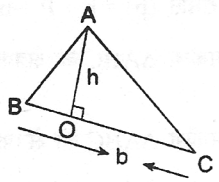
एकाइ (Unit): 5

समतलीय सतह (Plane Surfaces)

5.1 त्रिभुजको क्षेत्रफल (Area of Triangle)

केही महत्वपूर्ण सुत्रहरू (Some Important Formulae)

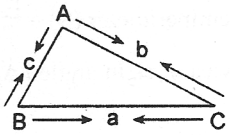
- ΔABC को चित्रमा
  BC आधारमा = b र यसको उचाई (AD) = h भए
  In the figure of ΔABC of base (BC) = b and its height (AD) = h



  $\therefore$ Area of $\Delta ABC = \frac{1}{2}$ based × height

  $= \frac{1}{2}bh$

- दिइएको चित्र ΔABC मा



  BC = a AB = c र AC = b भए,

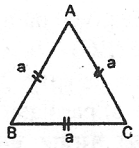
  परिमिति (p) = a + b + c र अर्धपरिमिति $(S) = \frac{a+b+c}{2}$

  In the given figure of ΔABC BC = a AB = c and AC = b

  Permeter (p) = a + b +c and semiperimeter $(s) = \frac{a+b+c}{2}$

  Are a of triangle $(A) = \sqrt{s(s-a)(s-b)(s-c)}$

- दिएको समबाहु ΔABC मा AB = BC = AC = a भए



  परिमिति (p) = 3a र अर्धपरिमिति $(s) = \frac{3a}{2}$

  समबाहु ΔBAC को क्षेत्रफल $(A) = \sqrt{s(s-a)(s-a)(s-a)}$

  OR

  समबाहु ΔABC को क्षेत्रफल $(A) = \frac{\sqrt{3}}{4}a^2$

  If in given an equilaterial ΔABC AB = BC = CA = a, then

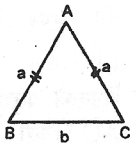
  Perimeter (p) = 3a semiperimeter $(s) = \frac{3a}{2}$

  Area of an equilaterial ΔABC $(A) = \sqrt{s(s-a)(s-a)(s-a)}$

  OR

  Area of an quilaterial ΔABC $(A) = \frac{\sqrt{3}}{4}a^2$

- दिइएको समद्विबाहु ΔABC मा AB = BC = a र AC = b भए परिमिति



  (p) = 2a + b अर्धपरिभिति $(s) = \frac{2a+b}{2}$

  OR

  समद्विबाहु ΔABC को क्षेत्रफल $(A) = \sqrt{s(s-a)(s-a)(s-b)}$

  समद्विबाहु ΔABC को क्षेत्रफल $= \frac{b}{4}\sqrt{4a^2-b^2}$

  In the given in isosceles ΔABC AB = AC = a and BC = b

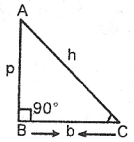
Perimeter (p) = 2a+b, semiperimeter (s) $= \frac{2a+b}{2}$

Area of an isosceles ΔABC (A) $= \sqrt{s(s-a)(s-a)(s-b)}$

OR

Area of an isosceles ΔABC (A) $= \frac{b}{4}\sqrt{4a^2-b^2}$

- दिइएको समकोण ΔABC मा $\angle ABC = 90°$
  AB = P, BC = b भए



परिमिति (p) = h + P + b, अर्धपरिमिति (s) $= \frac{h+p+b}{2}$

समकोण ΔABC को क्षेत्रफल (A) $= \sqrt{s(s-h)(s-p)(s-b)}$

OR

समकोण ΔABC को क्षेत्रफल (A) $= \frac{1}{2}(b \times p)$

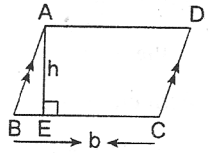
In the right angled ΔABC $\angle ABC = 90°$ AB = p and BC = b, perimeter (p) = h + b + p, semiperimeter (S) $= \frac{h+p+b}{2}$

Area of right angled $\Delta ABC = \sqrt{s(s-h)(s-p)(s-b)}$

OR

Area of right angled $\Delta ABC = \frac{1}{2}(b \times p)$

- दिइएको समानान्तर चतुर्भुज ABCD मा आधार (BC) = b र उचाई (AE) = h भए AB = a, भए परिमिति (p) = 2 (a + b)

