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CLASS – 9

MATHEMATICS

Chapter – 7

Triangles

Part –2

Example (1 to 3)

Vikas Saini

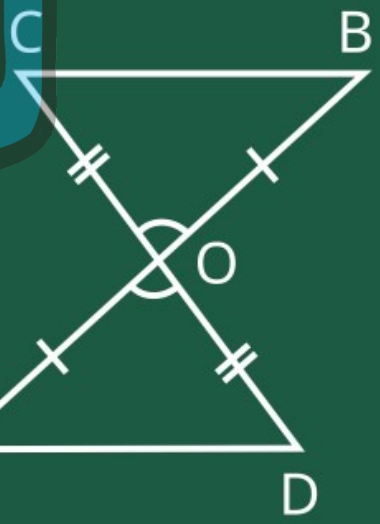
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Example : 1

In the figure, OA = OB and OD = OC. Show that

(i) $\triangle AOD \cong \triangle BOC$



Given :→

OA = OB

OC = OD

To prove :→

(i) $\triangle AOD \cong \triangle BOC$

(ii) AD || BC

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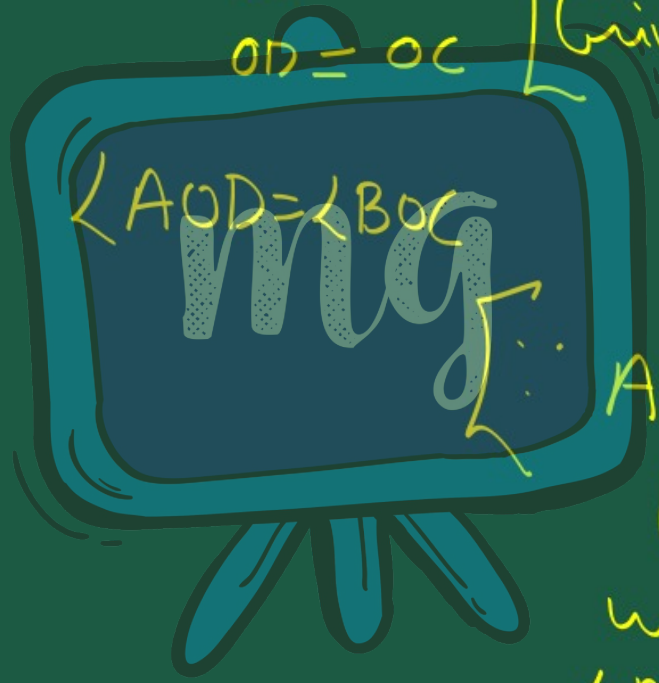
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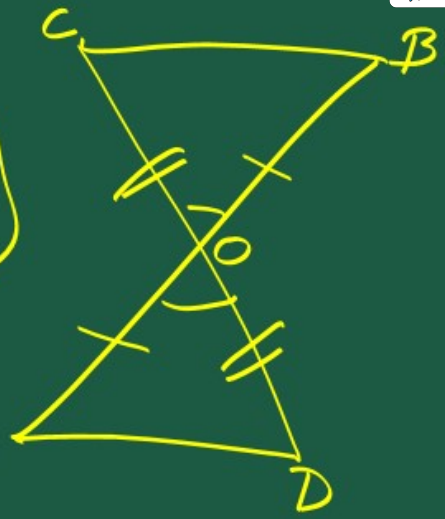
Sol:→ In $\triangle AOD$ & $\triangle BOC$

$OA = OB$

$OD = OC$ [Given]

$\angle AOD = \angle BOC$





∴ AB & CD are line segments which intersect at O point

$\angle AOD$ → V.O.A

$\angle BOC$

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In $\triangle AOD$ & $\triangle BOC$

