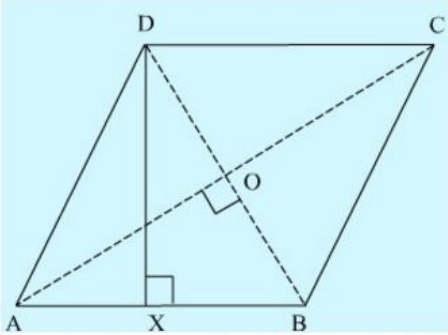
Mensuration I Ex 20.3 Q13

Answer :

We have,

Side of a square = 4 m and one diagonal of a square = 2 m



Area of the rhombus = Area of the square of side 4 m

$\Rightarrow \left(\frac{1}{2} \times AC \times BD\right) = (4\ \mathrm{m})^2$

$\Rightarrow \left(\frac{1}{2} \times AC \times 2\ \mathrm{m}\right) = 16\ \mathrm{m}^2$

$\Rightarrow AC = 16$ m

We know that the diagonals of a rhombus are perpendicular bisectors of each other.

$\Rightarrow AO = \frac{1}{2} AC = 8\ \mathrm{m}$ and $BO = \frac{1}{2} BD = 1\ \mathrm{m}$

By Pythagoras theorem, we have:

$AO^2 + BO^2 = AB^2$

$\Rightarrow AB^2 = (8\ \mathrm{m})^2 + (1\mathrm{m})^2 = 64\ \mathrm{m}^2 + 1\ \mathrm{m}^2 = 65\ \mathrm{m}^2$

$\Rightarrow$ Side of a rhombus = $AB = \sqrt{65}$ m.

Let DX be the altitude.

Area of the rhombus = $AB \times DX$

$16\ \mathrm{m}^2 = \sqrt{65}\ \mathrm{m} \times DX$

$\therefore DX = \frac{16}{\sqrt{65}}\ \mathrm{m}$

Hence, the altitude of the rhombus will be $\frac{16}{\sqrt{65}}\ \mathrm{m}$.

Mensuration I Ex 20.3 Q14

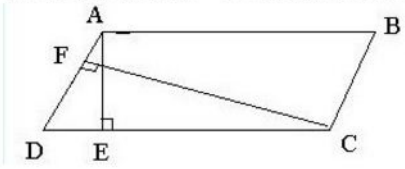
Answer :

We have,

ABCD is a parallelogram with longer side *AB* = 25 cm and altitude *AE* = 10 cm.

As ABCD is a parallelogram .hence *AB=CD* (opposite sides of parallelogram are equal)

The shorter side is *AD* = 20 cm and the corresponding altitude is *CF*.



Area of a parallelogram = Base × Height

We have two altitudes and two corresponding bases.

So,

⇒ *AD* x *CF* = *CD* x *AE*

⇒ 20 x *CF* = 25 x 10

∴ *CF* =

Hence, the altitude corresponding to the other pair of the side *AD* is 12.5 cm.

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