$$r_1 = \left(\frac{7 \times 352}{44}\right)$$
$$r_1 = \left(\frac{2264}{44}\right)$$

 $r_1 = 56 \text{ cm}$ 

But width of road = 7cm

Therefore, radius of outer circle is =  $r_2 = r_1 + 7$ 

$$r_2 = 56 + 7$$

= 63 cm

### Step 2: Find the area of each circle in the given concentric circle:

Required area of road = area of outer circle - area of inner circle

$$= \pi r_2^2 - \pi r_1^2$$

$$= \pi (r_2^2 - r_1^2)$$

$$= \left(\frac{22}{7}\right) (63^2 - 56^2)$$

$$= \left(\frac{22}{7}\right) (63 - 56) \times (63 + 56)$$

$$= \left(\frac{22}{7}\right) (7 \times 119)$$

$$= (22) \times (119)$$
Required area of road is of  $616^2$ 

# Question 2:

A race track is in the form of a ring whose inner and outer circumferences are 437 m and 503 m respectively. Find the width of the track and also its area.

# Solution:

### Step 1: Identify the radius of the circle from the given information:

Let the inner radius of the park be r m and outer radius R m.

Then, its

Circumference =  $2\pi r$  .....(1) but circumference = 437 .....(2) Therefore, from equation (1) and equation (2) We get,  $2\pi r_1 = 437$ 

 $2(3.14)r_1 = 437$  $r_1 = (437) \times (6.28)$  $r_1 = 69.5$  $r_1 = 69.5 \text{ m}$ Therefore, radius of inner circle is 69.5 m. Similarly, we get circumference =  $2\pi R$  .....(3) but  $Circumference = 503 \dots (4)$ Therefore, From equation (3) and (4) We get,  $2\pi R = 437$  $2\left(\frac{22}{7}\right)R = 437$ 1.- 80 cmTherefore, radius of inner circle is 8 m of 26 2: Find the width of the track = R - rWidth of the track =  $9^{\circ}$ Step 2: Find the width of the = 10.5

Width of the track = 10.5 m

#### Step 3: Find the area of each circle in the given concentric circle:

Required area of track = area of outer circle – area of inner circled

$$= \pi R^{2} - \pi r^{2}$$

$$= \pi (R^{2} - r^{2})$$

$$= \left(\frac{22}{7}\right) (80^{2} - 69.5^{2})$$

$$= \left(\frac{22}{7}\right) \times (80 - 69.5) \times (80 + 69.5)$$

$$= \left(\frac{22}{7}\right) \times (10.5) \times (149.5)$$

$$= (22) \times (224.25)$$

Required area of track =  $4933.5 m^2$ 

#### Step 2: Find the circumference/area of resultant circle:

Resultant Area of two circles =  $A_1 + A_2$ 

$$= 64 \pi + 36 \pi$$

 $= 100 \pi$ 

Resultant Area of two circles is  $100 \ \pi \ \mathrm{cm^2}$ 

### Step 3: Find the radius of the required circle:

Area of circle =  $\pi R_r^2$  = Resultant Area of two circles

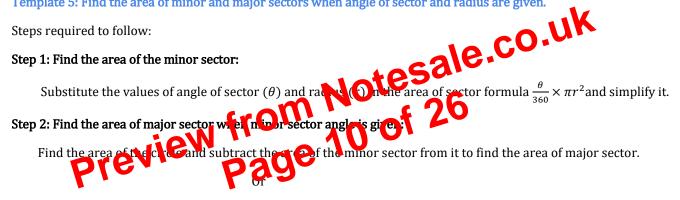
 $100 \pi = \pi R_r^2$ 

 $100 = R_r^2$ 

Radius of the circle  $R_r = 10$ 

Thus, radius of the circle R = 10 cm.

Template 5: Find the area of minor and major sectors when angle of sector and radius are given.



Substitute the values of angle of minor sector( $\theta$ ) and radius(r) in area of major sector formula

 $\frac{360-\theta}{360}$  ×  $\pi r^2$  to find the area of a major sector.

# Question 1:

Find the area of the minor sector, when the radius of the circle is 14 cm and angle of sector is 60 degrees.

# Solution:

#### Step 1: Find the area of the minor sector:

Given, Radius of circle (r) = 14 cm

Angle of sector  $(\theta) = 60$ 

Now, Area of sector  $=\frac{\theta}{360} \times \pi r^2$ 

$$=\frac{60}{360}\times\pi(14)^2$$

#### Step 1: Find the radius of circle:

Given, circumference of circle = 198.

Circumference of circle =  $2\pi r$ 

= 198

Therefore, radius  $r = \left(\frac{198 \times 7}{2 \times 22}\right)$ 

r = 15.5 cm

Radius = 15.5 cm

### Step 2: Find the area of quadrant:

```
Area of circle = \pi r^2
       = (3.14)(15.5)2
      = 754.38
Area of circle = 754.38 cm^2
                    from Notesale.co.uk
188.6 cm<sup>2</sup>.
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Now
Required area of quadrant = \frac{area \ of \ circle}{4}
=\frac{754.38}{4}
= 188.6 \ cm^2
Hence, area o
```

# **Question 2:**

The radius of a circle is 14 cm and circumference is equal to 88 cm. then find the area of the quadrant for the given circle.

# Solution:

### Step 1: Find the area of quadrant:

Given, radius of circle = 14 cm and

Circumference of circle = 88 cm

Now , Area of circle =  $\pi r^2$ 

$$= (3.14)(14)^2$$

Thus, Area of circle =  $616 \ cm^2$