

## Areas Related to Circles Ex 15.1 Q17 Answer:

Let the radius of circles be r cm ,  $r_{\rm i}$  cm and  $r_{\rm 2}$  cm respectively. Then their circumferences are  $C=2\pi r$  cm ,  $C_{\rm 1}=2\pi r_{\rm i}$  cm and  $C_{\rm 2}=2\pi r_{\rm 2}$  cm respectively.

It is given that,

Circumference C of circle = Circumference  $C_1$  of circle+Circumference  $C_2$  of circle

$$2\pi r = 2\pi r_1 + 2\pi r_2$$
$$2\pi r = 2\pi (r_1 + r_2)$$
$$r = r_1 + r_2$$

We have,  $r_1 = 19$  cm and  $r_2 = 9$  cm

Substituting the values of  $r_1$ ,  $r_2$ 

$$r = 19 + 9$$

$$r = 28 \text{ cm}$$

Hence the radius of the circle is 28 cm

We know that the area A of circle is

$$A = \pi r^2$$

Substituting the value of r

$$A = \frac{22}{7} \times 28 \times 28$$
$$= \boxed{2464 \text{ cm}^2}$$

Hence the area of the circle is  $2464 \text{ cm}^2$ 

## Areas Related to Circles Ex 15.1 Q18

## Answer:

Let the radius of wheel be r. Thus, circumference C of the wheel

$$C = 2\pi i$$

Since car travels 1 km distance in which wheel makes 450 complete revolutions. Then

The distance covered by wheel in one revolution = 
$$\frac{\text{Distance moved}}{\text{Number of revolution}}$$
  
=  $\frac{1000 \text{ m}}{450}$   
=  $\frac{20}{9} \text{ m}$ 

We know that,

The distance covered in one revolution = circumference of the wheel

$$\frac{20}{9} = 2 \times \frac{22}{7} \times r$$

$$r = \frac{20 \times 7}{9 \times 2 \times 22}$$

$$= 0.\overline{35} \text{ m}$$

$$= 35.35 \text{ cm}$$

Hence the radius of wheel is 35.35 cm

Areas Related to Circles Ex 15.1 Q19

## Answer:

Let the radius of outer and inner two circles be  $r_1$  and  $r_2$  respectively. Area enclosed between concentric circles =  $\pi{r_1}^2-\pi{r_2}^2$ 

$$\Rightarrow 770 = \frac{22}{7} \left( 21^2 - r_2^2 \right)$$

$$\Rightarrow 245 = 21^2 - r_2^2$$

$$\Rightarrow r_2^2 = 441 - 245$$

$$\Rightarrow r_2^2 = 196$$

$$\Rightarrow r_2^2 = 14^2$$

$$\Rightarrow r_2 = 14 \text{ cm}$$

Hence, the radius of inner circle is 14 cm.

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