



Exercise 11A

Question 7:

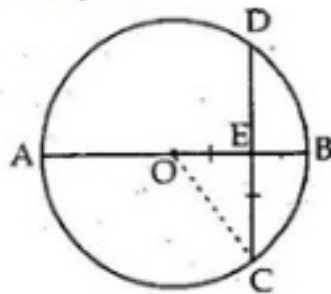
AB is the diameter of a circle with centre O which bisects the chord CD at point E.

$CE = ED = 8\text{ cm}$  and  $EB = 4\text{ cm}$ . Join OC.

Let  $OC = OB = r\text{ cm}$ .

Then,

$OE = (r - 4)\text{ cm}$



Now, in right angled  $\triangle OEC$

$$OC^2 = OE^2 + EC^2$$

$$r^2 = (r - 4)^2 + 8^2$$

$$\Rightarrow r^2 = r^2 - 8r + 16 + 64$$

$$\Rightarrow r^2 = r^2 - 8r + 80$$

$$\Rightarrow r^2 - r^2 + 8r = 80$$

$$\Rightarrow 8r = 80$$

$$\Rightarrow r = \frac{80}{8} = 10\text{ cm}$$

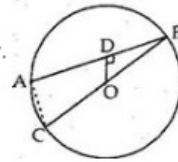
$\therefore$  the radius of the circle is 10 cm.

Question 8:

Given:  $OD \perp AB$  of a circle with centre O. BC is a diameter.

To Prove:  $AC \parallel OD$  and  $AC = 2 \times OD$

Construction: Join AC.



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

Here  $OD \perp AB$

$\Rightarrow$  D is the mid-point of AB

$\Rightarrow AD = BD$

Also, O is the mid-point of BC

$\therefore OC = OB$

Now, in  $\triangle ABC$ , D is the midpoint of AB and O is the midpoint of BC.

Midpoint Theorem: The line segment joining the midpoints of any two sides of a triangle is parallel to the third side and equal to half of it.

$\therefore OD \parallel AC$  and  $OD = \frac{1}{2} AC$

$\therefore AC = 2 \times OD$

\*\*\*\*\* END \*\*\*\*\*