3. AD and BC are equal perpendiculars to a line segment AB (see Fig. 7.18). Show that CD bisects AB.

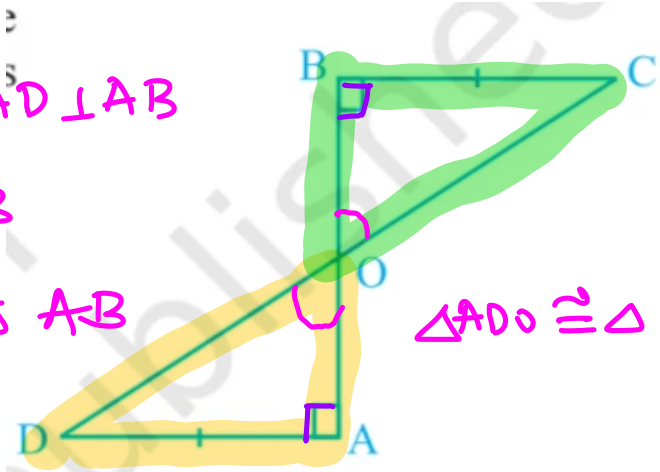


Fig. 7.18

Given:- $AD = BC$, $AD \perp AB$ and $BC \perp AB$

To Proove:- CD bisects AB

So, $OA = OB$

$\triangle AOD \cong \triangle BCO$

Prof:- In $\triangle AOD$ and $\triangle BCO$

(Angle) $\angle A = \angle B = 90°$

(Angle) $\angle AOD = \angle BOC$ (Vertically opposite angles)

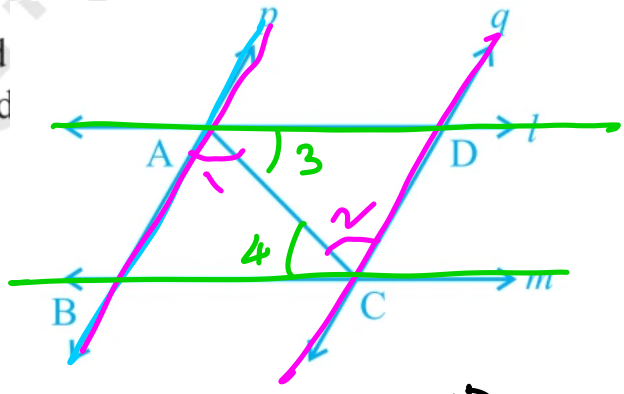
(Side) $AD = BC$ (Given)

$\therefore \triangle AOD \cong \triangle BCO$ (by AAS Rule)

So: $OA = OB$ (CPCT)

$\therefore$ CD bisects AB

4. l and m are two parallel lines intersected another pair of parallel lines p and (see Fig. 7.19). Show that $\Delta ABC \cong \Delta CDA$.



Given: $l \parallel m$ and $p \parallel q$

To Proove $\triangle ABC \cong \triangle CDA$

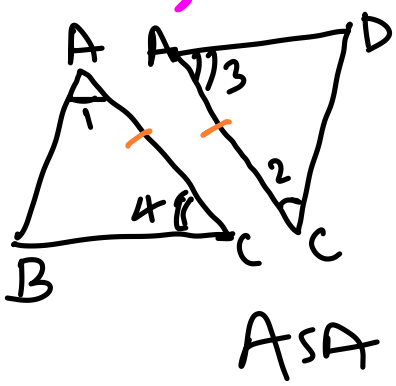
In $\triangle ABC$ and $\triangle CDA$

$\angle 1 = \angle 2$ (Alternate interior angles for $p \parallel q$)

$AC = CA$ (Common side)

$\angle 4 = \angle 3$ (Alternate interior angles for $l \parallel m$)

$\therefore \triangle ABC \cong \triangle CDA$ (ASA rule)



ASA