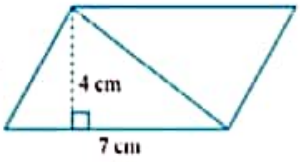
Chapter 11

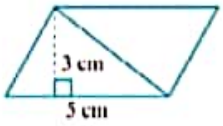
Perimeter and Area

Exercise 11.2

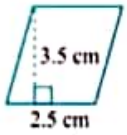
1. Find the area of each of the following parallelograms:



(a)



(b)

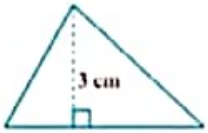


(c)

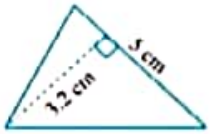
(d)

(e)

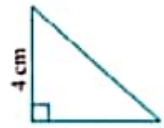
2. Find the area of each of the following triangles:



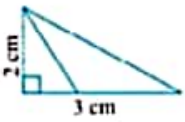
(a)



(b)



(c)



(d)

3. Find the missing values:

S.No.	Base	Height	Area of the Parallelogram
a.	20 cm		246 cm²
b.		15 cm	154.5 cm²
c.		8.4 cm	48.72 cm²
d.	15.6 cm		16.38 cm²

4. Find the missing values:

Base	Height	Area of Triangle
15 cm	____	87 cm²
____	31.4 mm	1256 mm²
22 cm	____	170.5 cm²

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 parallegram PQRS (b) QN, if PS = 8 cm

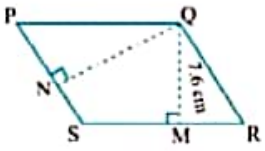


Fig 11.23

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 cm², AB = 35 cm and AD = 49 cm, find the length of BM and DL.

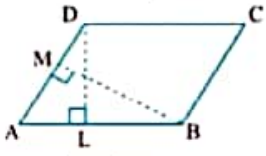


Fig 11.24

7. ΔABC 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 ΔABC. Also find the length of AD.

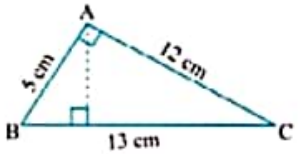


Fig 11.25

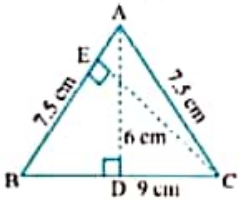


Fig 11.26

8. ΔABC 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 ΔABC. What will be the height from C to AB i.e., CE?

CHAPTER: 11 PERIMETER AND AREA

Exercise : 11.2 (Solutions)

Sol.1 (a) Area of the parallelogram = base × height
= 7 cm × 4 cm
= 28 cm^2

(b) Here base = 5 cm
height = 3 cm
∴ Area of the parallelogram = base × height
= 5 cm × 3 cm
= 15 cm^2

(c) Here base = 2.5 cm
height = 3.5 cm
Area of the parallelogram = base × height
= 2.5 cm × 3.5 cm
= 8.75 cm^2

(d) Here base = 5 cm
height = 4.8 cm
Area of the parallelogram = base × height
= 5 cm × 4.8 cm
= 24.0 cm^2
= 24 cm^2

(e) Here base = 2 cm
height = 4.4 cm
Area of the parallelogram = base × height
= 2 cm × 4.4 cm
= 8.8 cm^2

(a) from the given figure
base 'b' = 4 cm
height 'h' = 3 cm

Area of the triangle = $\frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 4\,cm \times 3\,cm$

$= 6\,cm^2$

(b) from the given figure
base 'b' = 5 cm
height 'h' = 3.2 cm

Area of the triangle = $\frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 5\,cm \times 3.2\,cm$

$= \frac{1}{2} \times 5 \times \frac{32}{10}\,cm^2$

$= 8\,cm^2$

(c) from the given figure
base 'b' = 3 cm
height 'h' = 4 cm
Area of the triangle = $\frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 3 \times 4\,cm^2$

$= 6\,cm^2$

(d) From the given figure

base 'b' = 3 cm

height 'h' = 2 cm

Area of the triangle = $\frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 3 \times 2 \text{ cm}^2$

$= 3 \text{ cm}^2$

Sol. 3 (a)

