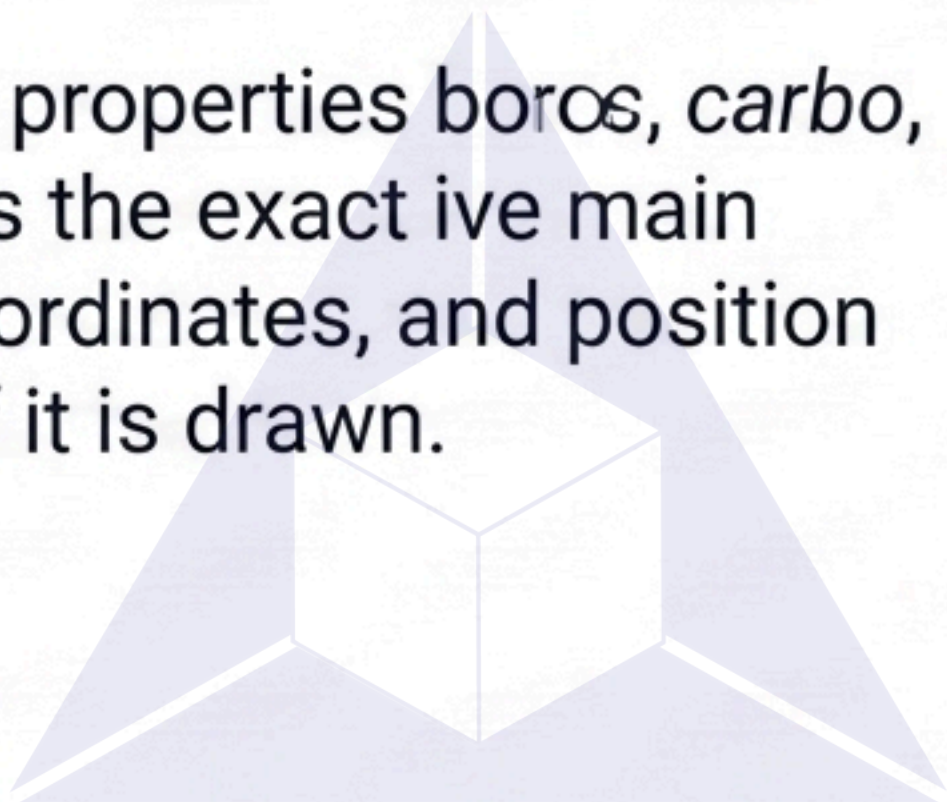
Benzene is perfectly symmetrical. All six hydrogen atoms are chemically and spatially equivalent. Introducing one substituent creates only one type of derivative, regardless of where it is drawn.



Important Learning: Position isomerism only begins when a second substituent is added.