$OA = OB$

$\angle AOD = \angle BOC$

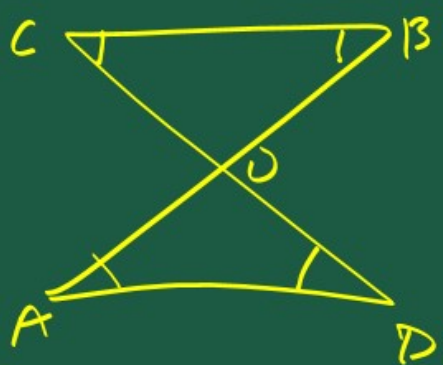
$OD = OC$

$\triangle AOD \cong \triangle BOC$ By SAS Rule

$\angle B = \angle A$

$\angle C = \angle D$

$AD = BC$



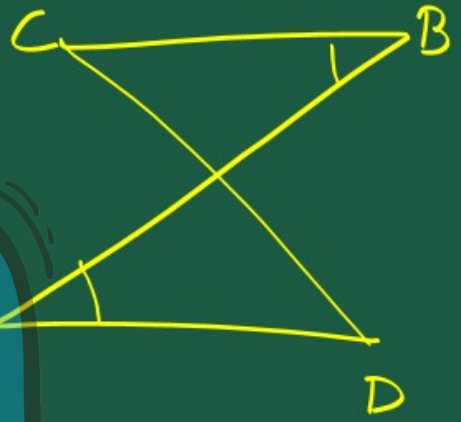
[Corresponding Part of Congruent $\triangle$ are Equal]

C.P.C.T.

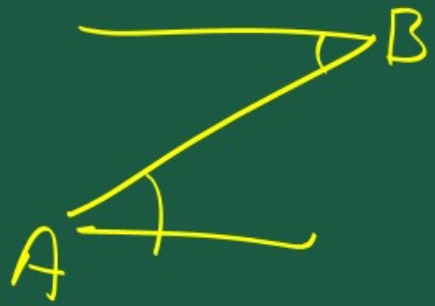
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Since AB is acting as transversal for AB ∠ CD



∴ CD is also acting transversal for AB ∠ CD



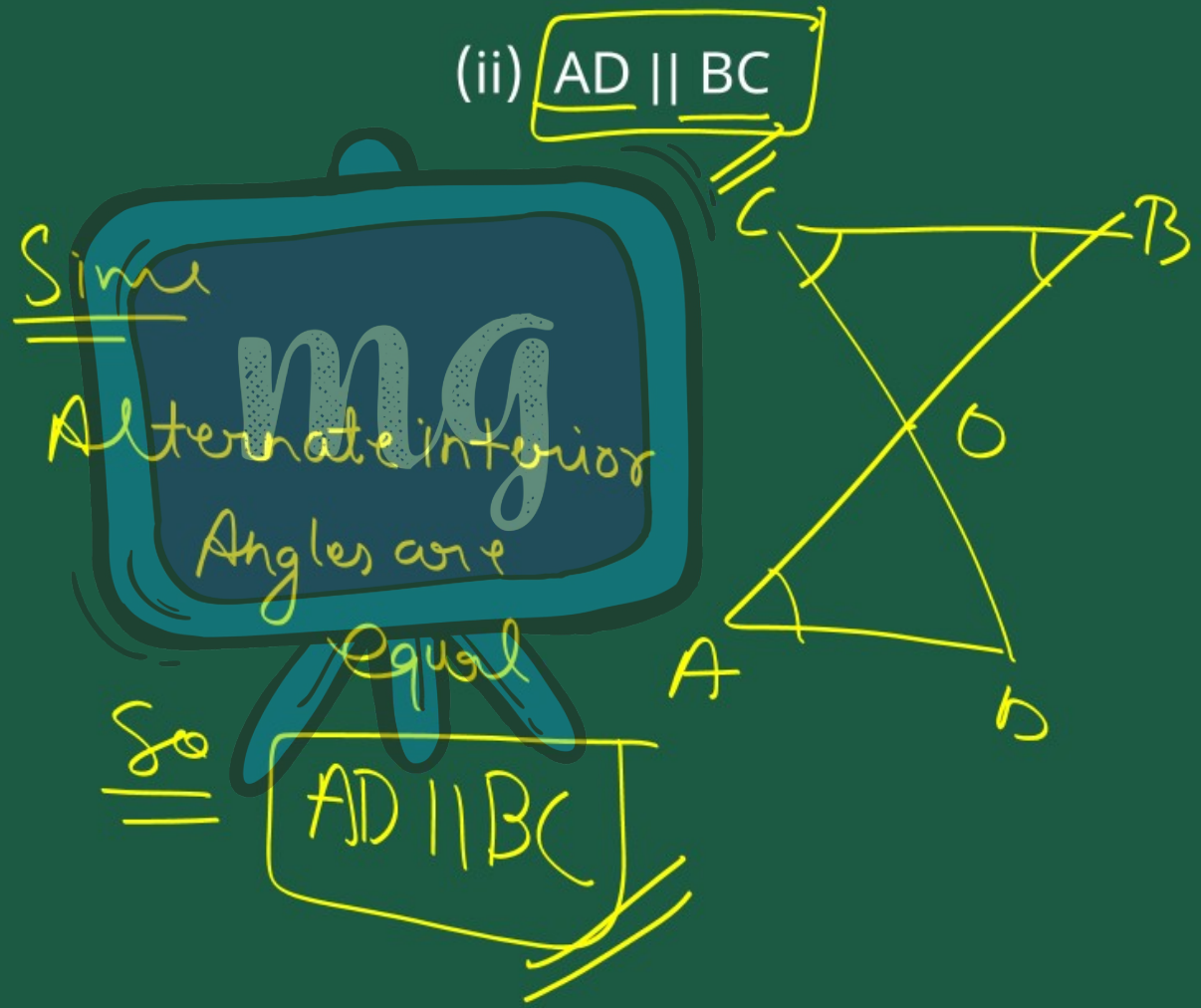
$\angle B = \angle A$ [A-I-A]

