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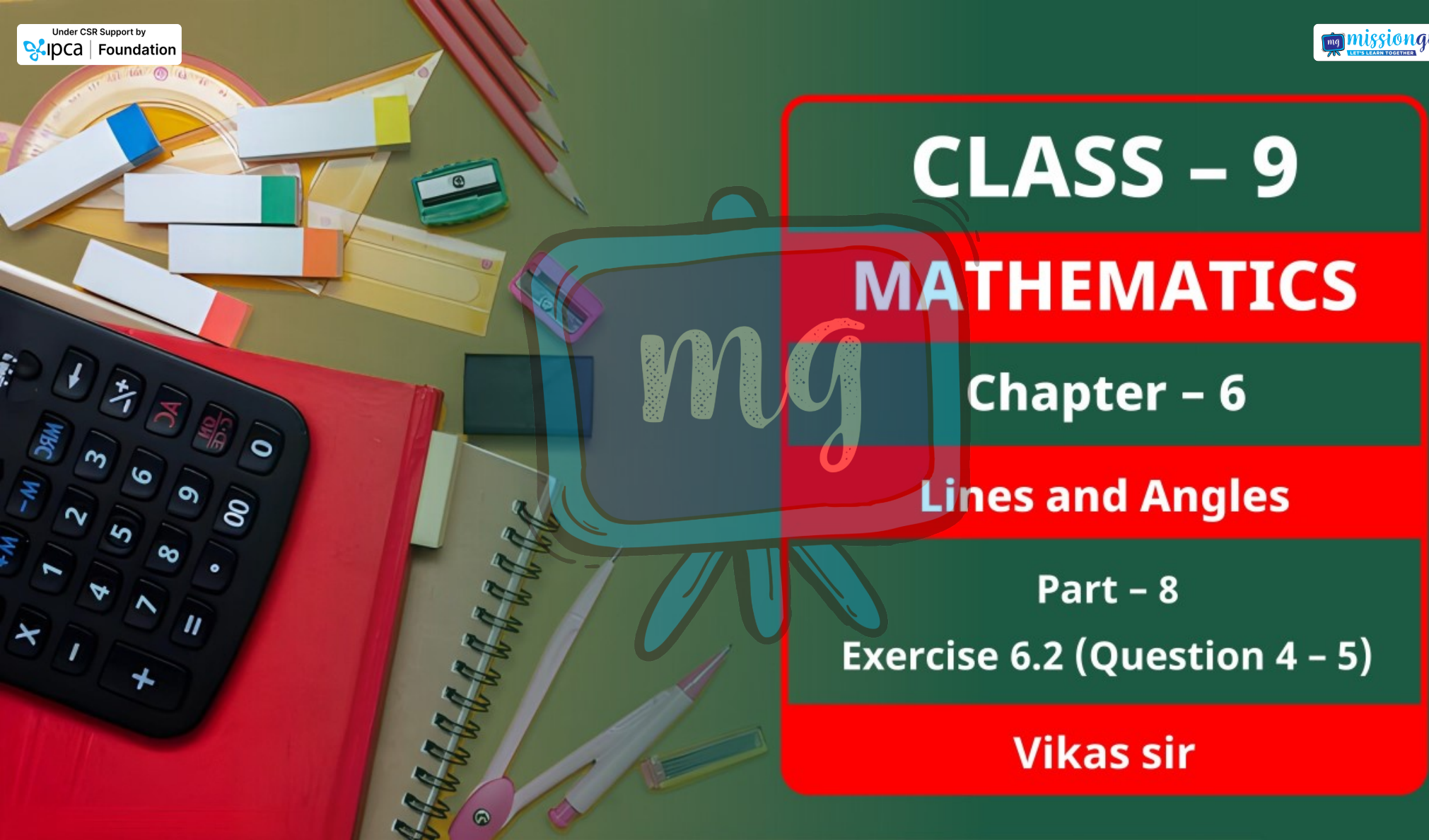

CLASS – 9

MATHEMATICS

Chapter – 6

Lines and Angles

Part – 8

Exercise 6.2 (Question 4 – 5)

