

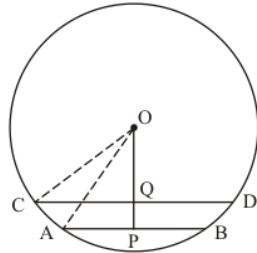


Circles Ex 16.2 Q15

Answer :

Let AB and CD be two parallel chord of the circle with centre O such that $AB = 6$ cm, $CD = 8$ cm and $OP = 4$ cm. let the radius of the circle be r cm.

According to the question, we have to find OQ



Draw $OP \perp AB$ and $OQ \perp CD$ as well as point O , Q , and P are collinear.

Let $OQ = x$

Join OA and OC , then

$OA = OC = r$

Now $OP \perp AB$ and $OQ \perp CD$

So, $AP = 3$ cm and $CQ = 4$ cm

In $\triangle OAP$ we have

$$OA^2 = OP^2 + AP^2$$

$$r^2 = 4^2 + 3^2$$

$$= 16 + 9$$

$$= 25$$

$$r = \sqrt{25}$$

$$= 5$$

And in $\triangle OCQ$

$$OQ^2 = OC^2 - CQ^2$$

$$\begin{aligned} &= OA^2 - CQ^2 \\ &= 5^2 - 4^2 \\ &= 25 - 16 \\ &= 9 \end{aligned}$$

$$\begin{aligned} OQ &= \sqrt{9} \\ &= \boxed{3 \text{ cm}} \end{aligned}$$

***** END *****