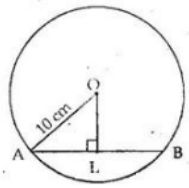
Exercise 11A

Question 1:

Let AB be a chord of the given circle with centre O and radius 10 cm. Then, OA = 10 cm and AB = 16 cm. From O, draw OL ⊥ AB. We know that the perpendicular from the centre of a circle to a chord bisects the chord.



$$\therefore \quad AL = \frac{1}{2} \times AB$$

$$= \left(\frac{1}{2} \times 16\right) \text{cm} = 8 \text{ cm}.$$

From right angled ΔOLA, we have

$$OA^2 = OL^2 + AL^2$$

$$\Rightarrow \quad OL^2 = OA^2 - AL^2$$

$$= 10^2 - 8^2$$

$$= 100 - 64 = 36$$

$$\therefore \quad OL = \sqrt{36} = 6 \text{ cm}.$$

$\therefore$ The distance of the chord from the centre is 6 cm.

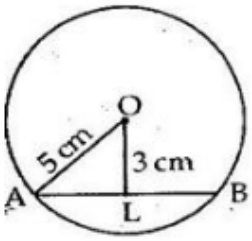
Question 2:

Let AB be the chord of the given circle with centre O and radius 5 cm.

From O, draw OL ⊥ AB

Then, OA = 5 cm and OL = 3 cm [given]

We know that the perpendicular from the centre of a circle to a chord bisects the chord.



Now, in right angled ΔOLA, we have

$$OA^2 = AL^2 + OL^2$$

$$\Rightarrow \quad AL^2 = OA^2 - OL^2$$

$$\Rightarrow \quad AL^2 = 5^2 - 3^2$$

$$= 25 - 9 = 16$$

$$\therefore \quad AL = \sqrt{16} = 4 \text{ cm}$$

So, $AB = 2\,AL$

$$= (2 \times 4) \text{cm} = 8 \text{ cm}$$

$\therefore$ the length of the chord is 8 cm.

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