Area of the parallelogram = $b \times h$

$246 = 20 \times h$

$\therefore h = \frac{246}{20} = \frac{123}{10} = 12.3 \text{ cm}$

$\boxed{h = 12.3 \text{ cm}}$ Ans

(b) Area of the parallelogram = $b \times h$

$154.5 = b \times 15$

$\therefore b = \frac{154.5}{15}$

$b = \frac{1545}{15 \times 10} = \frac{103}{10} = 10.3$

$\boxed{b = 10.3 \text{ cm}}$ Ans

(c) Area of the parallelogram = $b \times h$

$48.72 = b \times 8.4$

$\therefore b = \frac{48.72}{8.4}$

$b = \frac{4872}{100} \times \frac{10}{84}$

$b = \frac{4872}{10 \times 84}$

$\therefore b = \frac{4872}{10 \times 84} = \frac{58}{10}$ cm

$= 5.8$ cm

$\therefore$ $\boxed{b = 5.8 \text{ cm}}$ Ans

(d) Area of the parallelogram = $b \times h$

$16.38 = 15.6 \times h$

$\therefore h = \frac{16.38}{15.6}$

$h = \frac{1638}{100} \times \frac{10}{156}$

$$h = \frac{273}{\cancel{819}\ \cancel{1638}\ 10} \times \frac{1}{\cancel{10}\ \cancel{156}\ \cancel{78}\ 26}$$

$$h = \frac{273}{10 \times 26} = \frac{273}{260} \text{ cm}$$

$$\boxed{h = 1.05 \text{ cm}} \quad \text{Ans}$$

Sol. 4(a)

Area of the Triangle $= \frac{1}{2} \times b \times h$

$$87 \text{ cm}^2 = \frac{1}{2} \times 15 \text{ cm} \times h$$

$$\therefore h = \frac{87 \times 2}{15} \text{ cm}$$

$$h = \frac{174}{15} \text{ cm} = 11.6 \text{ cm}$$

$$\boxed{h = 11.6 \text{ cm}} \quad \text{Ans}$$

So, the height = 11.6 cm Ans

(b) Area of the triangle $= \frac{1}{2} \times b \times h$

$1256\ mm^2 = \frac{1}{2} \times b \times 31.4\ mm$

$\therefore b = \frac{1256 \times 2}{31.4}\ mm$

$b = \frac{1256 \times 2 \times 10}{314} = 80\ mm$

$b = 80\ mm$

So, the required base $= 80\ mm$

(c) Area of the triangle $= \frac{1}{2} \times b \times h$

$170.5\ cm^2 = \frac{1}{2} \times 22\ cm \times h$

$\therefore h = \frac{170.5 \times 2}{22}$

$h = \frac{1705 \times 2}{10 \times 22} = \frac{155}{10} = 15.5$

$h = 15.5\ cm$

So, the required height $= 15.5\ cm$ Ans

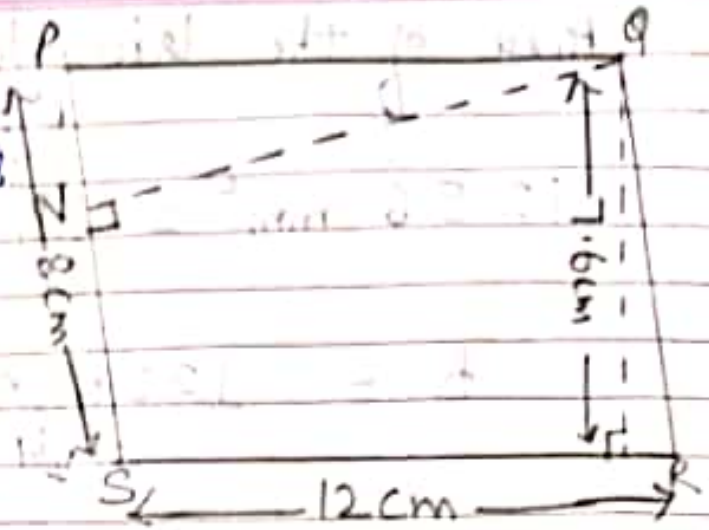
Sol 5).

In the given parallelogram PQRS

SR = 12 cm

QM = 7.6 cm

Area of ||gm = b x h



(a) Area of the parallelogram PQRS = SR x QM

= Base x height

= 12 cm x 7.6 cm

= 91.2 cm²

(b) Area of the parallelogram PQRS = PS x QN

= Base x height

91.2 = PS x QN

91.2 = 8 x QN

$$\therefore QN = \frac{91.2}{8}$$

$$= \frac{91.2}{8 \times 10} \times \frac{114}{10} = 11.4$$

$$\therefore \boxed{QN = 11.4 \text{ cm}}$$

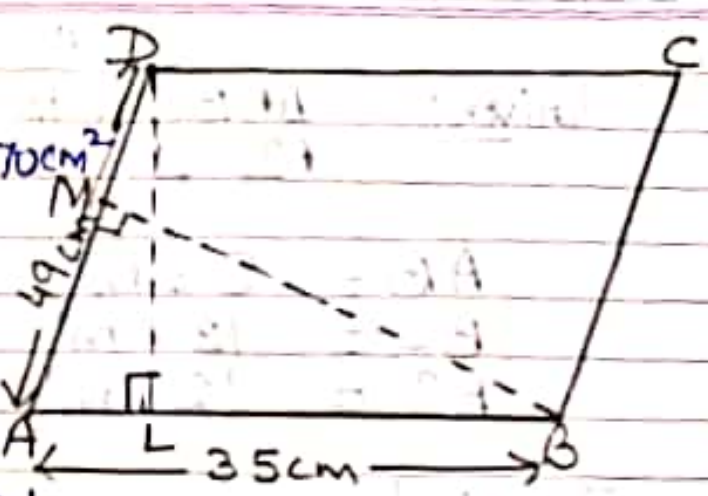
Sol 6)

