Circles Ex 16.2 Q3

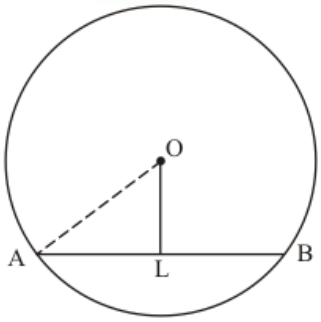
Answer :

Given that $OA = 6\,\text{cm}$ and $OL = 4\,\text{cm}$, find the length of chord *AB*.

Let *AB* be a chord of a circle with centre *O* and radius 6 cm such that

$AO = 6\,\text{cm}$

We draw $OL \perp AB$ and join *OA*.



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

Now in ΔOAL we have

$$\begin{aligned} AL^2 &= OA^2 - OL^2 \\ &= 6^2 - 4^2 \\ &= 36 - 16 \\ &= 20 \end{aligned}$$

$$\Rightarrow AL = \sqrt{20} = 4.47$$

$$\begin{aligned} AB &= 2 \times AL \\ &= 2 \times 4.47 \\ &= 8.94\ \text{cm} \end{aligned}$$

Hence the length of the chord is 8.94 cm.

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