Ortho Isomerism

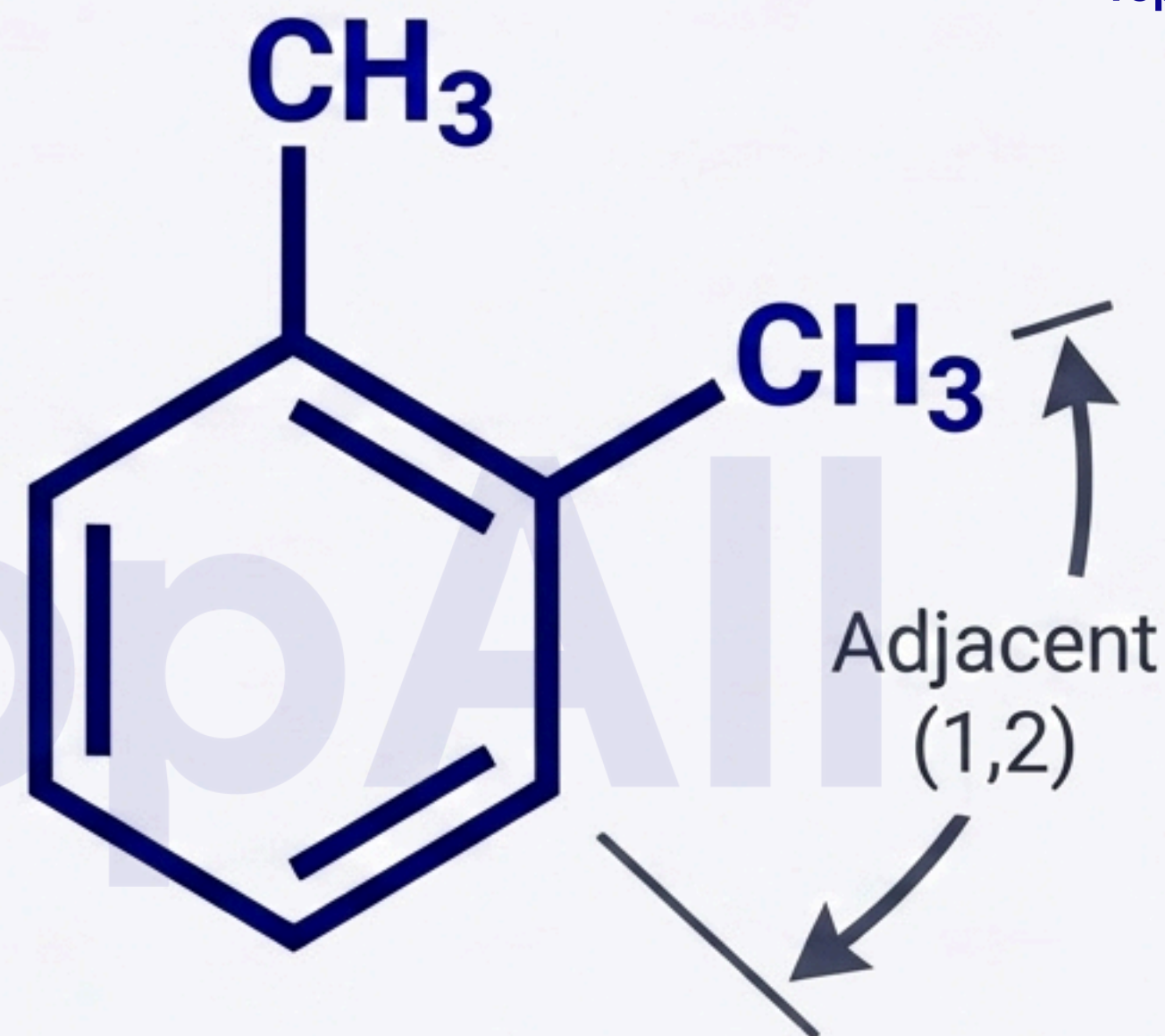
Structural properties boros, carbo, benzene is the exact ive main spatial coordinates, and position and are of it is drawn.



