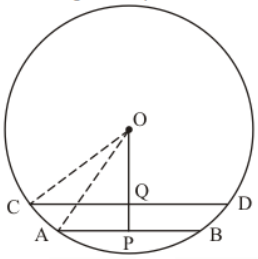
Circles Ex 16.2 Q15

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 ΔOAP we have

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

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

$$= 16 + 9$$

$$= 25$$

$$r = \sqrt{25}$$

$$= 5$$

And in ΔOCQ

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

$$= OA^2 - CQ^2$$

$$= 5^2 - 4^2$$

$$= 25 - 16$$

$$= 9$$

$$OQ = \sqrt{9}$$

$$= \boxed{3\,\text{cm}}$$

********** END **********