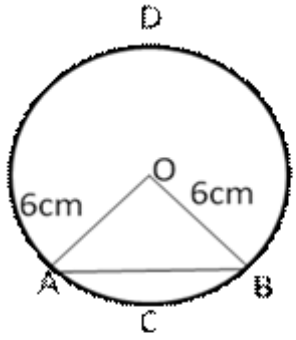
Question 71:
Let AB be the chord of circle of centre O and radius = 6 cm such that $\angle AOB = 90°$



$\therefore$ Area of sector = OACBO

$$= \frac{\pi r^2 \theta}{360}\ cm^2$$

$$= \left(\frac{22}{7} \times 6 \times 6 \times \frac{90}{360}\right) cm^2$$

$$= 28.29\, cm^2$$

Area of $\Delta AOB = \frac{1}{2} r^2 \sin\theta = \left(\frac{1}{2} \times 6 \times 6 \times \sin 90°\right) = 18\ cm^2$

Area of minor segment ACBA

= (area of sector OACBO) - (area of ΔOAB)

= (28.29 - 18) cm^2 = 10.29 cm^2

Area of major segment BDAB

$$= (\text{area of cirde}) - (\text{area of minor segment})$$

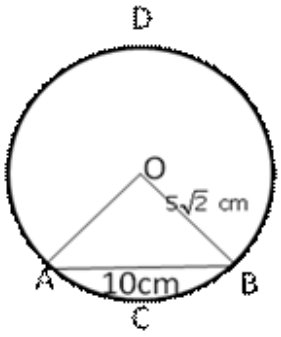
$$= \left[\left(\frac{22}{7} \times 6 \times 6\right) - 10.29\right] cm^2$$

$$= (113.14 - 10.29)\, cm^2 = 102.85\ cm^2$$

Question 72:

Let OA = $5\sqrt{2}$ cm , OB = $5\sqrt{2}$ cm

And AB = 10 cm



Then, $OA^2 + OB^2 = AB^2$

$\Rightarrow \quad \angle AOB = 90^\circ$

Area of the sector OACBO

$$= \frac{\pi r^2 \theta}{360} cm^2$$

$$= \left(3.14 \times \left(5\sqrt{2}\right) \times \left(5\sqrt{2}\right) \times \frac{90}{360}\right) cm^2$$

$$= 39.25 \ cm^2$$

Area of $\Delta AOB = \frac{1}{2} r^2 \sin\theta = \left(\frac{1}{2} \times 5\sqrt{2} \times 5\sqrt{2} \times \sin 90^\circ\right)$

$$= 25 \ cm^2$$

Area of minor segment = (area of sector OACBO) - (area of Δ OAB)

$$= (39.25 - 25) cm^2 = 14.25 cm^2$$

Area of the major segment BDAB

= area of cirde – area of minor segment

$$= \left(\frac{22}{7} \times 5\sqrt{2} \times 5\sqrt{2} - 14.25\right) cm^2$$

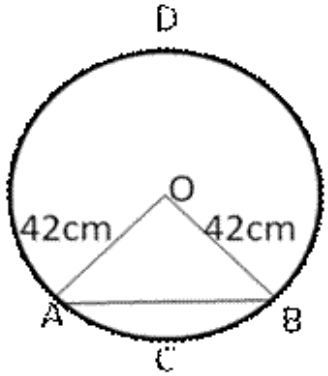
$$= \left(\frac{1100}{7} - 14.25\right) cm^2 = (157 - 14.25) cm^2$$

$$= 142.75 \ cm^2$$

Question 73:

Area of sector OACBO

$$= \frac{\pi r^2 \theta}{360} cm^2 = \left(\frac{22}{7} \times 42 \times 42 \times \frac{120}{360}\right) cm^2 = 1848 cm^2$$



$$\text{Area of } \Delta OAB = \frac{1}{2} r^2 \sin\theta$$

$$= \left(\frac{1}{2} \times 42 \times 42 \times \sin 120^\circ\right)$$

$$= \left(21 \times 42 \times \frac{\sqrt{3}}{2}\right) cm^2$$

$$= (21 \times 21 \times 1.73) cm^2 = 762.93 cm^2$$

Area of minor segment ACBA

$$= (\text{area of sector OACBO}) - (\text{area of the } \Delta OAB)$$

$$= (1848 - 762.93) cm^2 = 1085.07 \ cm^2$$

Area of major segment BADB

$$= (\text{area of the circle}) - (\text{area of minor segment})$$

$$= \frac{22}{7} \times 42 \times 42 - 1085.07$$

$$= (5544 - 1085.07) cm^2 = 4458.93 cm^2$$

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