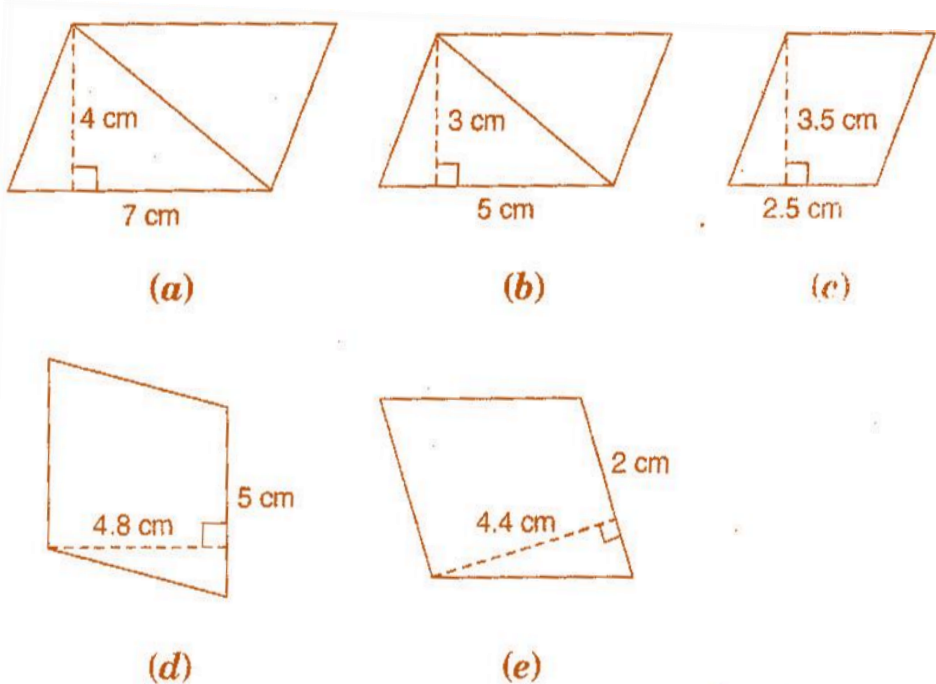


Exercise 11.2

Question 1:

Find the area of each of the following parallelograms:



Answer 1:

We know that the area of parallelogram = base \times height

(a) Here base = 7 cm and height = 4 cm

$$\therefore \text{Area of parallelogram} = 7 \times 4 = 28 \text{ cm}^2$$

(b) Here base = 5 cm and height = 3 cm

$$\therefore \text{Area of parallelogram} = 5 \times 3 = 15 \text{ cm}^2$$

(c) Here base = 2.5 cm and height = 3.5 cm

$$\therefore \text{Area of parallelogram} = 2.5 \times 3.5 = 8.75 \text{ cm}^2$$

(d) Here base = 5 cm and height = 4.8 cm

$$\therefore \text{Area of parallelogram} = 5 \times 4.8 = 24 \text{ cm}^2$$

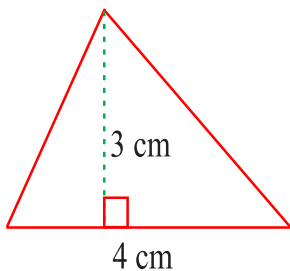
(e) Here base = 2 cm and height = 4.4 cm

$$\therefore \text{Area of parallelogram} = 2 \times 4.4 = 8.8 \text{ cm}^2$$

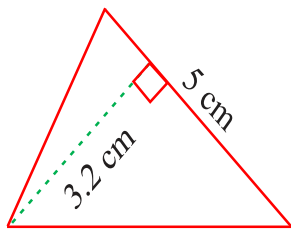
(Chapter – 11) (Perimeter and Area)
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Question 2:

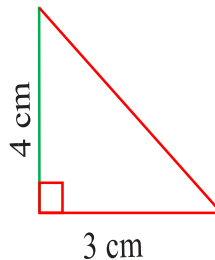
Find the area of each of the following triangles:



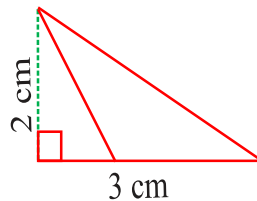
(a)



(b)



(c)



(d)

Answer 2:

We know that the area of triangle = $\frac{1}{2}$ x base x height

(a) Here, base = 4 cm and height = 3 cm

$$\therefore \text{Area of triangle} = \frac{1}{2} \times 4 \times 3 = 6 \text{ cm}^2$$

