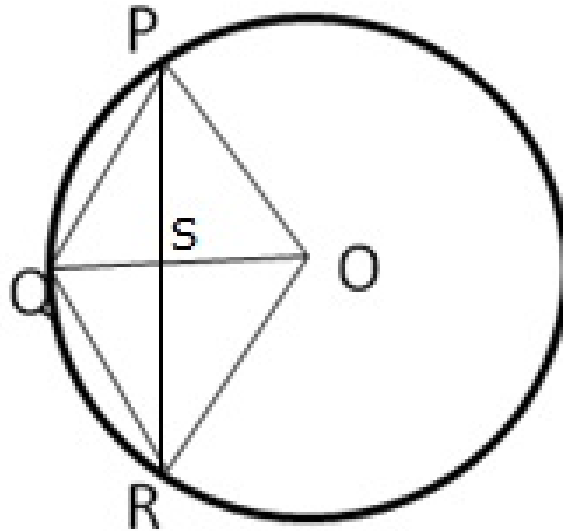




Question 20:



$$OP = OR = OQ = r$$

Let OQ and PR intersect at S

We know the diagonals of a rhombus bisect each other at right angle.

Therefore we have

$$OS = \frac{1}{2}r \text{ and } \angle OSR = 90^\circ$$

$$\begin{aligned} \therefore SR &= \sqrt{OR^2 - OS^2} \\ &= \sqrt{r^2 - \frac{r^2}{4}} = \frac{\sqrt{3}r}{2} \end{aligned}$$

$$\therefore PR = 2 \times SR = \sqrt{3}r$$

$$\begin{aligned} \text{Area of rhombus} &= \frac{1}{2} \times OQ \times PR \\ &= \frac{1}{2} \times r \times \sqrt{3}r = \frac{\sqrt{3}r^2}{2} \end{aligned}$$

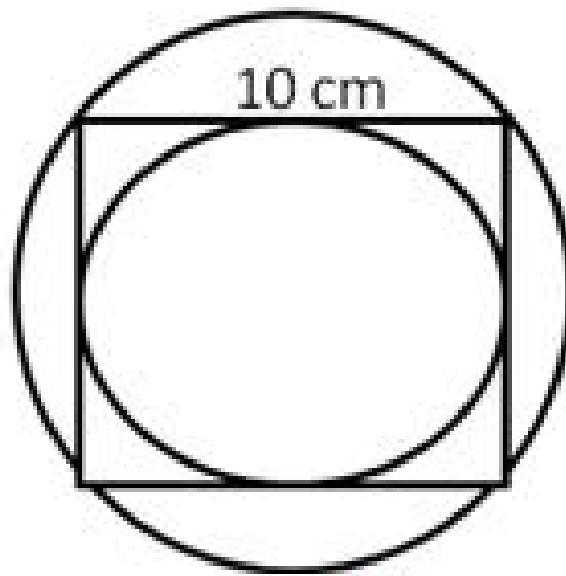
$$\therefore \frac{\sqrt{3}r^2}{2} = 32\sqrt{3} \Rightarrow r^2 = \frac{32\sqrt{3}}{\sqrt{3}} \times 2 = 64 \text{ cm}$$

$$r = 8 \text{ cm}$$

Question 21:

Diameter of the inscribed circle = Side of the square = 10 cm

Radius of the inscribed circle = 5 cm



Diameter of the circumscribed circle

= Diagonal of the square

=  $(\sqrt{2} \times 10)$  cm

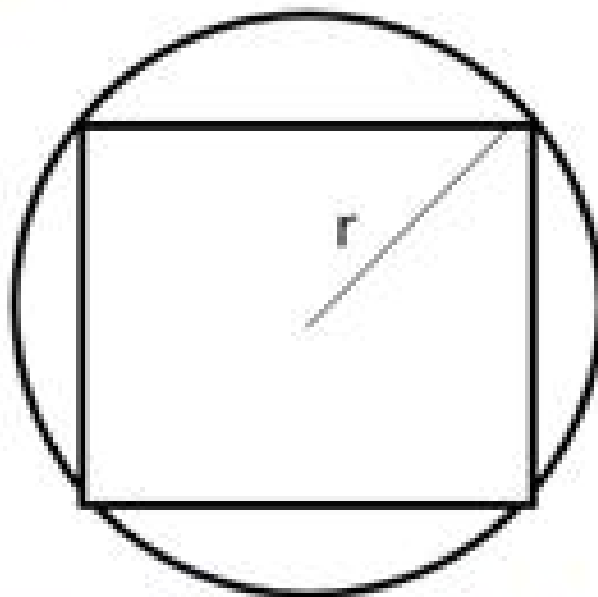
Radius of circumscribed circle =  $5\sqrt{2}$  cm

$$(i) \text{ Area of inscribed circle} = \left( \frac{22}{7} \times 5 \times 5 \right) = 78.57 \text{ cm}^2$$

$$(ii) \text{ Area of the circumscribed circle} = \left( \frac{22}{7} \times 5\sqrt{2} \times 5\sqrt{2} \right) = 157.14 \text{ cm}^2$$

Question 22:

Let the radius of circle be  $r$  cm



Then diagonal of square = diameter of circle =  $2r$  cm

Area of the circle =  $\pi r^2$  cm<sup>2</sup>

$$\text{Area of square} = \frac{1}{2} \times (\text{diagonal})^2$$

$$= \frac{1}{2} \times 4r^2 = 2r^2 \text{ cm}^2$$

$$\text{Ratio} = \frac{\text{Area of circle}}{\text{Area of square}} = \frac{\pi r^2}{2r^2} = \frac{\pi}{2} = (\pi : 2)$$

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