Structural properties

Condition: 1,2-disubstituted benzene

Prefix: **o-**



o-xylene



**You've Learned the Theory.
Let's Test Them Now.**

$$E=mc^2$$



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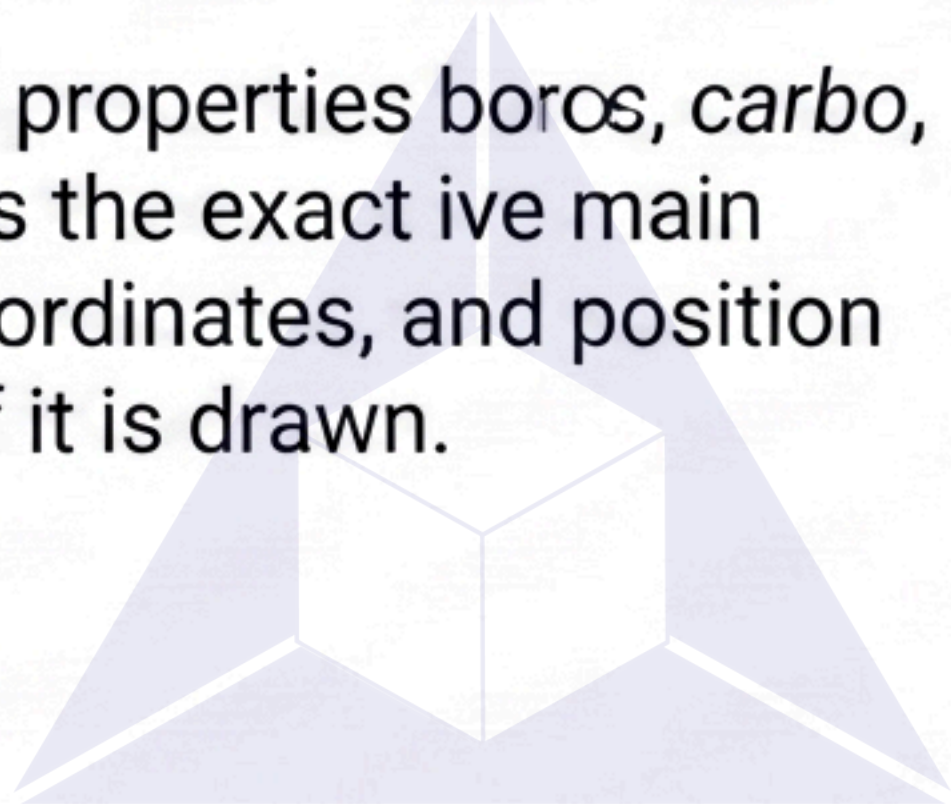