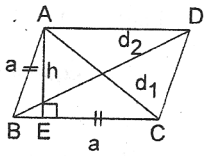


स.च. को क्षेत्रफल (A) = आधार × उचाई = (b × h)]
In the given parallelogram ABCD
Base (BC) = b, height (AE) = h and side (AB) = a
Perimeter (p) = 2 (a + b)
Area of parmater ABCD (A) = (base × height) = (b h)

- दिइएको समबाहु चतुर्भुज ABCD मा AB = BC = CD = AD = a, विकर्ण
  (AC) = d, विकर्ण (BD) = d_2 र उचाई (AE) = h
  परिमिति (p) = 4a,
  समबाहु चतुर्भुजको क्षेत्रफल (A) = आधार × उचाई = a × h

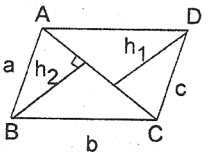
Or

समबाहु चनुर्भुजको क्षेत्रफल (A) $= \frac{1}{2} d_1 \times d_2$



In the given rhombucs ABCD AB = BC = CD = AD = a diagonal
(AC) = d_1 and diagmal (BD) = d_2 height = h, perimeter (P) = 4a. Area of rhombus (A) = a × h or area of rhombus (A) $= \frac{1}{2}$ $(d_1 \times d_2)$

- दिइएको चतुर्भुज ABCD (i) मा AB = a, BC = b CD = c DA = d
  AC विकर्ण = d र विकर्णसम्म खिचिएको लम्बहरू h_1 र h_2 भए
  परिमिति (p) = a + b + c + d

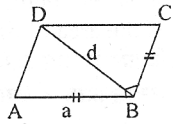


चतुर्भुज ABCD को क्षेत्रफल (A) $= \frac{1}{2}$ विकर्ण (लम्बहरूको योग) $= \frac{1}{2} d(h_1 + h_2)$

In the given quadrilaterial ABCD, AB = a BC = b CD = c DA = d, AC and diagonal = d, h_1 and h_2 are perpendicular 1 drawn to the diagonal
Perimeter (p) = a + b + c + d

Area of quadrilateral (ABCD) (A) = $\frac{1}{2}$ diagonal (Sum of perpendicular = $\frac{1}{2}$ d ($h_1 + h_2$)

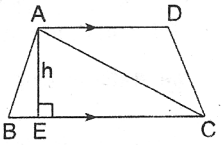
- दिइएको चित्र ABCD वर्गमा AB = BC = a र BD विकर्ण d भए
परिमिती (P) = 4a



क्षेत्रफल(A) =a^2 = $\frac{1}{2}d^2$ (In the given figure, in square ABCD AB = BC =a , diagonal (BD) = d,
Perimeter (P) = 4a

Area of square (A) = $a^2 = \frac{1}{2}d^2$

- दिइएको समलम्ब चतुर्भुज ABCD मा AB = a, BC = b, CD = c, DA = d, AD//BC उचाई (AE) = h
परिमिति (p) = a+ b + c +d

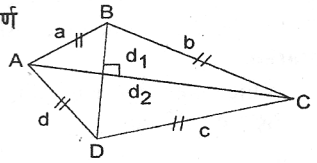


समलम्ब चतुर्भुज ABCD को क्षेत्रफल (A) = $\frac{1}{2}$ उचाई (समानान्तर रेखाहरूको योग) = $\frac{1}{2}$ h(AD + BC)

In the given trapezicem ABCD,
AB = a BC = b CD = c DA = d diagrional AC = d
AD//BC height (AE) = h
Perimeter (p) = a + b +c + d

Area of traopilium ABCD = $\frac{1}{2}$ height (Sum of parallel lines) = $\frac{1}{2}$ h (AD + BC)

- दिइएको चित्रमा ABCD चङ्गामा AB = a, BC = b, CD = c, र DA = d, विकर्ण (AC) = d_1
विकर्ण (BD) = d_2 भए
परिमिति (p) = a + b + c + d = 2(a+b)
चङ्गाको ABCD क्षेत्रफल (A) = $\frac{1}{2}$ ($d_1 \times d_2$)



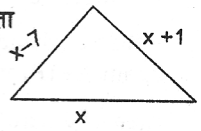
In the fiven figure ABCD the AB = a BC = b CD = c and DA = d diagonal (AC) = d_1 and diagonal (BD) = d_2 rerimeter (p) = a + b + c + d

