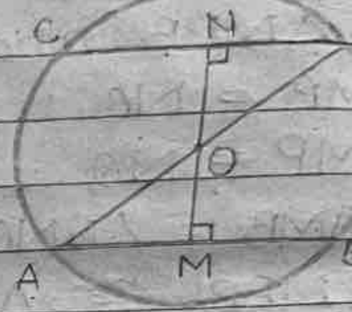
CD (equal dist. from ...

(20a) In ΔOMA and ΔOND



$\angle OMA = \angle ONA = 90°$

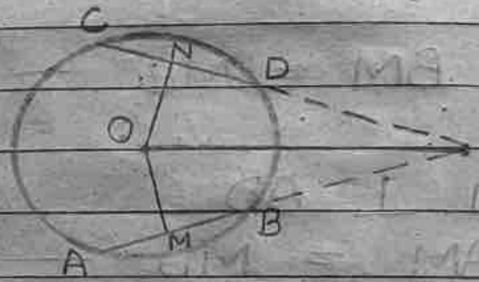
$OA = OD$ (radius of circle)

$\angle AOM = \angle DON$

$\Delta OMA \cong \Delta OND$ (AAS rule of congruency)

$OM = ON$

$\therefore AB = CD$ (equal dist from the centre = equal cho



b) $AB = CD$

$OM = ON$

In ΔOME and ΔONE

$\angle OME = \angle ONE = 90°$

$OM = ON$

$OE = OE$

$\Delta OME \cong \Delta ONE$ (R.H.S rule of congruency)

$\therefore ME = NE$ —— (i)

$AM = MB$, $CN = ND$ ~~(ii)~~

$AM = CN$, $MB = ND$ —— (ii)

$ME - MB = NE - ND$

$BE = DE$ ans.

$AB = CD$

$AB + BE = CD + DE$

$AE = CE$ ans.

15/01 Exercise 15.2

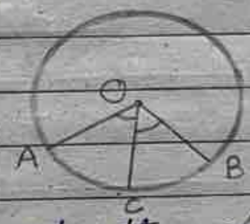
(1) $\overset{\frown}{APB} = \overset{\frown}{CQD}$ (given)

$\therefore AB = CD$ (chords are equal if arcs are congruent

$\therefore$ ratio of AB and CD $\Rightarrow \frac{AB}{CD} = \frac{AB}{AB} = \frac{1}{1}$

$\Rightarrow \boxed{AB : CD = 1:1}$ ans

(2) OC bisects $\angle AOB$.

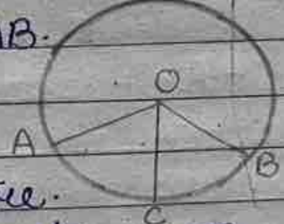


$\angle AOC = \angle BOC$

$\therefore \overset{\frown}{AC} = \overset{\frown}{AB}$

$\therefore$ equal arcs of a circle subtend equal $\angle$s at the centre.

(3) C is the mid-point of the arc AB.



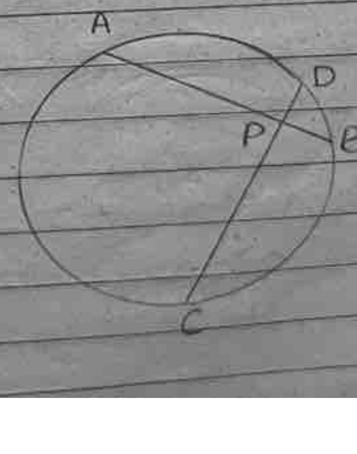
$\overset{\frown}{AB} = \overset{\frown}{BC}$

$\therefore \angle AOC = \angle BOC$

$\therefore$ equal arcs subtend equal $\angle$s at the centre.

$\therefore$ OC bisects $\angle AOB$.

(4) $AB = CD$



minor $\overset{\frown}{AB}$ = minor $\overset{\frown}{CD}$

subtracting $\overset{\frown}{BD}$ from both side,

$\overset{\frown}{AB} - \overset{\frown}{BD} = \overset{\frown}{CD} - \overset{\frown}{BD}$

arc AD = arc CB proved!