Mensuration-I area of a trapezium and a polygon Ex 20.1 Q7

Answer :

It is given that the diameter of the wheel is 90 cm.

$\therefore$ Radius of the circular wheel, $r = \frac{90}{2} = 45$ cm.

$\therefore$ Perimeter of the wheel $= 2 \times \pi \times r = 2 \times \frac{22}{7} \times 45 = 282.857$ cm

It means the wheel travels 282.857 cm in a revolution.

Now, it makes 315 revolutions per minute.

$\therefore$ Distance travelled by the wheel in one minute $= 315 \times 282.857 = 89100$ cm

$\therefore$ Speed $= 89100$ cm per minute $= \frac{89100 \text{ cm}}{1 \text{ minute}}$

Now, we need to convert it into kilometers per hour.

$$\therefore \frac{89100 \text{ cm}}{1 \text{ minute}} = \frac{89100 \times \frac{1}{100000} \text{ kilometer}}{\frac{1}{60} \text{ hour}}$$

$$= \frac{89100}{100000} \times \frac{60}{1} \times \frac{\text{kilometer}}{\text{hour}}$$

$= 53.46$ kilometers per hour

Mensuration-I area of a trapezium and a polygon Ex 20.1 Q8

Answer :

Given :

Area of the rhombus $= 240$ cm

Length of one of its diagonals $= 16$ cm

We know that if the diagonals of a rhombus are d_1 and d_2, then the area of the rhombus is given by :

$$\text{Area} = \frac{1}{2}\left(d_1 \times d_2\right)$$

Putting the given values :

$$240 = \frac{1}{2}\left(16 \times d_2\right)$$

$$240 \times 2 = 16 \times d_2$$

This can be written as follows :

$$16 \times d_2 = 480$$

$$d_2 = \frac{480}{16}$$

$$d_2 = 30 \text{ cm}$$

Thus, the length of the other diagonal of the rhombus is 30 cm.

Mensuration-I area of a trapezium and a polygon Ex 20.1 Q9

Answer :

Given :

Lengths of the diagonals of a rhombus are 7.5 cm and 12 cm.

Now, we know : $\text{Area} = \frac{1}{2}\left(d_1 \times d_2\right)$

$\therefore$ Area of rhombus $= \frac{1}{2}\left(7.5 \times 12\right) = 45 \text{ cm}^2$

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