A= 2 (a + b) area of kite ABCD (a) = $\frac{1}{2}$ ($d_1 \times d_2$)

Very short Questions

1. यदि समबाहु त्रिभुजको एउटा भूजाको a एकाई यसको क्षेत्रफल कति हुन्छ ?
If the length of one side of equilaterial is a unit, what is the its area ?
2. यदि एउटा ΔXYZ को भुजाहरूको नाप क्रमशx, y र z भए क्षेत्रफल कति हुन्छ ?
If measure of ΔXYZ of sider arex, y and z respectively, what is the area of triangle ?
3. 6cm लम्बाई भएको समबाहु त्रिभुजको परिमिति कति हुन्छ ?
What is perimeter of equilaterial triangle where length is 6cm.
4. कुनै त्रिभुजको तीनवटा भुजाहरू क्रमश: a,b र c छ भने त्रिभुजको अर्धपरिमिति कति हुन्छ ? लेख्नुहोस्।
If nthe three sides of a triangle are a,b and c respectively, what is the simi perimeter of the triangle ?
5. समद्विबाहु त्रिभुजको क्षेत्रफल कति हुन्छ ? जसका दुई बराबर भूजाको लम्बाई 'a' एकाई र आधार भुजा b एकाई छ ।
What is the area of isosceles triangle, where two equal side is a unit and length of base is 'b'.

6. समकोण समद्विबाहु त्रिभुजमा कर्ण 'h' र बराबर भूजा 'b' एकाई भए प्रमाणित गर्नुहोस् । $h = b\sqrt{2}$
If in a right angled triangle, hypotenuse 'h' and equal two sides is b unit prove that $h = b\sqrt{2}$.
7. यदि एउटा त्रिभुजको आधारको लम्बाई 20cm र यसको क्षेत्रफल 50 cm^2 छ भने त्रिभुजको उचाई निकाल्नुहोस् ।
If length base of a triangleis 20cm and its area is $50cm^2$, find the height of triangle.
8. वर्गको भूजाको लम्बाई कति भए क्षेत्रफल र परिमिति बराबर हुन्छ ?
How long will be length of are side of square? whose area and perimeter is equal.
9. स.च. को क्षेत्रफल $60cm^2$ र यसको आधार 12cm भए यसको उचाई कतिहोला ?
If the area of parallelogram is $60cm^2$ and its base 12cm, find the height its.
10. दिएको चित्रमा त्रिभुजको प्रत्येक भूजाको लम्बाइहरू x + 1, x – 7 and x छन् x को मान पत्ता लगाउनुहोस् । जसको परिमिति 30cm छ ।
In the given figure of a triangle the length of each sides are x + 1, x – 7 and x, find the value of x, whose perimeter is 30cm.

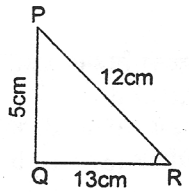


11. यदि समबाहु चतुर्भुजको विकर्णहरू d_1 र d_2 भए यसको क्षेत्रफल कति हुन्छ ?
If d_1 and d_2 are the diagmal of rhombus find the of its area ?
12. कुनै समदिबाहु त्रिभुजको क्षेत्रफल $\frac{p}{4}\sqrt{4q^2 - p^2}$ भए कुन दुई भुजाहरू बराबर होला ?
If the area nof Isoscetes angle $\frac{p}{4}\sqrt{4q^2 - p^2}$ which two sides equal ?
13. यदि एउटा वर्गको विकर्णको लम्बाई d भए यसको क्षेत्रफल लाई d को रूपमा लेख्नुहोस्।
If d is a diagonal of square , write the its area in terms of d.

Short Questions:

Model 1

दिइएको ΔPQR को क्षेत्रफल कति हुन्छ ? पत्ता लगाउनुहोस् ।
What is the area of the given ΔPQR, find it .



