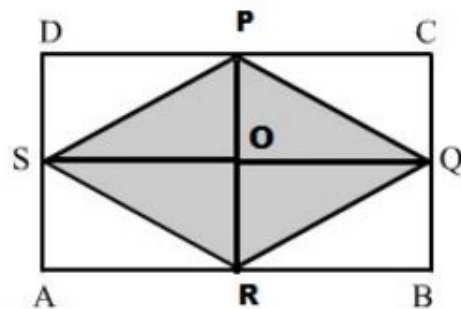Mensuration I Ex 20.4 Q10

Answer :

We have,

Join points *PR* and *SQ*.

These two lines bisect each other at point *O*.

Here, $AB = DC = SQ = 40$ cm and $AD = BC = RP = 25$ cm

Also $OP = OR = \dfrac{RP}{2} = \dfrac{25}{2} = 12.5$ **cm**

From the figure we observed that,

Area of $\Delta\,SPQ$ = Area of $\Delta\,SRQ$

Hence, area of the shaded region = 2 x (Area of $\Delta\,SPQ$)

$$= 2 \times (\tfrac{1}{2} \times SQ \times OP)$$
$$= 2 \times (\tfrac{1}{2} \times 40 \text{ cm} \times 12.5 \text{ cm})$$
$$= 500 \text{ cm}^2$$

Mensuration I Ex 20.4 Q11

Answer :

We have,

$BD = 42$ cm, $AC = 28$ cm, $OD = 12$ cm

Area of $\Delta ABC = \tfrac{1}{2} \times AC \times OB$

$\qquad\qquad = \tfrac{1}{2} \times AC \times (BD - OD)$

$\qquad\qquad = \tfrac{1}{2} \times 28$ cm $\times (42$ cm $- 12$ cm$) = \tfrac{1}{2} \times 28$ cm $\times 30$ cm $= 14$ cm $\times 30$ cm $= 420$ cm^2

Area of $\Delta\,ADC = \tfrac{1}{2} \times AC \times OD$

$\qquad\qquad = \tfrac{1}{2} \times 28$ cm $\times 12$ cm $= 14$ cm $\times 12$ cm $= 168$ cm^2
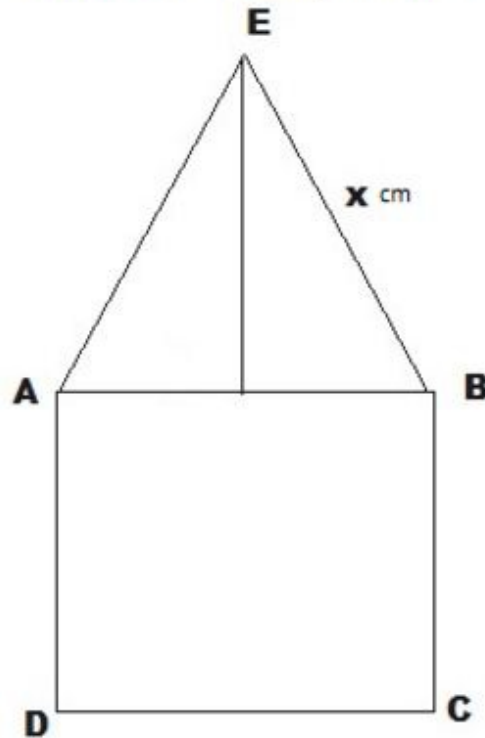
Hence,

Area of the quadrilateral *ABCD* = Area of $\Delta\,ABC$ + Area of $\Delta\,ADC$

$$= (420 + 168) \text{ cm}^2 = 588 \text{ cm}^2$$

Mensuration I Ex 20.4 Q12

Answer :

Let x cm be one of the equal sides of an isosceles triangle.

Given that the perimeter of the isosceles triangle = 18 cm

Then,

$x + x + 8 = 18$

$\Rightarrow 2x = (18 - 8)\,\text{cm} = 10\,\text{cm}$

$\Rightarrow x = 5\,\text{cm}$

Area of the figure formed = Area of the square + Area of the isosceles triangle

$$= (\text{Side of square})^2 + \tfrac{1}{2} \times \text{Base} \times \sqrt{(\text{Equal side})^2 - \tfrac{1}{4} \times (\text{Base})^2}$$

$$= (8)^2 + \tfrac{1}{2} \times 8 \times \sqrt{(5)^2 - \tfrac{1}{4}(8)^2}$$

$$= 64 + 4 \times \sqrt{25 - 16}$$

$$= 64 + 4 \times \sqrt{9}$$

$$= 64 + 4 \times 3$$

$$= 64 + 12 = 76\,\text{cm}^2$$

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