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- » Push Your Limits with Level-Based Challenges
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Meta Isomerism

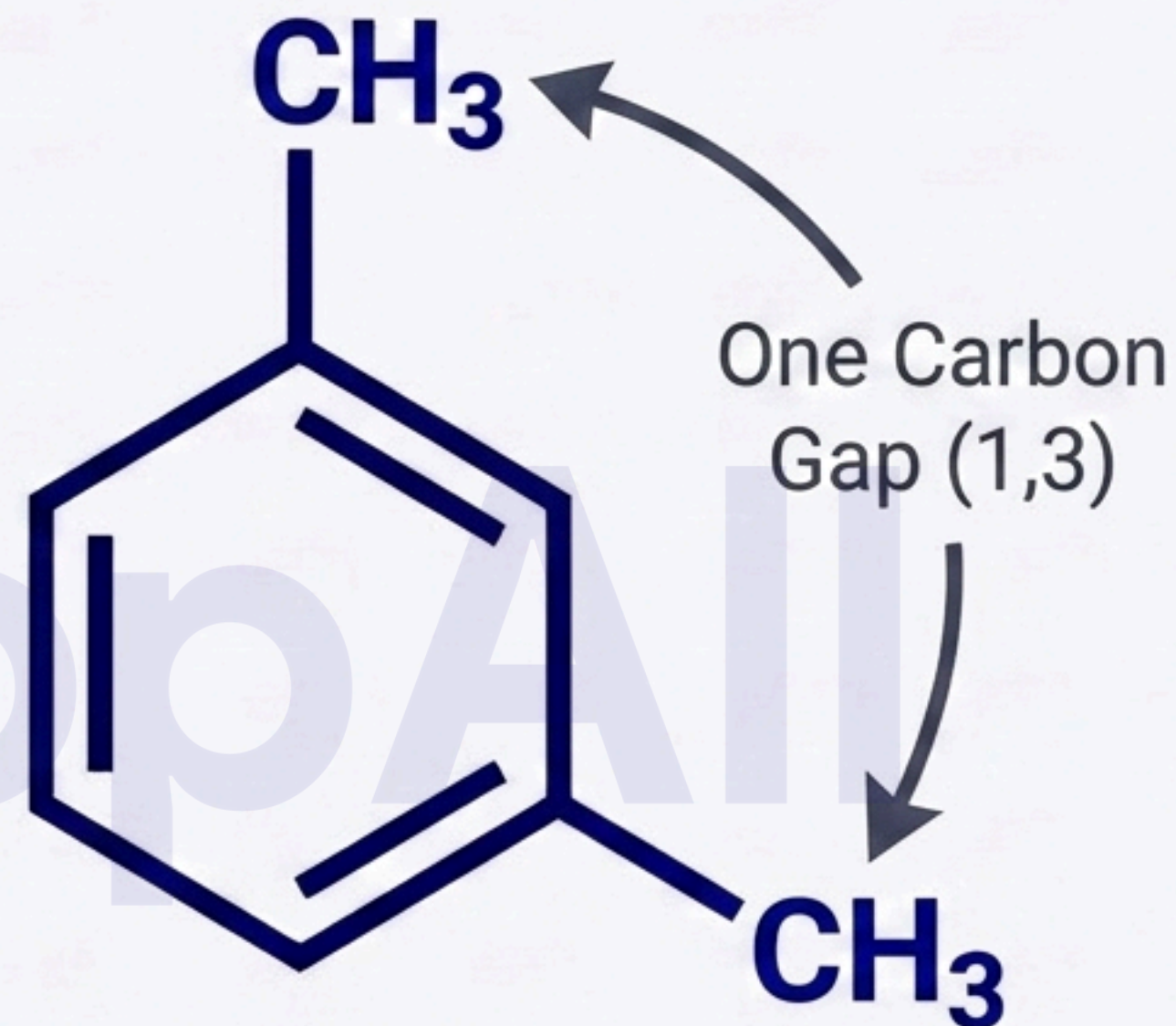
Structural properties boros, carbo, benzene is the exact ive main spatial coordinates, and position and are of it is drawn.