Solution:

In the given figure of ΔPQR PQ = a = 5cm QR = b = 13cm and PR = c = 12 cm

Semiperimeter (s) $= \frac{a + b + c}{2}$

$= \frac{5 + 13 + 12cm}{2} = 15$ cm

Now,area of ΔPQR (A)

$= \sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{15cm\ (15cm - 5cm)\ (15cm - 13cm)\ (15cm - 12cm)}$

$= \sqrt{15cm \times 10cm \times 2cm \times 3cm} = \sqrt{900cm^4} = 30cm^2$

∴ Area of ΔPQR (A) = $30cm^2$

Model 2:

एउटा समबाहु त्रिभुजको क्षेत्रफल $729\sqrt{3}$ cm^2 छ । यसको भुजाको लम्बाई र परिमिति पत्ता लगाउनुहोस् ।
The area of anb equilaterial triangle is $729\sqrt{3}$ cm^2 find its side and perimeter.

Solution:

Here, Area of equlaterial triangle (A) = $729\sqrt{3}$ cm^2

$\because \quad A = \frac{\sqrt{3}}{4}a^2$

or, $729\sqrt{3}\ cm^2 = \frac{\sqrt{3}}{4}a^2$

or, $a^2 = 729 \times 4$

or, $729\sqrt{3} \times 4cm^2 = \sqrt{3}\, a^2$

or, $2916cm^2 = a^2$

or, $a^2 = (16cm)^2$

$\therefore$ $a = 16cm$

Length of sides (a) = 16cm

Primeter (p) = $4a = 4 \times 16cm = 64cm$

Model 3:

36cm परिमिति भएको समबाहु त्रिभुजको क्षेत्रफल पत्ता लगाउनुहोस् ।

Find the area of an equilaterial triangle of perimeter is 36 cm.

Solution:

Here, Area of equilaterial triangle (A) = ?

Its perimeter (p) = 36cm

$\therefore$ $p = 3a$

or, $36cm = 3a$

$\therefore$ $a = 12cm$

Area of an equilateral triangle (A) $= \frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} (12cm)^2 = \frac{\sqrt{3} \times 144}{4} cm^2$

$= 36\sqrt{3}\ cm^2 = 62.35cm^2$

$\therefore$ Area of an equilaterial $\Delta 35.07cm^2$

Model 4:

एउटा त्रिभुजको परिमिति र दुई भुजाहरूको लम्बाई क्रमश 36cm 8cm and 12cm छन् ।यो त्रिभुजको क्षेत्रफल निकाल्नुहोस् ।

Then perimeter and the length of two sides of a triangle are 36cm, 8cm and 12cm respectively find the area of the triangle.

Solution:

Here, perimeter (P) = 36cm, let two side of triangle be a and b repectively, the a = 8cm and b = 12cm

$\therefore$ $P = a = b + c$

or, $36cm = 8cm + 12cm + c$

or, $36 - 20cm = c$

or, $c = 16cm$

Semiperimeter (s) $= \frac{a + b + c}{2}$

$= \frac{36cm}{2} = 18cm$

Area of trangle (A) $= \sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{18cm\,(18cm - 8cm)\,(18cm - 12cm)\,(18cm - 16cm)}$

$= \sqrt{18 \times 10 \times 6 \times 6 \times 2\ cm^4} = \sqrt{2160cm^4}$

Area of triangle (A) = $46.48cm^2$

Model 5 :

एउटा त्रिभुजको भूजाहरूको अनुपात 3:4:5 र परिमिति 12cm छ भने त्रिभुजको क्षेत्रफल पत्ता लगाउनुहोस् ।

The ratio of the sides of a triangle 3:4:5 and its perimeter 12cm find the area of the triangle.

Solution:

Here, let the length of three sides be a, b and c whose ratio are 3:4:5 then a = 3x b = 4x c = 5x, and perimeter (P) = 12cm

$\therefore P = a + b + c$

or, 12cm = 3x + 4x + 5x
or, 12cm = 12x
$\therefore$ x = 1cm
a = 3x = 3 × 1cm = 3cm, b = 4x = 4 × 1cm = 4cm, c = 5x = 51cm = 5cm

semiperimeter (s) $= \frac{a+b+c}{2} = \frac{12cm}{2} = 6cm$

Area of triangle (A) $= \sqrt{s(s-a)(s-b)(s-c)}$
$= \sqrt{12cm(12cm-3cm)(12-4cm)(12cm-5cm)}$
$= \sqrt{12cm \times 9cm \times 8cm \times 7cm}$
$= \sqrt{6048cm^4}$
$= 77.76cm^2$

Model 6:

एउटा समद्विबाहु त्रिभुजको परिमिति र आधारको लम्बाई क्रमश 25m र 9cm छन् भने सो त्रिभुजको क्षेत्रफल निकाल्नुहोस् ।

The perimeter and the length of the base of an isosceles triangle are 25cma and 9cm repectively calculate the area of the triangle.

