



Mensuration-I area of a trapezium and a polygon Ex 20.2 Q12

Answer :

Given:

Area of the trapezium = 91 cm^2

Height = 7 cm

Let the length of the smaller side be x .

Then, the length of longer side will be 8 more than smaller side, i.e. $8+x$.

Area of trapezium = $\frac{1}{2} \times (\text{Sum of the parallel sides}) \times (\text{Height})$

$$\Rightarrow 91 = \frac{1}{2} \times [(8+x)+x] \times (7)$$

$$\Rightarrow 91 = \frac{7}{2} \times [8+x+x]$$

$$\Rightarrow 91 \times 2 = 7 \times [8+2x]$$

We can rewrite it as follows:

$$7 \times [8+2x] = 182$$

$$\Rightarrow [8+2x] = \frac{182}{7} = 26$$

$$\Rightarrow 8+2x = 26$$

$$\Rightarrow 2x = 26-8=18$$

$$\Rightarrow x = \frac{18}{2} = 9 \text{ cm}$$

\therefore Length of the shorter side of the trapezium = 9 cm

And, length of the longer side = $8+x = 8+9 = 17 \text{ cm}$

Mensuration-I area of a trapezium and a polygon Ex 20.2 Q13

Answer :

Given:

Area of the trapezium = 384 cm^2

The parallel sides are in the ratio 3:5 and the perpendicular height between them is 12 cm.

Suppose that the sides are in x multiples of each other.

Then, length of the shorter side = $3x$

Length of the longer side = $5x$

Area of a trapezium = $\frac{1}{2} \times (\text{Sum of parallel sides}) \times (\text{Height})$

$$\Rightarrow 384 = \frac{1}{2} \times (3x+5x) \times (12)$$

$$\Rightarrow 384 = \frac{12}{2} \times (8x)$$

$$\Rightarrow 384 = 6 \times (8x)$$

$$\Rightarrow 8x = \frac{384}{6} = 64$$

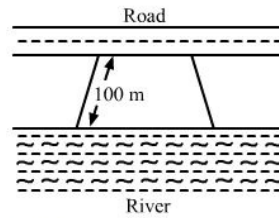
$$\Rightarrow x = \frac{64}{8} = 8 \text{ cm}$$

\therefore Length of the shorter side = $3 \times x = 3 \times 8 = 24 \text{ cm}$

And, length of the longer side = $5 \times x = 5 \times 8 = 40 \text{ cm}$

Mensuration-I area of a trapezium and a polygon Ex 20.2 Q14

Answer :



Given:

Area of the trapezium shaped field = 10500 m^2

It is also given that the length of the side along the river is double the length of the side

Let us suppose the length of the side along the road to be x .

Then, the length of the side along the river = $2 \times x = 2x$

And, the perpendicular distance between these parallel sides = 100 m

Area of trapezium = $\frac{1}{2} \times (\text{Sum of the parallel sides}) \times (\text{Perpendicular distance})$

$$10500 = \frac{1}{2} \times (2x + x) \times (100)$$

$$10500 = 50 \times (3x)$$

$$3x = \frac{10500}{50} = 210$$

$$x = \frac{210}{3} = 70 \text{ m}$$

\therefore Length of the side along the river = $2 \times x = 2 \times 70 = 140 \text{ m}$

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