Vikas sir

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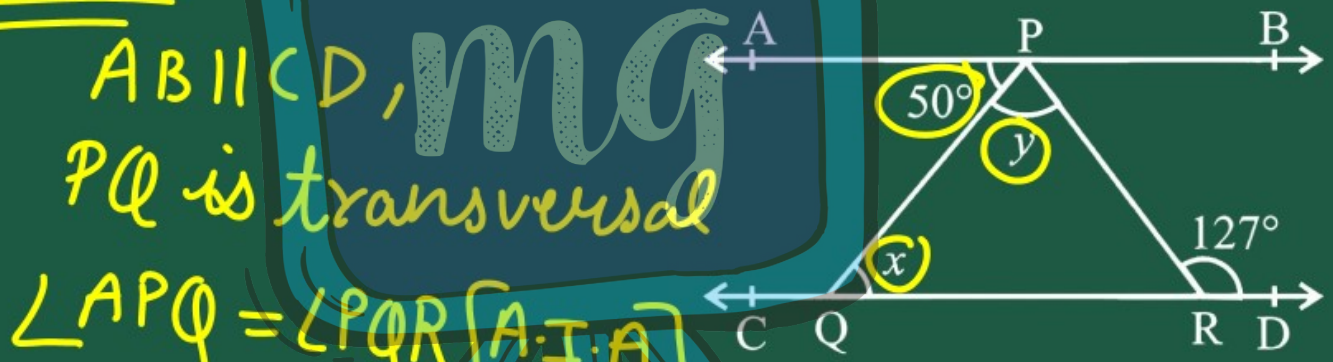
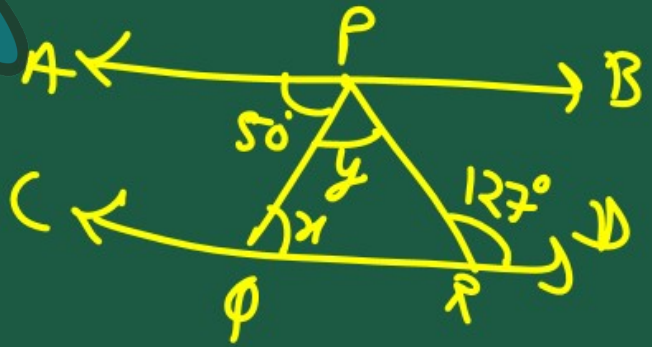
4. In Figure, if AB || CD, ∠APQ = 50° and ∠PRD = 127°, find x and y.



Since AB || CD, PQ is transversal

∠APQ = ∠PQR [A.I.A]

50° = x



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11y

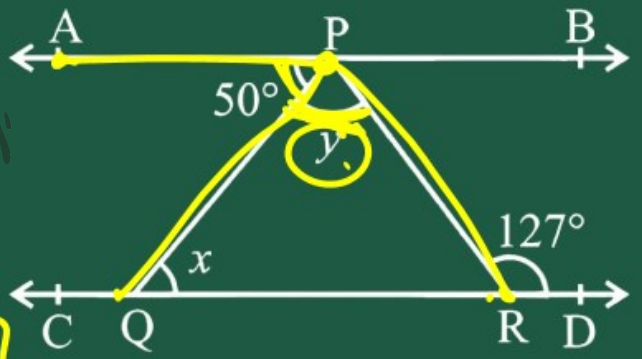
AB || CD, PR is transversal

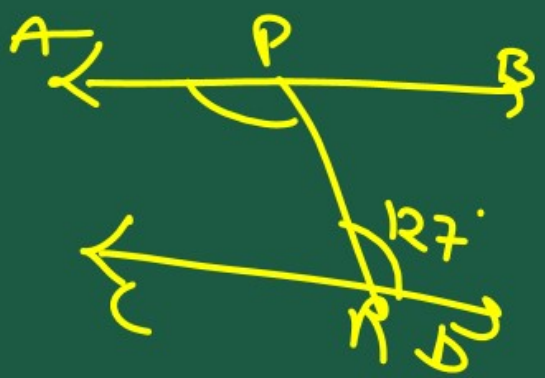
$\angle APR = \angle PRD$ [A.I.A]

If $\angle PRD = 127°$

$\angle APR = 127°$

Now $\angle APR = \angle APQ + \angle QPR$





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$\angle APQ + \angle QPR = \angle APR$

$50^\circ + y = 127^\circ$

$y = 127 - 50$

$y = 77^\circ$

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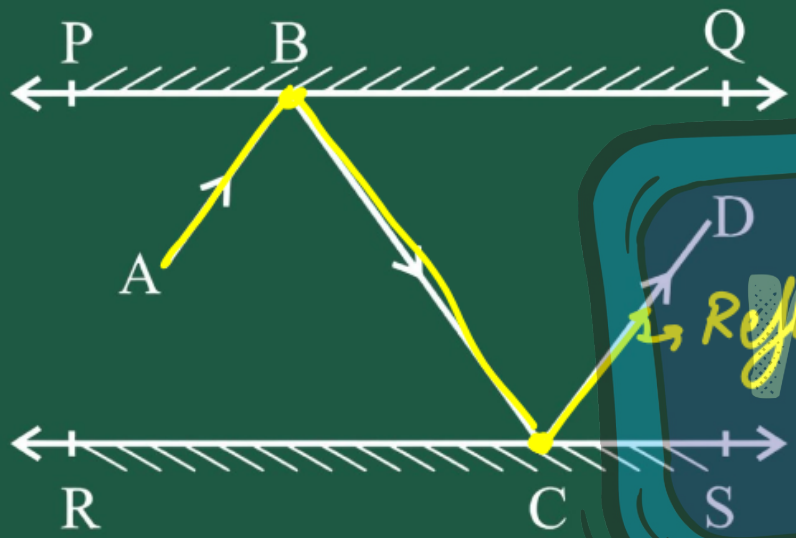