Soluton: Here, In the isosceles triangle

Perimeter (P) = 25cm and length of base (b) = 9cm
or, p = 2a + b
or, 25cm = 2a + 9cm
or, (25 – 9) cm = 2a
or, $\frac{16cm}{2} = a$
$\therefore$ a = 8cm

Length of equal sides (a) = 8cm

Area of a isosceles triangle (A) $= \frac{b}{4}\sqrt{4a^2-b^2} = \frac{9cm}{4}\sqrt{4 \times 64cm^2 - (9cm)^2}$

$= \frac{9}{4}cm\sqrt{256cm^2 - 81cm^2} = \frac{9 \times 13.23cm^2}{4} = 29.76cm^2$

$\therefore$ Area of a isosceles triangle (A) = $29.76cm^2$

Model 7:

यदि एउटा समबाहु चतुर्भुजका विकर्णहरूको लम्बाई क्रमश 8cm र 10cm भए क्षेत्रफल पत्ता लगाउनुहोस् ।

If the diagonal of a rhombus are 8cm and 10cm respectively, find its area.

Solution:

Here, In a rhombus length of diagonal are 8cm and 10cm
Then d_1 = 8cm and d_2 = 10cm

Area of rhombus (A) $= \frac{1}{2}(d_1 \times d_2) = \frac{1}{2}(8cm \times 10cm) = 40cm^2$

Area of rhombus (A) = $40cm^2$

Model 8:

यदि ΔABC मा परिमिति 24cm, a + b = 18cm b + c = 14cm भए ΔABC को क्षेत्रफल पत्ता लगाउनुहोस् ।

If In ΔABC, perimeter 24cm, a + b = 18cm b + c = 14cm find the area of ΔABC.

Solution:

Here, perimeter (p) = 24cm a+ b = 18cm b + c = 14cm
Now, P = a + b + c
or, 24cm = 18cm + c

or, $24cm - 18cm = c$

$\therefore$ $c = 6cm$

Again, $P = a + b + c$

or, $24cm = a + 14cm$

or, $24cm - 14cm = a$

$\therefore$ $a = 10cm$

$b + c = 14cm$

or, $b + 6cm = 14cm$

$\therefore$ $b = 8cm$

Semiperimeter $(s) = \frac{p}{2} = \frac{24cm}{2} = 12cm$

Area of ΔABC $(A) = \sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{12cm(12cm - 10cm)(12cm - 8cm)(12cm - 6cm)}$

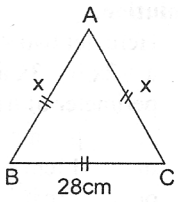
$= \sqrt{12cm \times 2cm \times 4cm \times 6cm} = \sqrt{576cm^4} = 24cm^2$

$\therefore$ Area of ΔABC $(A) = 24cm^2$

Model 9:

दिइएको समद्विबाहु ΔABC को क्षेत्रफल $672cm^2$ भए x को मान पत्ता लगाउनुहोस् ।

The area of ΔABC is $672cm^2$, find the value of x.



Solution:

Here, in the given figure of ΔABC $AB = BC$ $(a) = x$ and BC $(b) = 28cm$

Area of $\Delta ABC = 672cm^2$

$\therefore$ Area of ΔABC $(A) = \frac{b}{4}\sqrt{4a^2 - b^2}$

or, $672cm^2 = \frac{28cm}{4}\sqrt{4x^2 - (28cm)^2}$

or, $672cm^2 = 7cm\sqrt{4x^2 - 784cm^2}$

or, $\frac{672cm^2}{7} = \sqrt{4x^2 - 784cm^2}$

or, $46cm = \sqrt{4x^2 - 784cm^2}$

Squaring both sides

or, $(96cm)^2 = (\sqrt{4x^2 - 784cm^2})^2$

or, $9216cm^2 = 4x^2 - 784cm^2$

or, $10{,}000cm^2 = 4x^2$

or, $2500cm^2 = 4x^2$

$\therefore$ $x = 50cm$

Value of $x = 50cm$

Model 10:

एउटा त्रिभुजको भुजाहरू क्रमश 3x, 4x 5x र क्षेत्रफल $24cm^2$ भए x को मान निकालनुहोस् ।

Find the value of x whose side are 3x, 4x 5x respectively and area is $24cm^2$

Solution: Here, let a, b and c to the side of triangle3x, 4x and 5x respectively.

