



Question 14:

Let r m and R m be the radii of inner circle and outer boundaries respectively.

Then, $2r = 352$ and $2R = 396$

$$r = \frac{352}{2\pi}, R = \frac{396}{2\pi}$$

Width of the track = $(R - r)$ m

$$= \left(\frac{396}{2\pi} - \frac{352}{2\pi} \right) m = \left(\frac{44}{2\pi} \right) m$$

$$= \left(\frac{44}{2} \times \frac{7}{22} \right) m = 7 \text{ m}$$

Area the track = $\pi(R^2 - r^2) = \pi(R+r)(R-r)$

$$= \left[\pi \left(\frac{352}{2\pi} + \frac{396}{2\pi} \right) \times 7 \right] m^2$$

$$= \left[\left(\pi \times \frac{748}{2\pi} \right) \times 7 \right] m^2 = (374 \times 7) m^2$$

$$= 2618 \text{ m}^2$$

Question 15:

Area of rectangle = (120×90)

$$= 10800 \text{ m}^2$$

Area of circular lawn = [Area of rectangle - Area of park excluding circular lawn]

$$= [10800 - 2950] \text{ m}^2 = 7850 \text{ m}^2$$

Area of circular lawn = 7850 m^2

$$\Rightarrow \pi r^2 = 7850 \text{ m}^2$$

$$3.14 \times r^2 = 7850 \text{ m}^2$$

$$r^2 = \left(\frac{7850}{3.14} \right) m^2$$

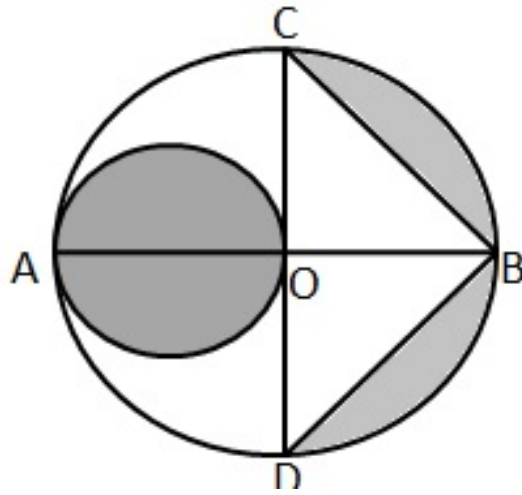
$$= 2500 \text{ m}^2$$

$$r = \sqrt{2500} \text{ m}$$

$$\text{or } r = 50 \text{ m}$$

Hence, radius of the circular lawn = 50 m

Question 16:



Area of the shaded region = (area of circle with OA as diameter) +
(area of semicircle ΔDBC) - (area of ΔBCD)

Area of circle with OA as diameter = πr^2

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

$$= 38.5 \text{ m}^2$$

OB = 7 cm, CD = AB = 14 cm

$$\text{Area of semicircle } \Delta DBC = \frac{1}{2} \pi r^2 = \left(\frac{1}{2} \times \frac{22}{7} \times 7 \times 7 \right) \text{cm}^2$$

$$= 77 \text{ cm}^2$$

$$\text{Area of } \Delta BCD = \frac{1}{2} \times DC \times OB$$

$$= \frac{1}{2} \times 14 \times 7$$

$$= 49 \text{ cm}^2$$

$$\text{Area of shaded region} = (38.5 + 77 - 49)$$

$$= 66.5 \text{ cm}^2$$

***** END *****