Areas Related to Circles Ex 15.4 Q7

Answer :

It is given that the circumference C of circular track is 352 m.

We know that the circumference of circle of radius r is

$$C = 2\pi r$$

Substituting the value of C,

$$352 = 2 \times \frac{22}{7} \times r$$

$$352 \times 7 = 44r$$

$$r = \frac{352 \times 7}{44}$$

$$r = 56 \text{ m}$$

Thus, the radius of Circular Park is 56 m.

Since, 7m wide road surrounds the circular park. Then

$$\text{radius of outer circle} = \text{radius of inner circle} + 7$$

$$= 56 + 7$$

$$= 63 \text{ m}$$

$$\text{Area of road} = \text{Area of outer circle-Area of inner circle}$$

$$= \frac{22}{7} \times 63 \times 63 - \frac{22}{7} \times 56 \times 56$$

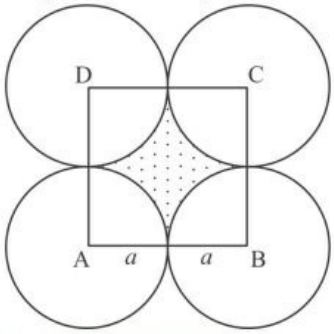
$$= 12474 - 9856$$

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

Areas Related to Circles Ex 15.4 Q8

Answer :

It is given that four equal circles of radius *a* touches each other.



So, $\text{Area of circle} = \pi a^2$

Since circles touches each other, the lines joining their centre make a square ABCD.

The side of square is 2a.

$$\text{Area of quadrant inside square} = \frac{1}{4}\pi a^2$$

$$\text{Area of shaded region} = \text{Area of square} - 4 \times \text{Area of quadrant}$$

$$= (2a)^2 - 4 \times \frac{\pi a^2}{4}$$

$$= 4a^2 - \frac{22}{7}a^2$$

$$= \boxed{\frac{6}{7}a^2}$$

Areas Related to Circles Ex 15.4 Q9

Answer :

It is given that the side of square $a = 40$ m.

Since four semicircular grassy plots rounds a square water tank. Then, diameter of semicircular plot is $2r = a$.

So, the radius of semicircle

$$r = \frac{a}{2}$$

$$= \frac{40}{2}$$

$$= 20 \text{ m}$$

$$\text{Area of semicircular plot} = \frac{1}{2}\pi r^2$$

$$= \frac{1}{2} \times 3.14 \times 20 \times 20$$

$$= 628 \text{ m}^2$$

Now, the total area of plot is sum of area of four semicircular plots.

$$\text{Total Area of plot} = 4 \times \text{Area of semicircle}$$

$$= 4 \times 628 \text{ m}^2$$

$$= 2512 \text{ m}^2$$

Since, The cost of turfing the plot per square meter = Rs 1.25

So, The cost of turfing 2512 square meter plot = Rs 1.25×2512

$$= \boxed{\text{Rs } 3140/-}$$

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