5. In Figure, PQ and RS are two mirrors placed parallel to each other. An incident ray AB strikes the mirror PQ at B, the reflected ray moves along the path BC and strikes the mirror RS at C and again reflects back along CD. Prove that AB || CD.

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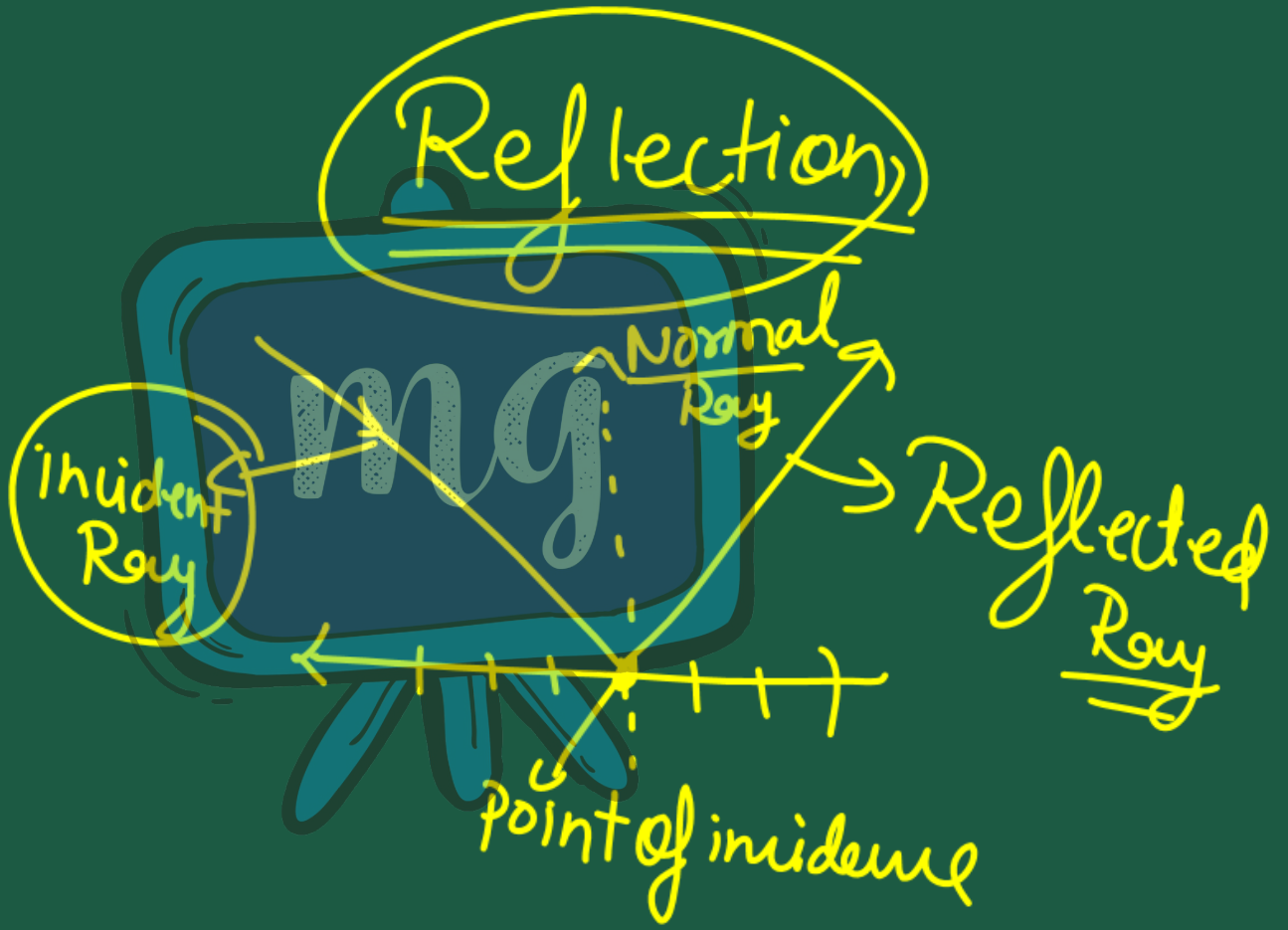

