Exercise 20C

Q1

Answer :

Base = 32 cm
Height = 16.5 cm

∴ Area of the parallelogram = Base × Height
= 32 cm × 16.5 cm
= 528 cm^2

Q2

Answer :

Base = 1 m 60 cm = 1.6 m [since 100 cm = 1 m]
Height = 75 cm = 0.75 m

∴ Area of the parallelogram = Base × Height
= 1.6 m × 0.75 m
= 1.2 m^2

Q3

Answer :

(i) Base = 14 dm = (14 × 10) cm = 140 cm [since 1 dm = 10 cm]
Height = 6.5 dm = (6.5 × 10) cm = 65 cm

Area of the parallelogram = Base × Height
= 140 cm × 65 cm
= 9100 cm^2

(ii) Base = 14 dm = (14 × 10) cm [since 1 dm = 10 cm and 100 cm = 1 m]
= 140 cm = 1.4 m
Height = 6.5 dm = (6.5 × 10) cm
= 65 cm = 0.65 m

∴ Area of the parallelogram = Base × Height
= 1.4 m × 0.65 m
= 0.91 m^2

Q4

Answer :

Area of the given parallelogram = 54 cm^2
Base of the given parallelogram = 15 cm
∴ Height of the given parallelogram = $\frac{\text{Area}}{\text{Base}} = \left(\frac{54}{15}\right)$ cm = 3.6 cm

Q5

Answer :

Base of the parallelogram = 18 cm
Area of the parallelogram = 153 cm^2
∴ Area of the parallelogram = Base × Height
⇒ Height = $\frac{\text{Area of the parallelogram}}{\text{Base}} = \left(\frac{153}{18}\right)$ cm = 8.5 cm
Hence, the distance of the given side from its opposite side is 8.5 cm.

Q6

Answer :

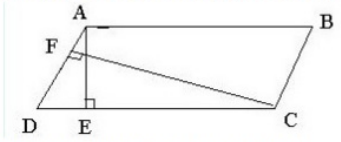
Base, AB = 18 cm
Height, AL = 6.4 cm
∴ Area of the parallelogram ABCD = Base × Height
= (18 cm × 6.4 cm) = 115.2 cm^2 ... (i)

Now, taking BC as the base:
Area of the parallelogram ABCD = Base × Height
= (12 cm × AM) ... (ii)
From equation (i) and (ii):
12 cm × AM = 115.2 cm^2
⇒ AM = $\left(\frac{115.2}{12}\right)$cm
= 9.6 cm

Q7

Answer :

ABCD is a parallelogram with side *AB* of length 15 cm and the corresponding altitude *AE* of length 4 cm. The adjacent side *AD* is of length 8 cm and the corresponding altitude is *CF*.



Area of a parallelogram = Base × Height

We have two altitudes and two corresponding bases.

∴ *AD* × *CF* = *AB* × *AE*
⇒ 8 cm × *CF* = 15 cm ×4 cm

$\Rightarrow CF = \left(\frac{15\times4}{8}\right)$ cm $= \left(\frac{15}{2}\right)$ cm $= 7.5$ cm

Hence, the distance between the shorter sides is 7.5 cm.

Q8

Answer :

Let the base of the parallelogram be x cm.

Then, the height of the parallelogram will be $\frac{1}{3}x$ cm.

It is given that the area of the parallelogram is 108 cm^2.

Area of a parallelogram = Base × Height

$\therefore 108\ cm^2 = x \times \frac{1}{3}x$

$108\ cm^2 = \frac{1}{3}x^2$

$\Rightarrow x^2 = (108 \times 3)\ cm^2 = 324\ cm^2$

$\Rightarrow x^2 = (18\ cm)^2$

$\Rightarrow x = 18$ cm

$\therefore$ Base $= x = 18$ cm

Height $= \frac{1}{3}x = \left(\frac{1}{3} \times 18\right)$ cm

$= 6$ cm

Q9

Answer :

Let the height of the parallelogram be x cm.

Then, the base of the parallelogram will be $2x$ cm.

It is given that the area of the parallelogram is 512 cm^2.

Area of a parallelogram = Base × Height

$\therefore 512\ cm^2 = 2x \times x$

$512\ cm^2 = 2x^2$

$\Rightarrow x^2 = \left(\frac{512}{2}\right)\ \text{cm}^2 = 256\ \text{cm}^2$

$\Rightarrow x^2 = (16\ \text{cm})^2$

$\Rightarrow x = 16\ \text{cm}$

$\therefore$ Base $= 2x = 2 \times 16$

$= 32\ \text{cm}$

Height $= x = 16\ \text{cm}$

Q10

Answer :

A rhombus is a special type of a parallelogram.

The area of a parallelogram is given by the product of its base and height.

$\therefore$ Area of the given rhombus = Base × Height

(i) Area of the rhombus = $12\ \text{cm} \times 7.5\ \text{cm} = 90\ \text{cm}^2$

(ii) Base = 2 dm = $(2 \times 10) = 20\ \text{cm}$ [since 1 dm = 10 cm]

Height = 12.6 cm

$\therefore$ Area of the rhombus = $20\ \text{cm} \times 12.6\ \text{cm} = 252\ \text{cm}^2$

Q11

Answer :

(i)

Length of one diagonal = 16 cm

Length of the other diagonal = 28 cm

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

$= \left(\frac{1}{2} \times 16 \times 28\right)\ \text{cm}^2 = 224\ \text{cm}^2$

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