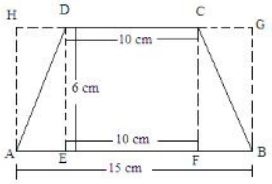
Mensuration-I area of a trapezium and a polygon Ex 20.2 Q7

Answer :

Given:
Length of the parallel sides of a trapezium are 10 cm and 15 cm.
The distance between them is 6 cm.
Let us
extend the smaller side and then draw perpendiculars from the ends of both sides.



(i)

Area of trapezium ABCD =(Area of rectangle EFCD)+(Area of triangle AED+Area of

$=(10\times6)+[(\frac{1}{2}\times AE\times ED)+(\frac{1}{2}\times BF\times FC)]$

$=60+[\left(\frac{1}{2}\times AE\times6\right)+(\frac{1}{2}\times BF\times6)]$

$=60+[3AE+3\ BF]$

$=60+3\times(AE+BF)$

Here, $AE+EF+FB=15cm$

And $EF=10$ cm

$\therefore\ AE+10+BF=15$

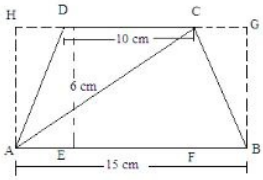
Or, $AE+BF=15-10=5$ cm

Putting this value in the above formula:

Area of the trapezium$=60+3\times(5)=60+15=75\ cm^2$

(ii)

In this case, the figure will look as follows:



Area of trapezium ABCD=(Area of rectangle ABGH)-[(Area of triangle AHD)+(Area of

$=\left(15\times6\right)-\left[\left(\frac{1}{2}\times DH\times6\right)+\left(\frac{1}{2}\times GC\times6\right)\right]$

$=90-\left[3\times DH+3\times GC\right]$

$=90-3\left[DH+GC\right]$

Here, $HD+DC+CG=15$ cm

$DC=10$ cm

$HD+10+CG=15$

$HD+GC=15-10=5$ cm

Putting this value in the above equation:

Area of the trapezium$=90-3(5)=90-15=75\ cm^2$

Mensuration-I area of a trapezium and a polygon Ex 20.2 Q8

Answer :

Given:

Area of the trapezium $= 960\ \text{cm}^2$

And the length of the parallel sides are 34 cm and 46 cm.

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

$\Rightarrow 960 = \frac{1}{2} \times (34+46) \times (\text{Height})$

$\Rightarrow 960 = 40 \times (\text{Height})$

$\Rightarrow \text{Height} = \frac{960}{40} = 24\ \text{cm}$

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