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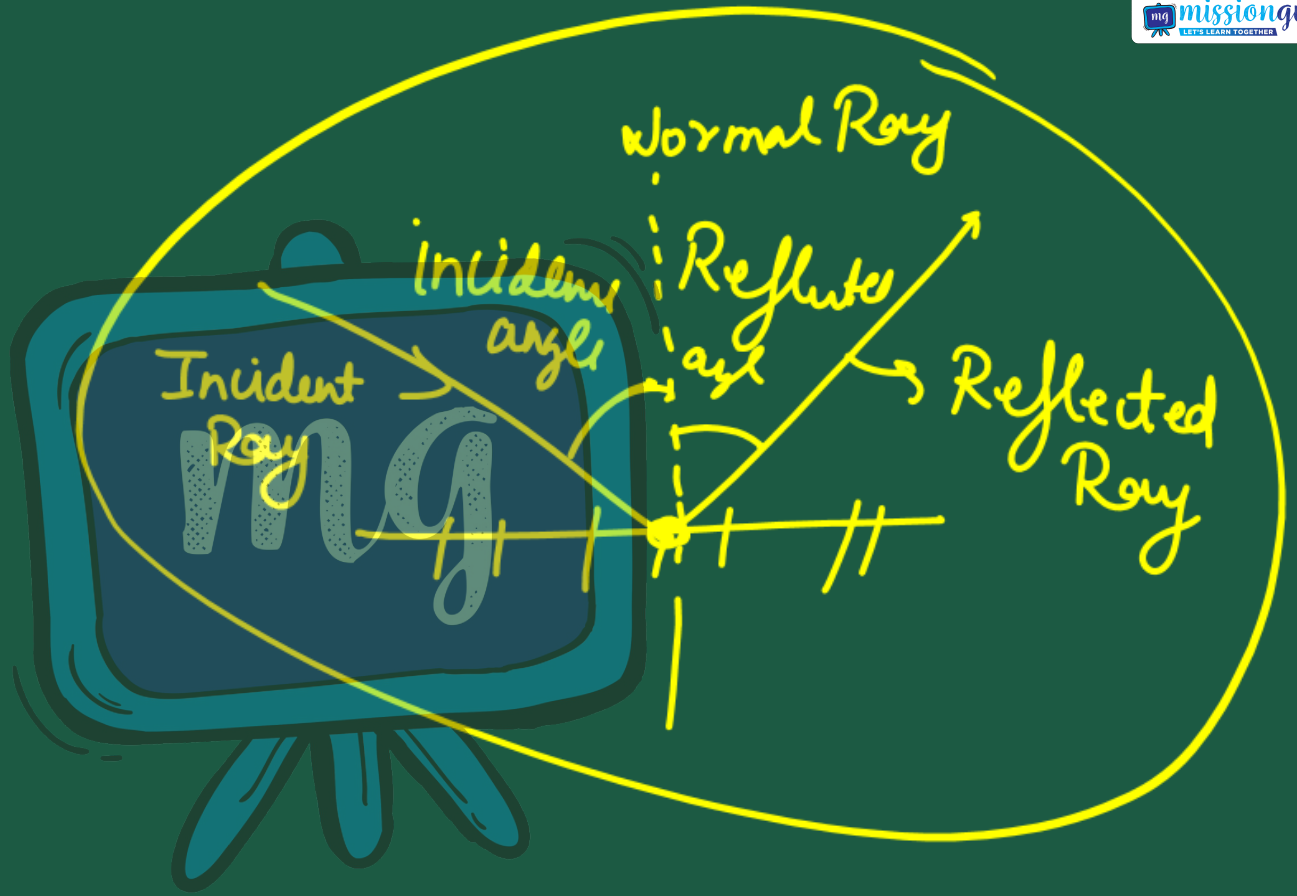