$\angle C = \angle D$

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(ii) AD || BC

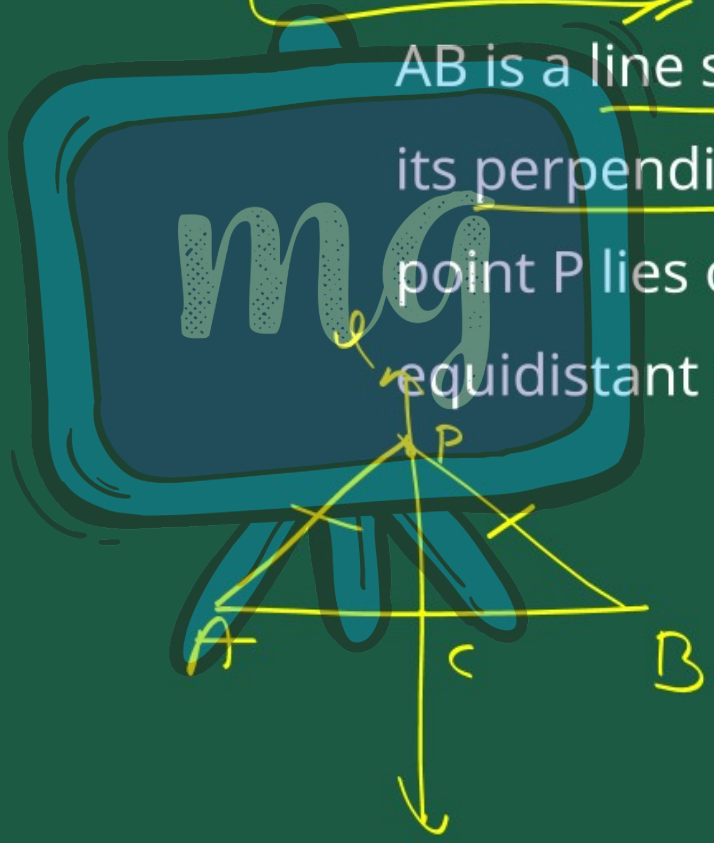


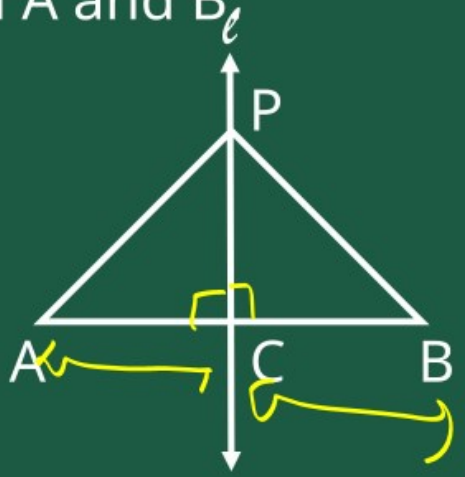
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Example : 2

AB is a line segment and line l is its perpendicular bisector. If a point P lies on l, show that P is equidistant from A and B.