$a = 3x$ $b = 4x$ $c = 5x$ and area of triangle $(A) = 24cm^2$.

semiperimeter $(s) = \frac{a + b + c}{2} = \frac{3x + 4x + 5x}{2} = 6x$

Area of triangle $(A) = \sqrt{s(s-a)(s-b)(s-c)}$

or, $24cm^2 = \sqrt{6x(6x - 3x)(6x - 4x)(6x - 5x)}$

or, $24cm^2 = \sqrt{6x \times 3x \times 2x \times x}$

or, $24cm^2 = \sqrt{36x^4}$

Squaring on the sides

or, $(24cm^2)^2 = (\sqrt{36x^4})^2$

or, $576cm^4 = 36x^4$

or, $16cm^4 = x^4$

or, $(2cm)^4 = x^4$

$\therefore$ $x = 2cm$

value of $x = 2cm$

Model 11:

एउटा त्रिभुजको दुई भूजाको अनुपात 2:3 र तेस्रो भुजाको लम्बाई 5 cm छ । यदि त्रिभुजको परिमिति 15cm भए क्षेत्रफल कति होला ?

The two sides of a triangle are in the ratio 2:3 and its legth of third side is 5cm, if perimeter of triangle is 15cm, what is the area of triangle.

Solution:

Here, let two side of triangle be a and b whose ratio are 2:3 then.

$a = 2x$ $b = 3x$ and $c = 5cm$

perimeter of triangle (P) = 15cm

$\therefore$ $p = a + b + c$

or, $15cm = 2x + 3x + 5cm$

or, $15cm = 5x + 5cm$

or, $(15 - 5)\ cm = 5x$

or, $10cm = 5x$

$\therefore$ $x = 2cm$

$a = 4cm$, $b = 6cm$ and $c = 5cm$

$$\text{semiperimeter (s)} = \frac{a+b+c}{2} = \frac{4cm + 6cm + 5cm}{2} = \frac{15cm}{2} = 7.5cm$$

$$\text{Area of triangle (A)} = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

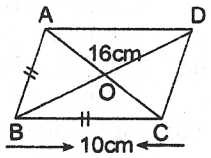
$$= \sqrt{7.5cm\ (7cm - 4)cm \times (7.5 - 6)\ cm \times (7.5 - 5)cm}$$

$$= \sqrt{7.5cm \times 3.5cm \times 1.5cm \times 2.5cm} = \sqrt{98.4375cm^4} = 9.92cm^2$$

Area of triangle (A) = $9.92cm^2$

Model 12:

चित्रमा दिइएको ABCD समबाहु चतुर्भुजको क्षेत्रफल निकाल्नुहोस् ।



In given figure of find area of rhombus ABCD.

Solution: Here, in the given figure rhombus ABCD

diagonal (AC) = 16cm

$$OC = \frac{1}{2}AC = \frac{1}{2}16cm = 8cm$$

AB = 10cm

$\because$ Pythagoras theorem

or, $AB^2 = OC^2 + OB^2$

or, $(10cm)^2 = (8cm)^2 + OB^2$

or, $100cm^2 = 64cm^2 + OB^2$

or, $(100 - 64)cm^2 = OB^2$

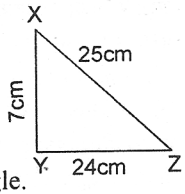
$\therefore$ $OB = 6cm$

Diagonal (BD) = $2 \times OB = 2 \times 6cn = 12cm$

$$\text{Area of ohombus ABCD (A)} = \frac{1}{2}\text{product of diagonal} = \frac{1}{2}\ 16cm \times 12cm = 96cm^2$$

Practice Yourself

1. दिएको चित्र ΔXYZ मा , ΔXYZ को क्षेत्रफल कति हुन्छ ?
In the given figure ΔXYZ, what is the area of ΔXYZ. **(Ans: 84cm²)**



2. एउटा समबाहु त्रिभुजको क्षेत्रफल $484\sqrt{3}$ cm² छ । त्रिभुजको परिमिति पत्ता लगाउनुहोस् ।
The area of an equilaterial triangle is $484\sqrt{3}$ cm² find the perimeter of triangle.
(Ans: 176cm)

