Areas Related to Circles Ex 15.1 Q4

Answer :

Let the radius of a circle be r cm, then diameter of circle is $2r$ cm and Circumference is $C = 2\pi r$ cm.
It is given that the circumference exceeds the diameter of circle by 16.8 cm.
So, circumference = 16.8 + diameter

$$2\pi r = 16.8 + 2r \text{ cm}$$
$$2 \times \frac{22}{7} \times r = 16.8 + 2r \text{ cm}$$
$$44r = 117.6 + 14r \text{ cm}$$
$$30r = 117.6 \text{ cm}$$
$$r = 3.92 \text{ cm}$$

Now the circumference is

$$C = 2\pi r \text{ cm}$$
$$= 2 \times \frac{22}{7} \times 3.92 \text{ cm}$$
$$= \boxed{24.64 \text{ cm}}$$

Areas Related to Circles Ex 15.1 Q5

Answer :

We know that the horse is tied to a pole with 28 m long string. So the horse can graze the area of a circle of radius 28 m.
Area of circle is

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

Hence the horse can graze $\boxed{2464 \text{ m}^2}$ area.

Areas Related to Circles Ex 15.1 Q6

Answer :

Let *a* cm be the side of square. Then area of square is

$$a^2 = 121 \text{ cm}^2$$

$$a = \sqrt{121 \text{ cm}^2}$$

$$a = 11 \text{ cm}$$

We have,

$$\begin{aligned} \text{length of wire} &= \text{perimeter of square} \\ &= 4a \text{ cm} \\ &= 4 \times 11 \text{ cm} \\ &= 44 \text{ cm} \end{aligned}$$

Let the radius of circle be *r* cm. Then,

$$\text{circumference of circle} = \text{length of wire}$$

$$2\pi r = 44 \text{ cm}$$

$$2 \times \frac{22}{7} \times r = 44 \text{ cm}$$

$$r = 7 \text{ cm}$$

Now, we will calculate area of circle.

$$\begin{aligned} \text{Area of circle} &= \pi r^2 \text{ cm}^2 \\ &= \frac{22}{7} \times 7 \times 7 \text{ cm}^2 \\ &= \boxed{154 \text{ cm}^2} \end{aligned}$$

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