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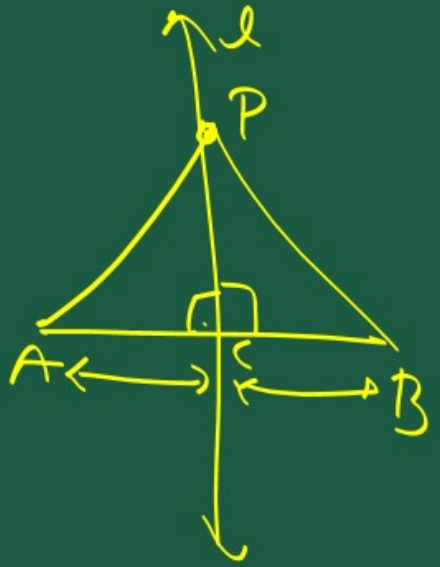
Given :- AB is line Segment

& line l perpendicularly bisect AB. at C.

$\therefore \angle ACP = \angle BCP$

$AC = BC$

To prove :- $PA = PB$



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Soln. → In $\triangle ACP$ & $\triangle BCP$

$AC = BC$ [Given]

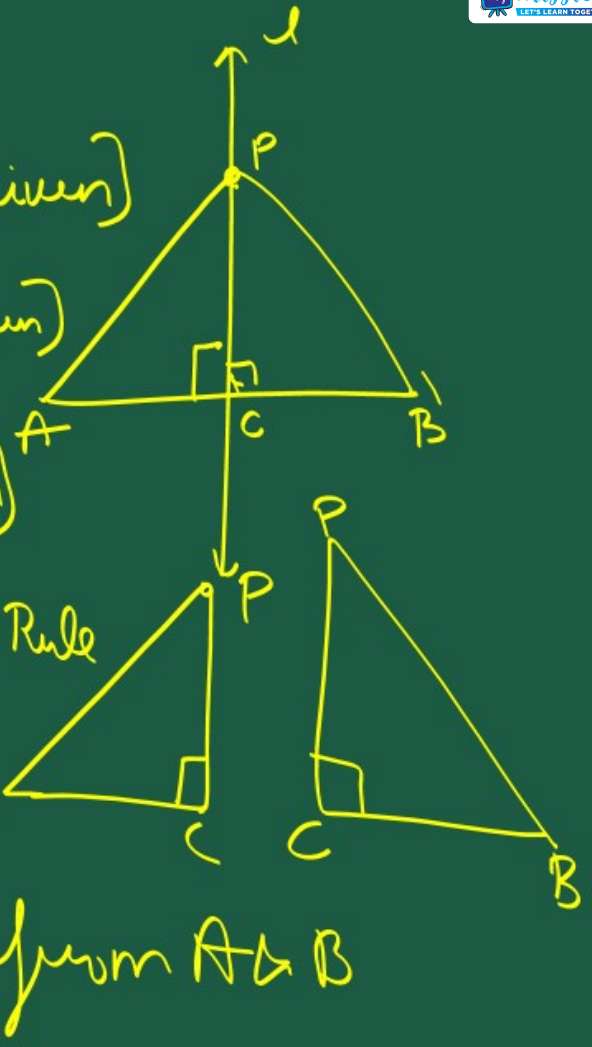
$\angle ACP = \angle BCP = 90°$ [Given]

$PC = PC$ [Common]

$\triangle ACP \cong \triangle BCP$ By SAS Rule

$PA = PB$ [C.P.C.T]