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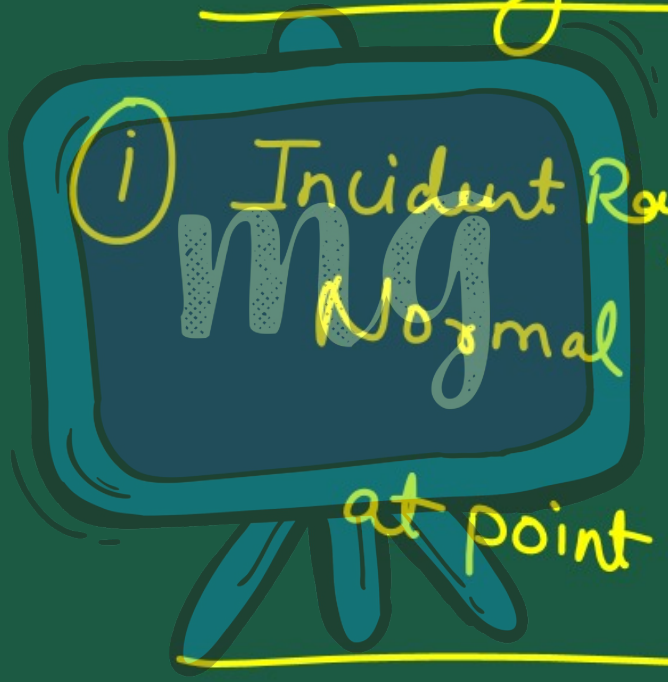
laws of Reflection



(i) Incident Ray, Reflected Ray, Normal all lie at the same plane at point of incidence

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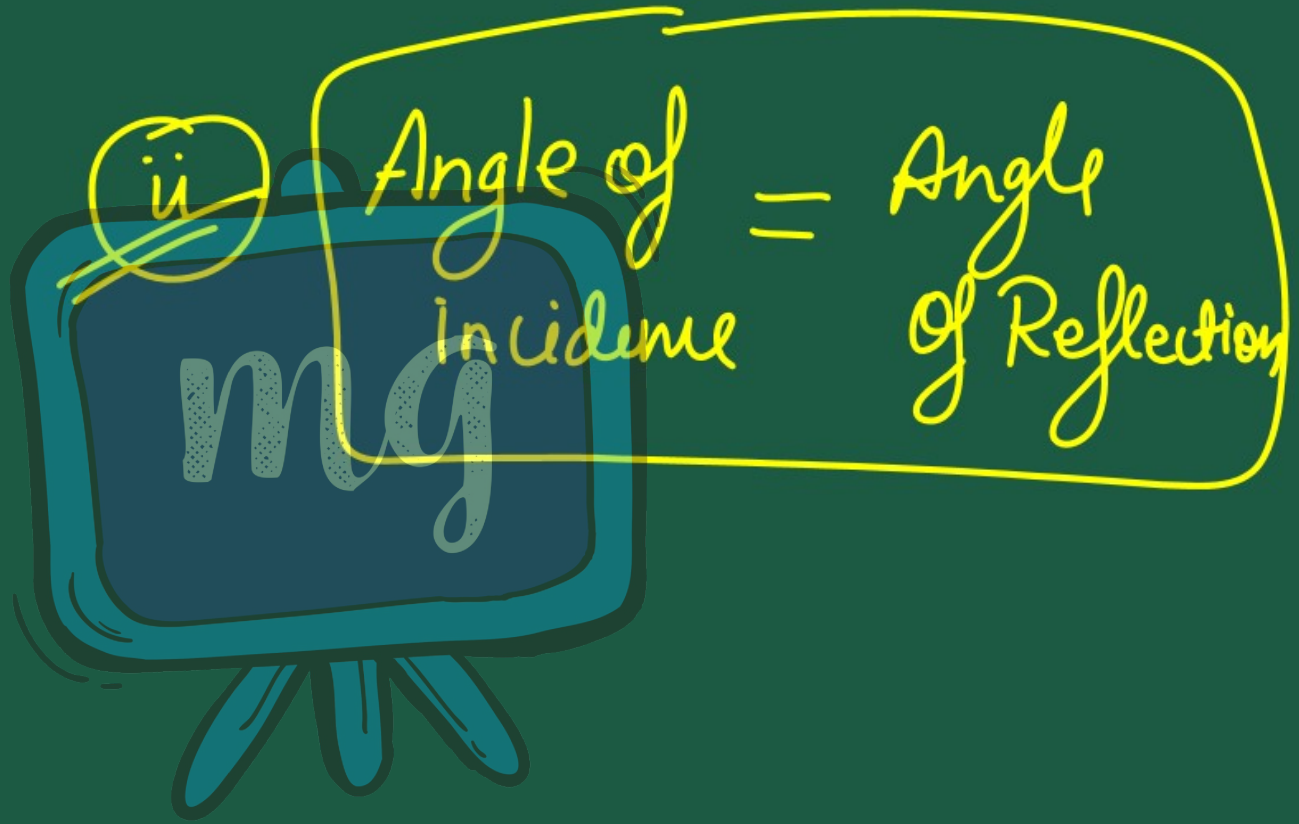

