

Exercise 20C

(ii)

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

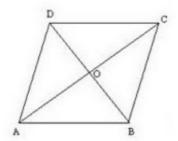
Length of the other diagonal = 5 dm 6 cm = $(5 \times 10 + 6)$ cm = 56 cm \therefore Area of the rhombus = $\frac{1}{2} \times (\text{Product of the diagonals})$ = $\left(\frac{1}{2} \times 85 \times 56\right)$ cm²

= 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, $\triangle AOB$ is a right angled triangle, right angled at O.

Here, OA =
$$\frac{1}{2}$$
 \mathbf{AC} = 12 cm
AB = 20 cm

By Pythagoras theorem:

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

 $\Rightarrow (20)^2 = (12)^2 + (OB)^2$
 $\Rightarrow (OB)^2 = (20)^2 - (12)^2$
 $\Rightarrow (OB)^2 = 400 - 144 = 256$
 $\Rightarrow (OB)^2 = (16)^2$
 $\Rightarrow OB = 16 \text{ cm}$

 \therefore BD = 2 \times OB = 2 \times 16 cm = 32 cm

$$\therefore$$
 Area of the rhombus ABCD = $\left(\frac{1}{2}\times AC\times BD\right)$ cm² = $\left(\frac{1}{2}\times 24\times 32\right)$ cm² = 384 cm²

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 cm²

∴ 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 cm²

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

Area of a rhombus = Base × Height

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

= 8.5 cm

Q15

Answer:

Given:

Height of the rhombus = 17.5 cm Area of the rhombus = 441 cm²

We know:

Area of a rhombus = Base × Height

∴ 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 = $\left(\frac{1}{2} \times 24.8 \times 16.5\right)$ cm² = 204.6 cm²

Given:

Area of the rhombus = Area of the triangle Area of the rhombus = 204.6 cm²

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

Given:

Length of one diagonal = 22 cm

∴ Length of the other diagonal = $\left(\frac{204.6 \times 2}{22}\right)$ cm = 18.6 cm

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