Structural properties

Condition: 1,3-disubstituted benzene

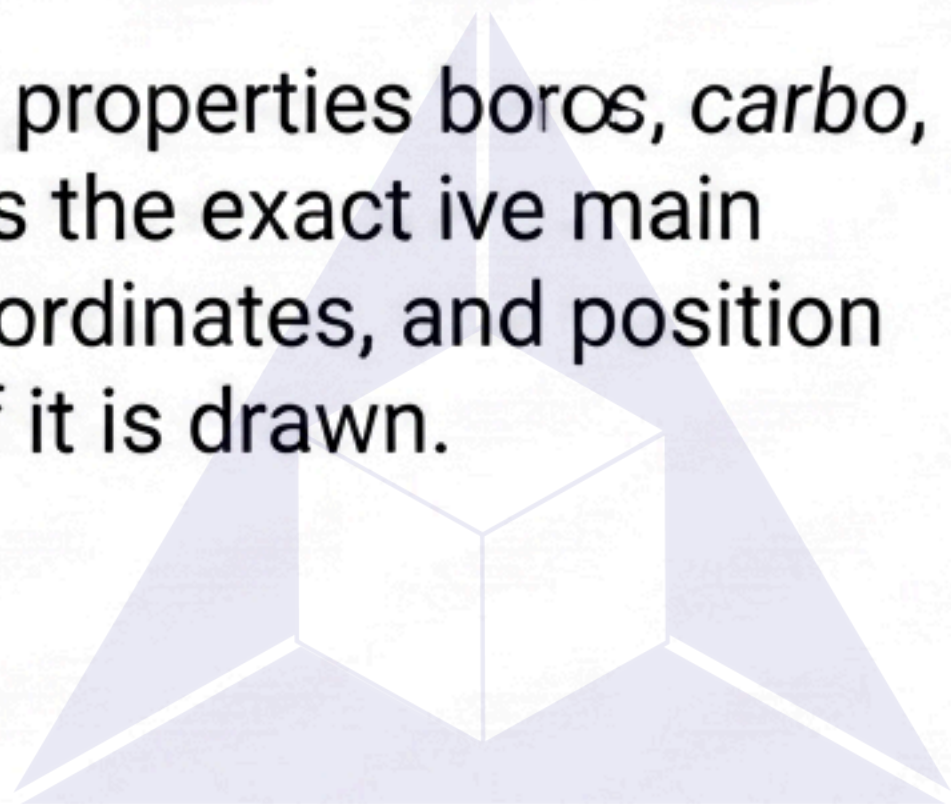
Prefix: ***m***-



m-xylene

Para Isomerism

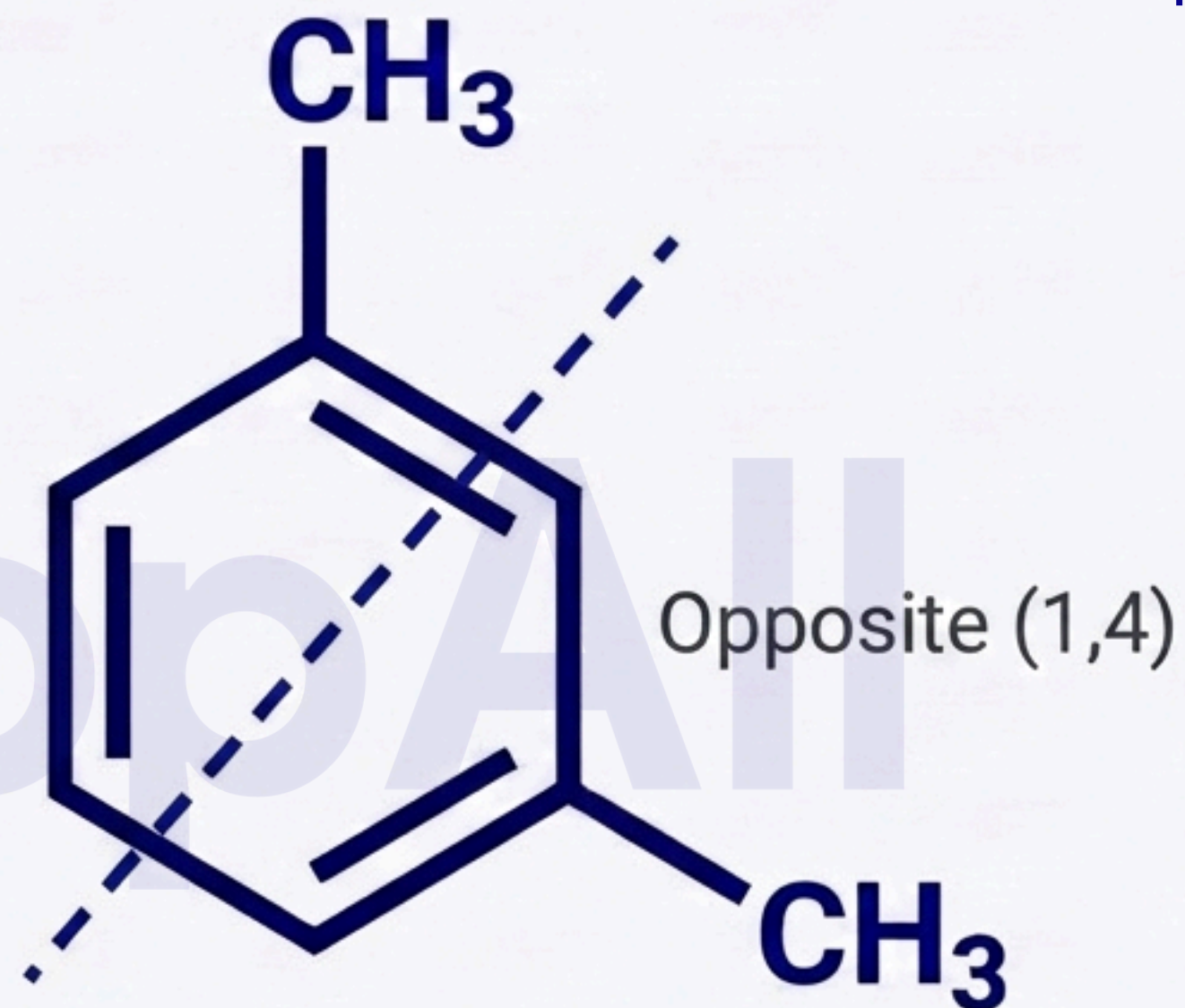
Structural properties boros, carbo, benzene is the exact ive main spatial coordinates, and position and are of it is drawn.



