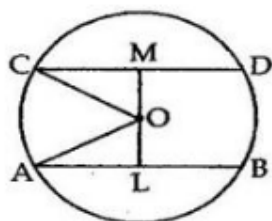




Exercise 11A

Question 5:

Let AB and CD be two chords of a circle having centre O .
 $AB = 30$ cm and $CD = 16$ cm.



Join AO and OC which are its radii. So $AO = 17$ cm and
 $CO = 17$ cm.

Draw $OM \perp CD$ and $OL \perp AB$.

Since the perpendicular from the centre of a circle to a chord bisects the chord, we have

$$\begin{aligned} AL &= \frac{1}{2} \times AB \\ &= \left(\frac{1}{2} \times 30 \right) \text{ cm} = 15 \text{ cm} \\ CM &= \frac{1}{2} \times CD \\ &= \left(\frac{1}{2} \times 16 \right) \text{ cm} = 8 \text{ cm} \end{aligned}$$

Now, in right angled $\triangle ALO$, we have

$$\begin{aligned} AO^2 &= OL^2 + AL^2 \\ \Rightarrow LO^2 &= AO^2 - AL^2 \\ &= 17^2 - 15^2 \\ &= 289 - 225 = 64 \end{aligned}$$

$$\Rightarrow LO = \sqrt{64} = 8 \text{ cm}$$

Again, in right angled $\triangle CMO$, we have

$$\begin{aligned} CO^2 &= CM^2 + OM^2 \\ \Rightarrow OM^2 &= CO^2 - CM^2 \\ &= 17^2 - 8^2 \\ &= 289 - 64 = 225 \end{aligned}$$

$$\Rightarrow OM = \sqrt{225} = 15 \text{ cm}$$

$$\begin{aligned} \therefore \text{Distance between the chords} &= OM + OL = (8 + 15) \text{ cm} \\ &= 23 \text{ cm.} \end{aligned}$$

***** END *****