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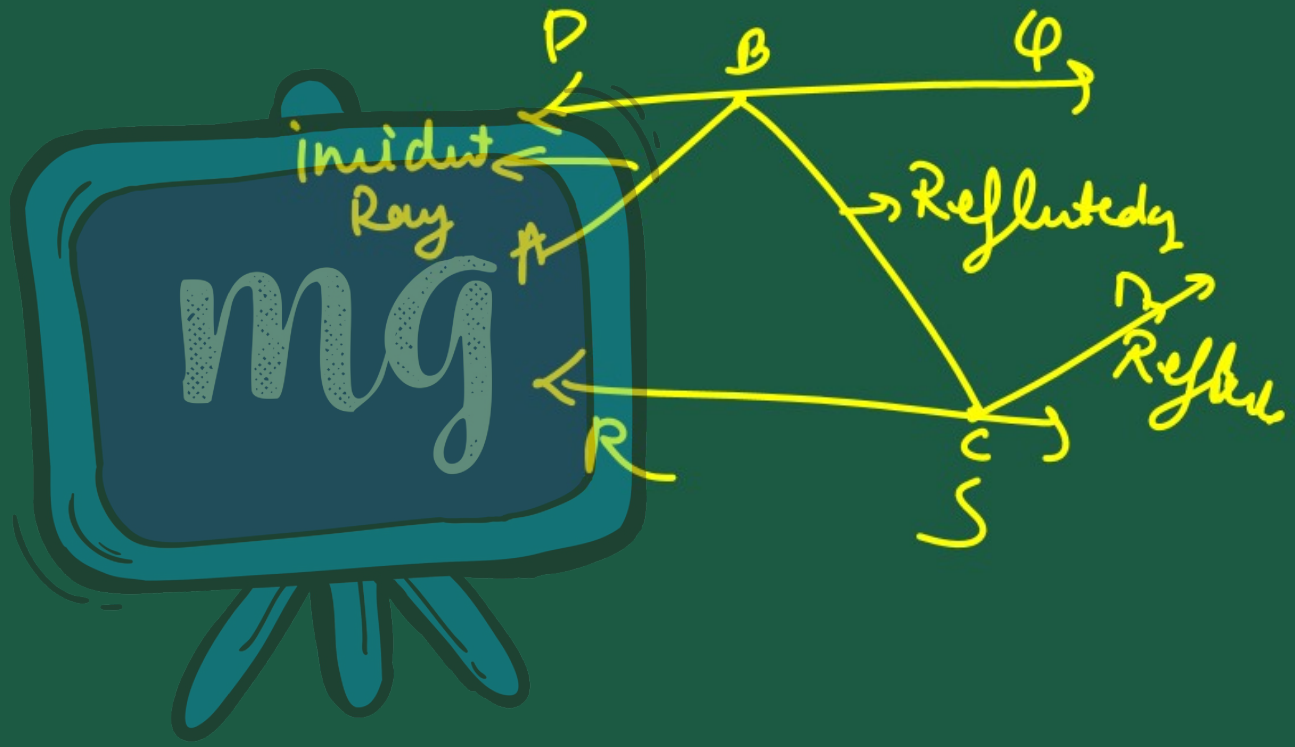

