Areas Related to Circles Ex 15.4 Q4

Answer :

It is given that, the quadrants of radius r have been cut from the four corners of a rectangular piece is of length $l = 20$ m and width $w = 15$ m.

We have to find the area of remaining part.

We know that,

$$\text{Area of rectangle} = l \times w$$
$$= 20 \times 15$$
$$= 300 \text{ m}^2$$

$$\text{Area of quadrant} = \frac{1}{4}\pi r^2$$
$$= \frac{1}{4} \times \frac{22}{7} \times 3.5 \times 3.5$$
$$= 9.625 \text{ m}^2$$

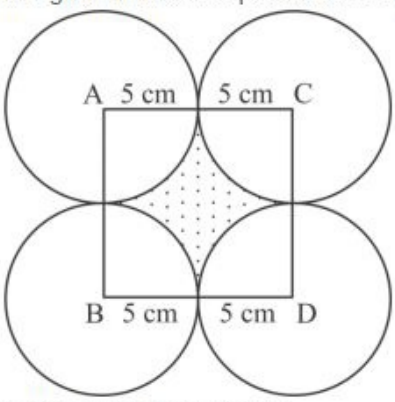
Now,

$$\text{Area of remaining part} = \text{Area of rectangle} - 4 \times \text{Area of quadrant}$$
$$= 300 - 4 \times 9.625$$
$$= 300 - 38.5$$
$$= \boxed{261.5 \text{ m}^2}$$

Areas Related to Circles Ex 15.4 Q5

Answer :

It is given that four equal circle touches each other as shown in figure.



Let the side of square is a.

$$a = 5 + 5$$
$$= 10 \text{ cm}$$

$$\text{Area of square} = a^2$$
$$= 10 \times 10$$
$$= 100 \text{ cm}^2$$

We know that

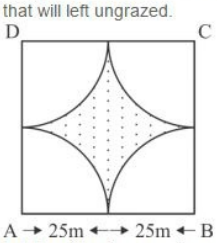
$$\text{Area of circle of radius } r = \pi r^2$$
$$= 3.14 \times 5 \times 5$$
$$= 78.5 \text{ cm}^2$$

$$\text{Area of quadrant inside square} = \frac{1}{4}\pi r^2$$
$$= \frac{1}{4} \times 78.5 \text{ m}^2$$
$$\text{Area of shaded region} = \text{Area of square} - 4 \times \text{Area of quadrant}$$
$$= 100 - 4 \times \frac{1}{4} \times 78.5$$
$$= 100 - 78.5$$
$$= \boxed{21.5 \text{ m}^2}$$

Areas Related to Circles Ex 15.4 Q6

Answer :

It is given that four cows are tethered at four corner of square ABCD. We have to find the area of plot that will left ungrazed.



Let the side of square is a.

$$a = 25 + 25$$
$$= 50 \text{ cm}$$
$$\text{Area of square} = a^2$$
$$= 50 \times 50$$
$$= 2500 \text{ cm}^2$$

$$\text{Area of quadrant inside square} = \frac{1}{4}\pi r^2$$
$$= \frac{1}{4} \times \frac{22}{7} \times 25 \times 25$$
$$= 491.07 \text{ m}^2$$
$$\text{Area of shaded region} = \text{Area of square} - 4 \times \text{Area of quadrant}$$
$$= 2500 - 4 \times 491.07$$
$$= 2500 - 1964.28$$
$$= \boxed{535.71 \text{ m}^2}$$

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