$\therefore$ P is equidistant from A & B



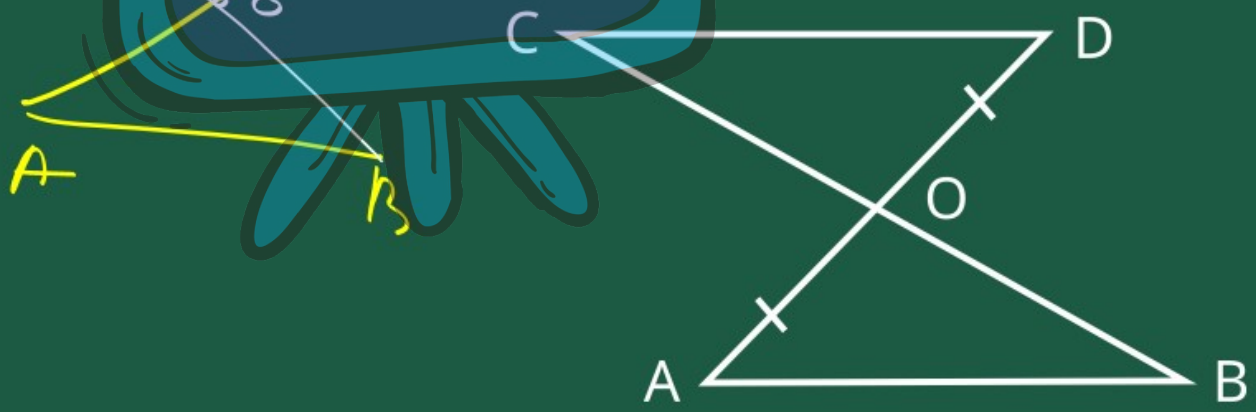
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Example : 3

Line-segment AB is parallel to another line-segment CD. O is the mid-point of AD. Show that

(i) $\Delta AOB \cong \Delta DOC$



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Soln: Given CD ∥ AB

AB is transversal

$\therefore \angle D = \angle A$ [A-I-A]

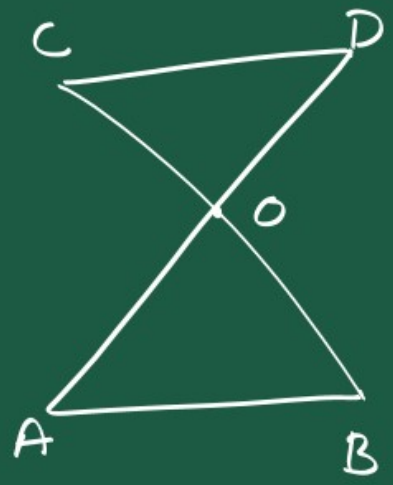
11y

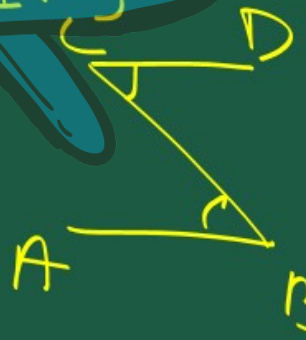
CD ∥ AB

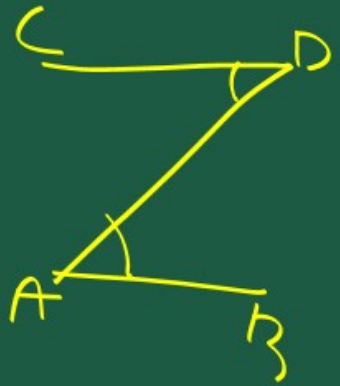
BC is transversal

$\angle C = \angle B$ [A-I-A]

So







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In $\triangle AOB$ & $\triangle DOC$

$\angle A = \angle D$ [A–I·A]

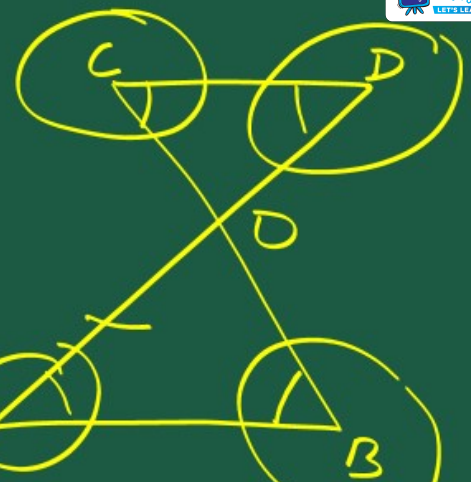
$\angle B = \angle C$

$OA = OD$ [Given]

[O is mid point AD]

$\triangle AOB \cong \triangle DOC$ By AAS Rule

$OB = OC$ [C·P·C·T]



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(ii) O is also the mid-point of BC.