(b) Here, base = 5 cm and height = 3.2 cm

$$\therefore \text{Area of triangle} = \frac{1}{2} \times 5 \times 3.2 = 8 \text{ cm}^2$$

(c) Here, base = 3 cm and height = 4 cm

$$\therefore \text{Area of triangle} = \frac{1}{2} \times 3 \times 4 = 6 \text{ cm}^2$$

(d) Here, base = 3 cm and height = 2 cm

$$\therefore \text{Area of triangle} = \frac{1}{2} \times 3 \times 2 = 3 \text{ cm}^2$$

Question 3:

Find the missing values:

S. No.	Base	Height	Area of the parallelogram
a.	20 cm		246 cm ²
b.		15 cm	154.5 cm ²
c.		84 cm	48.72 cm ²
d.	15.6 cm		16.38 cm ²

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Answer 3:

We know that the area of parallelogram = base x height

(a) Here, base = 20 cm and area = 246 cm²

$$\therefore \text{Area of parallelogram} = \text{base} \times \text{height}$$

$$\Rightarrow 246 = 20 \times \text{height}$$

$$\Rightarrow \text{height} = \frac{246}{20} = 12.3 \text{ cm}$$

(b) Here, height = 15 cm and area = 154.5 cm²

$$\therefore \text{Area of parallelogram} = \text{base} \times \text{height}$$

$$\Rightarrow 154.5 = \text{base} \times 15$$

$$\Rightarrow \text{base} = \frac{154.5}{15} = 10.3 \text{ cm}$$

(c) Here, height = 8.4 cm and area = 48.72 cm²

$$\therefore \text{Area of parallelogram} = \text{base} \times \text{height}$$

$$\Rightarrow 48.72 = \text{base} \times 8.4$$

$$\Rightarrow \text{base} = \frac{48.72}{8.4} = 5.8 \text{ cm}$$

(d) Here, base = 15.6 cm and area = 16.38 cm²

$$\therefore \text{Area of parallelogram} = \text{base} \times \text{height}$$

$$\Rightarrow 16.38 = 15.6 \times \text{height}$$

$$\Rightarrow \text{height} = \frac{16.38}{15.6} = 1.05 \text{ cm}$$

Thus, the missing values are:

S. No.	Base	Height	Area of the parallelogram
a.	20 cm	12.3 cm	246 cm ²
b.	10.3 cm	15 cm	154.5 cm ²
c.	5.8 cm	84 cm	48.72 cm ²
d.	15.6 cm	1.05	16.38 cm ²

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Question 4:

Find the missing values:

Base	Height	Area of triangle
15 cm	-----	87 cm ²
-----	31.4 mm	1256 mm ²
22 cm	-----	170.5 cm ²

Answer 4:

We know that the area of triangle = $\frac{1}{2}$ x base x height

In first row, base = 15 cm and area = 87 cm²

$$\therefore 87 = \frac{1}{2} \times 15 \times \text{height}$$

$$\Rightarrow \text{height} = \frac{87 \times 2}{15} \quad 11.6 \text{ cm}$$

In second row, height = 31.4 mm and area = 1256 mm²

$$\therefore 1256 = \frac{1}{2} \times \text{base} \times 31.4$$

$$\Rightarrow \text{base} = \frac{1256 \times 2}{31.4} \quad 80 \text{ mm}$$

In third row, base = 22 cm and area = 170.5 cm²

$$\therefore 170.5 = \frac{1}{2} \times 22 \times \text{height}$$

$$\Rightarrow \text{height} = \frac{170.5 \times 2}{22} \quad 15.5 \text{ cm}$$

Thus, the missing values are:

Base	Height	Area of triangle
15 cm	11.6 cm	87 cm ²
80 mm	31.4 mm	1256 mm ²
22 cm	15.5 cm	170.5 cm ²

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Question 5:

PQRS is a parallelogram (Fig 11.23). QM is the height from Q to SR and QN is the height from Q to PS. If SR = 12 cm and QM = 7.6 cm. Find:

(a) the area of the parallelogram PRS

(b) QN, if PS = 8 cm

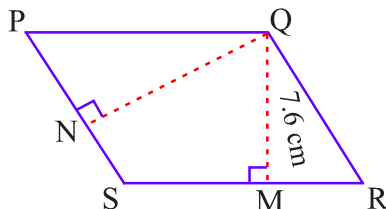


Fig 11.23

Answer 5:

Given: SR = 12 cm, QM = 7.6 cm, PS = 8 cm.

$$\begin{aligned}\text{(a) Area of parallelogram} &= \text{base} \times \text{height} \\ &= 12 \times 7.6 = 91.2 \text{ cm}^2\end{aligned}$$

(b) Area of parallelogram = base \times height

$$\Rightarrow 91.2 = 8 \times \text{QN}$$

$$\Rightarrow \text{QN} = \frac{91.2}{8} = 11.4 \text{ cm}$$

Question 6:

DL and BM are the heights on sides AB and AD respectively of parallelogram ABCD (Fig 11.24). If the area of the parallelogram is 1470 cm^2 , AB = 35 cm and AD = 49 cm, find the length of BM and DL.

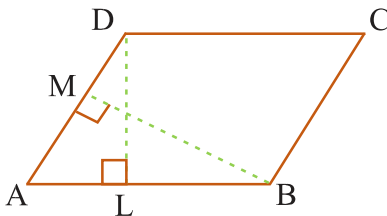


Fig 11.24

Answer 6:

Given: Area of parallelogram = 1470 cm^2

Base (AB) = 35 cm and base (AD) = 49 cm

Since Area of parallelogram = base \times height

$$\Rightarrow 1470 = 35 \times \text{DL}$$

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$$\Rightarrow DL = \frac{1470}{35}$$

$$\Rightarrow DL = 42 \text{ cm}$$

Again, Area of parallelogram = base x height

$$\Rightarrow 1470 = 49 \times BM$$

$$\Rightarrow BM = \frac{1470}{49}$$

$$\Rightarrow BM = 30 \text{ cm}$$

Thus, the lengths of DL and BM are 42 cm and 30 cm respectively.

Question 7:

$\triangle ABC$ is right angled at A (Fig 11.25). AD is perpendicular to BC. If AB = 5 cm, BC = 13 cm and AC = 12 cm, find the area of $\triangle ABC$. Also, find the length of AD.

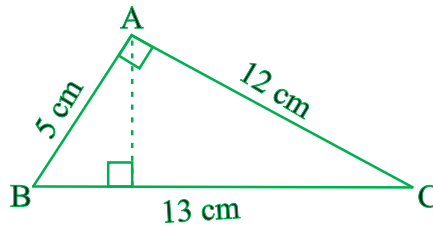


Fig 11.25

Answer 7:

In right angles triangle BAC, AB = 5 cm and AC = 12 cm

$$\begin{aligned}\text{Area of triangle} &= \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times AB \times AC \\ &= \frac{1}{2} \times 5 \times 12 = 30 \text{ cm}^2\end{aligned}$$

Now, in $\triangle ABC$,

$$\text{Area of triangle ABC} = \frac{1}{2} \times BC \times AD$$

$$\Rightarrow 30 = \frac{1}{2} \times 13 \times AD$$

$$\Rightarrow AD = \frac{30 \times 2}{13} = \frac{60}{13} \text{ cm}$$

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Question 8:

$\triangle ABC$ is isosceles with $AB = AC = 7.5$ cm and $BC = 9$ cm (Fig 11.26). The height AD from A to BC , is 6 cm. Find the area of $\triangle ABC$. What will be the height from C to AB i.e., CE ?

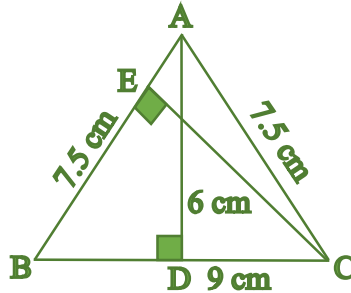


Fig 11.26

Answer 8:

In $\triangle ABC$, $AD = 6$ cm and $BC = 9$ cm

$$\begin{aligned}\text{Area of triangle} &= \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times BC \times AD \\ &= \frac{1}{2} \times 9 \times 6 = 27 \text{ cm}^2\end{aligned}$$

$$\text{Again, Area of triangle} = \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times AB \times CE$$

$$\Rightarrow 27 = \frac{1}{2} \times 7.5 \times CE$$

$$\Rightarrow CE = \frac{27 \times 2}{7.5}$$

$$\Rightarrow CE = 7.2 \text{ cm}$$

Thus, height from C to AB i.e., CE is 7.2 cm.