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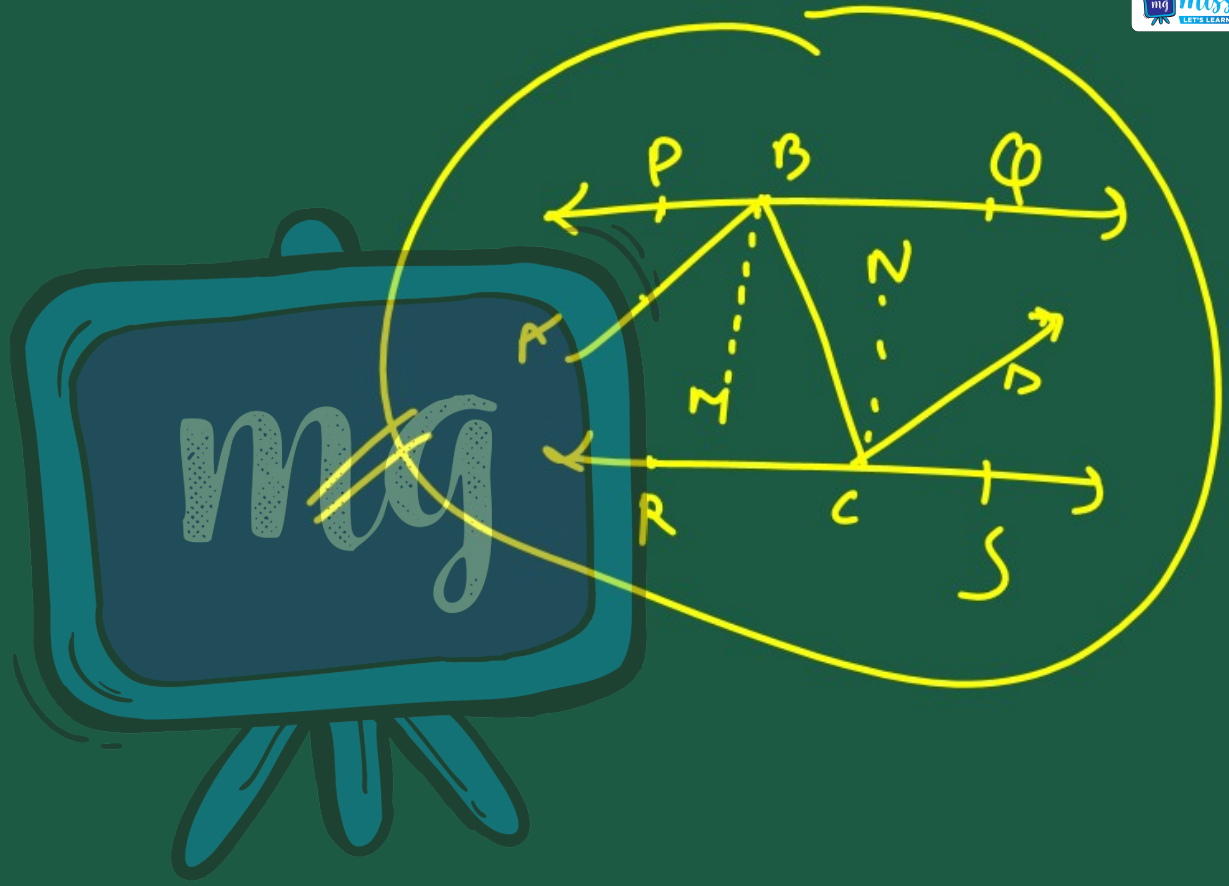

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Given:- PQ || RS

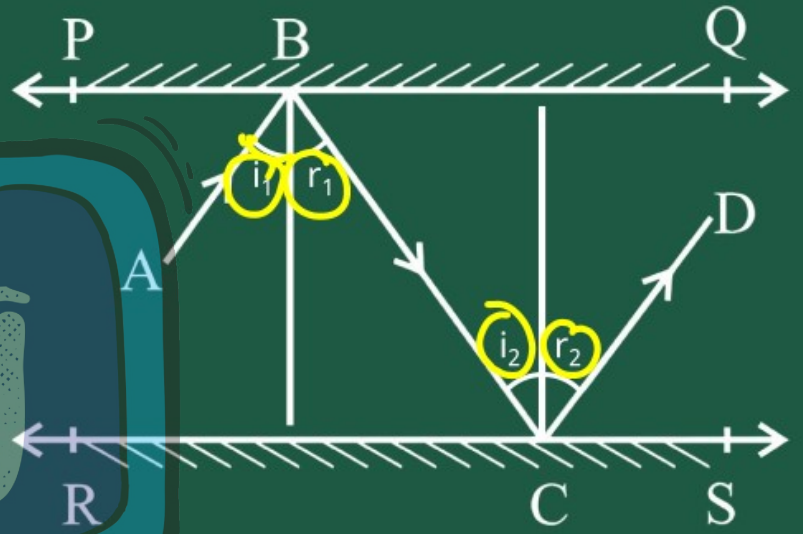
AB is incident Ray

& BC Reflected Ray

for mirror PQ

i_1 → angle of incidence

r_2 → angle of Reflection → for PQ mirror



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BC incident Ray

CD Reflected Ray for RS mirror

$\angle i_2 \rightarrow$ angle of incidence of RS

$\angle r_2 \rightarrow$ angle of Reflection for RSm

To prove $\rightarrow$ AB $\parallel$ CD

Constraction:$\rightarrow$ BM & LN are Normal to PQ & RS Resp.