Given:-

Area of ||gm ABCD = 1470 cm^2

AB = 35 cm

AD = 49 cm



Find:- the length of BM and DL.

Area of the parallelogram ABCD = AB × DL

$1470\ cm^2 = 35\ cm \times DL$

$\therefore DL = \frac{1470}{35} = 42\ cm$

$\boxed{DL = 42\ cm}$

Area of the ||gm ABCD = AD × BM

$1470\ cm^2 = 49\ cm \times BM$

$\therefore BM = \frac{1470}{49} = 30\ cm$

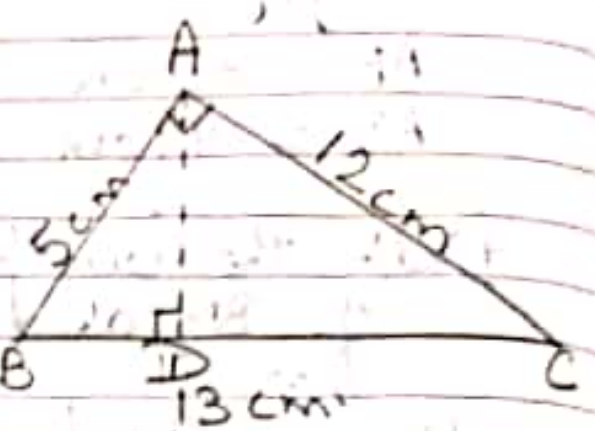
$\boxed{BM = 30\ cm}$

Hence, BM = 30cm and DL = 42 cm

Sol 7)

Given: ΔABC is right angled at A
$AD \perp BC$

$AB = 5$ cm
$BC = 13$ cm
$AC = 12$ cm



To find:
Area of ΔABC
and length of AD

Solution: Area of the right $\Delta ABC = \frac{1}{2} \times AB \times AC$

$= \frac{1}{2} \times 5 \times 12$

$= 30 \text{ cm}^2$

Area of $\Delta ABC = \frac{1}{2} \times$ base $\times$ height

$30 \text{ cm} = \frac{1}{2} \times BC \times AD$

$30 \text{ cm}^2 = \frac{1}{2} \times 13 \text{ cm} \times AD$

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

$AD = \frac{60}{13} \text{ cm} = 4\frac{8}{13} \text{ cm}$

Hence, Area of $\Delta ABC = 30 \text{cm}^2$
& length of $AD = 4\frac{8}{13}$ cm

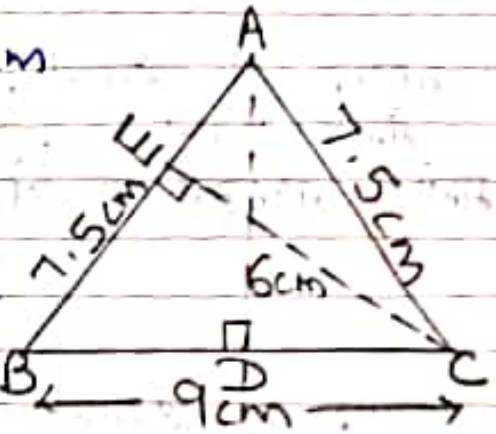
Sol. 8)

Given: ΔABC is isosceles Δ

$AB = AC = 7.5\,cm$

$BC = 9\,cm$

$AD = 6\,cm$



To find:- Area of ΔABC and length of CE

Solution:

Area of $\Delta ABC = \frac{1}{2} \times$ base $\times$ height

$= \frac{1}{2} \times 9\,cm \times 6\,cm$

$= 27\,cm^2$

Area of $\Delta ABC = \frac{1}{2} \times AB \times CE$

$27\,cm^2 = \frac{1}{2} \times 7.5\,cm \times CE$

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

$CE = \frac{27 \times 2 \times 10}{75} = \frac{36}{5}\,cm$

$= 7.2\,cm$

$\boxed{CE = 7.2\,cm}$

Hence, Area of $\Delta ABC = 27\,cm^2$

& length of $CE = 7.2\,cm$