Exercise 20C

(ii)

Length of one diagonal = 8 dm 5 cm = (8 × 10 + 5) cm = 85 cm [since 1 dm = 10 cm]

Length of the other diagonal = 5 dm 6 cm = (5 × 10 + 6) cm = 56 cm

∴ Area of the rhombus = $\frac{1}{2}$ × (Product of the diagonals)

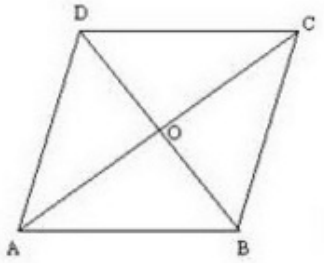
$= \left(\frac{1}{2} \times 85 \times 56\right)$ cm^2

= 2380 cm^2

Q12

Answer :

Let ABCD be the rhombus, whose diagonals intersect at O.



AB = 20 cm and AC = 24 cm

The diagonals of a rhombus bisect each other at right angles.

Therefore, ΔAOB is a right angled triangle, right angled at O.

Here, OA = $\frac{1}{2}$ **AC** = 12 cm

AB = 20 cm

By Pythagoras theorem:

$(AB)^2 = (OA)^2 + (OB)^2$

$\Rightarrow (20)^2 = (12)^2 + (OB)^2$

$\Rightarrow (OB)^2 = (20)^2 - (12)^2$

$\Rightarrow (OB)^2 = 400 - 144 = 256$

$\Rightarrow (OB)^2 = (16)^2$

$\Rightarrow$ OB = 16 cm

∴ BD = 2 × OB = 2 × 16 cm = 32 cm

$\therefore$ Area of the rhombus ABCD = $\left(\frac{1}{2} \times \mathbf{AC} \times \mathbf{BD}\right)$ cm^2

$= \left(\frac{1}{2} \times 24 \times 32\right)$ cm^2

$= 384$ cm^2

Q13

Answer :

Area of a rhombus = $\frac{1}{2}$ × (Product of the diagonals)

Given:

Length of one diagonal = 19.2 cm

Area of the rhombus = 148.8 cm^2

$\therefore$ Length of the other diagonal = $\left(\frac{148.8 \times 2}{19.2}\right)$ cm = 15.5 cm

Q14

Answer :

Perimeter of the rhombus = 56 cm

Area of the rhombus = 119 cm^2

Side of the rhombus = $\frac{\textbf{Perimeter}}{4} = \left(\frac{56}{4}\right)$ cm = 14 cm

Area of a rhombus = Base × Height

$\therefore$ Height of the rhombus = $\frac{\textbf{Area}}{\textbf{Base}} = \left(\frac{119}{14}\right)$ cm

$= 8.5$ cm

Q15

Answer :

Given:
Height of the rhombus = 17.5 cm
Area of the rhombus = 441 cm^2

We know:
Area of a rhombus = Base × Height

$\therefore$ Base of the rhombus = $\frac{\text{Area}}{\text{Height}} = \left(\frac{441}{17.5}\right)$ cm = 25.2 cm
Hence, each side of a rhombus is 25.2 cm.

Q16

Answer :

Area of a triangle = $\frac{1}{2}$ × Base × Height
$= \left(\frac{1}{2} \times 24.8 \times 16.5\right)$ cm^2 = 204.6 cm^2
Given:
Area of the rhombus = Area of the triangle
Area of the rhombus = 204.6 cm^2

Area of the rhombus = $\frac{1}{2}$ × (Product of the diagonals)
Given:
Length of one diagonal = 22 cm
$\therefore$ Length of the other diagonal = $\left(\frac{204.6 \times 2}{22}\right)$ cm
= 18.6 cm

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