Structural properties

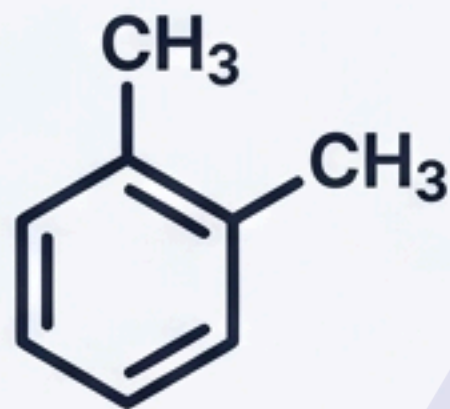
Condition: 1,4-disubstituted benzene

Prefix: ***p***-

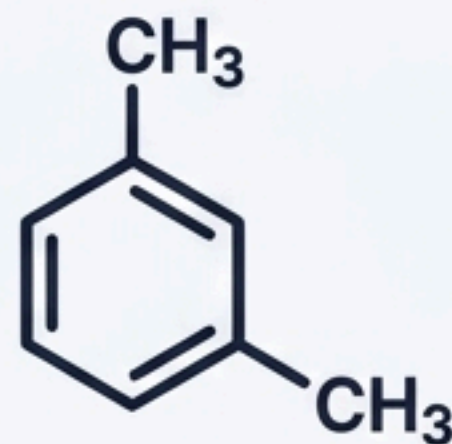


p-xylene

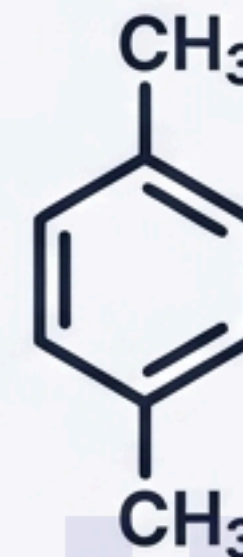
o- → Next door (1,2)



m- → One carbon gap (1,3)



p- → Opposite (1,4)

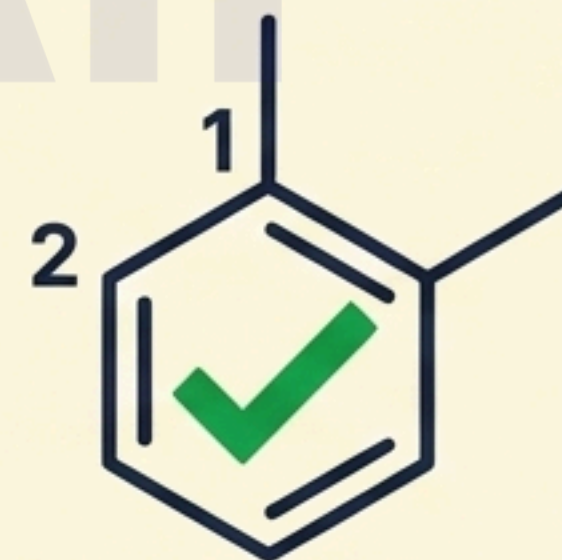


! JEE Trap: The Numbering Illusion

1,6 is NOT a new isomer.

Due to lowest locant rules, 1,6 is chemically identical to 1,2 (ortho).

Similarly, 1,5 $\equiv$ 1,3 (meta).



1,6 $\equiv$ 1,2 (ortho)



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