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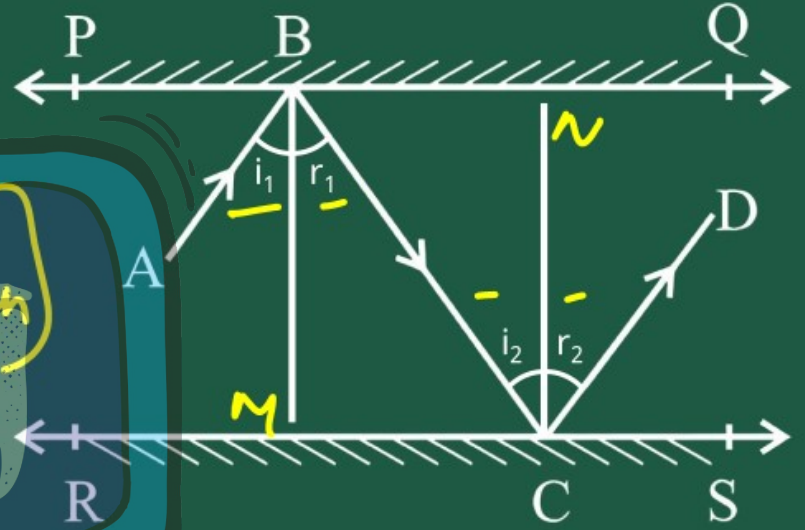
Soln: for PQ mirror

$i_1 = r_1$ [laws of Reflection]

$\therefore \quad i_1 = r_1 = \frac{\angle ABC}{2}$ — (1)



Ily for RS Mirror

$i_2 = r_2 = \frac{\angle BCD}{2}$ — (2)

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Given $PQ \parallel RS$

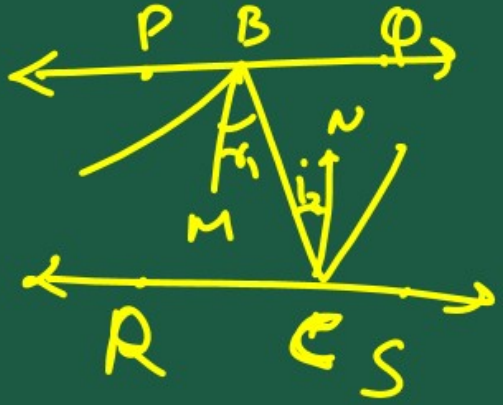
$BM \perp PQ$

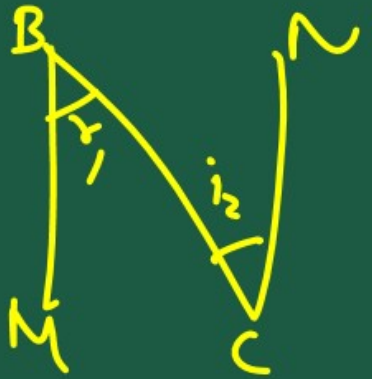
$CN \perp RS$

$\therefore$ $BM \parallel CN$,

BC is transversal

$r_1 = i_2$ [A-I-A]





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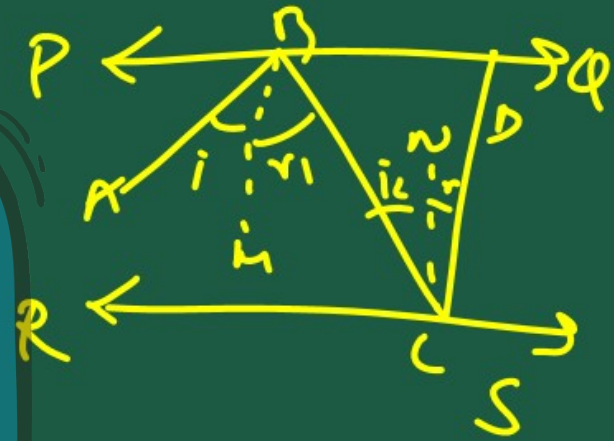
$r_1 = i_2$

$r_1 = \frac{\angle ABC}{2}$

$i_2 = \frac{\angle BCD}{2}$



$\angle ABC = \angle BCD$

$\angle ABC = \angle BCD$

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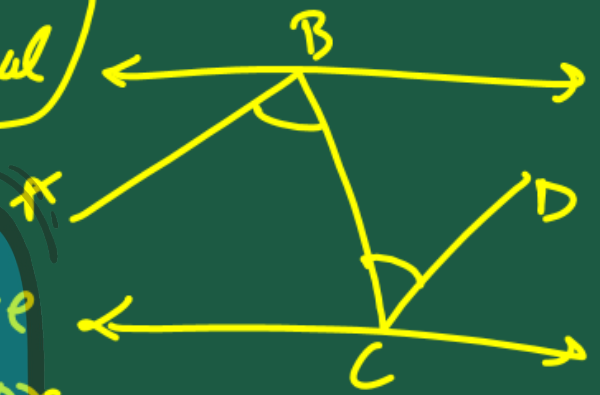
In AB, CD, BC is transversal



$\angle ABC$ and $\angle BCD$ → Alternate Interior Angles

$\angle ABC = \angle BCD$

$\therefore$ AB || CD