3. यदि एउटा समबाहु त्रिभुजको तीन वटा भुजाहरूको योगफल 18cm भए सो त्रिभुजको क्षेत्रफल पत्ता लगाउनुहोस् ।
If the length of the sum of three sides of an equilaterial triangle is 18cm find the area of triangle.
(Ans: $9\sqrt{3}$ cm²)

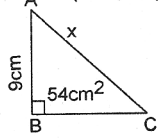
4. एउटा त्रिभुजको परिमिति र दुई भूजाहरूको लम्बाई क्रमश 60cm, 10m र 26m भए त्रिभुजको क्षेत्रफल निकाल्नुहोस् ।
The perimeter of and length of two sides of a triangle are 60cm, and 26m respectively. Find the area of triangle. **(Ans: 120m²)**

5. एउटा त्रिभुजका भूजाहरू 5:12:13 को अनुपातमा छन् । यदि सो त्रिभुजको क्षेत्रफल 480cm² भए भुजाहरूको नाप निकाल्नुहोस् ।
The sides of a triangle are in the ratio of 5:12:13. If the area of the triangle is 84cm² find the measure of sides. **(Ans: 5cm, 12cm and 13cm)**

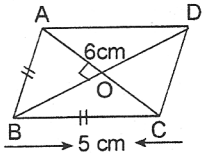
6. एउटा त्रिभुजको भुजाहरूको अनुपात 6:8:10 र परिमिति 48cm भए उक्त त्रिभुजको क्षेत्रफल पत्ता लगाउनुहोस् ।
If the ratio of the sides of triangle are 6:8:10 and the perimeter is 48cm. find the area of triangle.
(Ans: 96cm²)

7. एउटा समद्विबाहु त्रिभुजको क्षेत्रफल 12cm² र आधारभुजा 8cm भए बराबर भुजाको लम्बाई पत्ता लगाउनुहोस् ।
The area of a isosceles triangle is 12cm² base is 8cm, then find the length of equal sides. **(Ans: 5cm)**

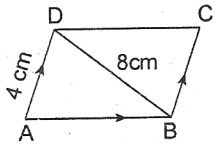
8. दिइएको चित्रमा ΔABC को क्षेत्रफल 54cm² छ x को मान कति होला ?In the given figure, area of ΔABC is 54m², find the value of x.
(Ans:–$3\sqrt{10}$ cm)



9. दिएको समबाहु चतुर्भुज ABCD का विकर्ण (AC) = 6cm र भुजा (BC) = 5cm भए समबाहु चतुर्भुज ABCD को क्षेत्रफल निकाल्नुहोस् ।
In the given figure rhombus ABCD diagronal (AC) = 6cm side BC = 5cm, find the area of rhombus ABCD.
(Ans: 24cm²)



10. दिएको स.च. ABCD को क्षेत्रफल पत्ता लगाउनुहोस् । जहाँ AD = 4cm, BD = 8cm र CD = 6cm छ ।
In the given ABCD, find area of parallelogram ABCD where AD = 4cm BD = 8cm, CD = 6cm. **(Ans. 23.23cm²)**



11. आधार भुजा लम्बाई 10m भएको समदिवाहु त्रिभुजकार जग्गाको क्षेत्रफल 80m² भए जग्गाको बाँकी भुजाको नाप पत्ता लगाउनुहास्।
The area of an isosceles triangular and whose base side 10m is 60m² . Find the measure of its remaining sides)

Long Questions

1. आधार भुजा लम्बाई 10cm भएको समदिवाहु त्रिभुजकार जग्गाको क्षेत्रफल 80cm^2 भए जग्गाको बाँकी भुजाको नाप पत्ता लगाउनुहोस्।
   The area of an isosceles triangular and whose base side 10m is 60m^2. Find the measure of its remaining sides.
2. एउटा त्रिभुजाकार जग्गाको भुजाहरू 2:3:4 को अनुपातमा छन्। यदि यसको परिमिती 900 पिटर भए सो जग्गाको क्षेत्रफल कति होला ? पत्ता लगाउनुहोस्।
   The sides of triangular field are in the ratio of 2:3:4. If its permeter is 900m what is the area of that land? Find it.
3. एउटा भुईमा 20 ओटा त्रिभुजकार टायलहरू प्रयोग गरी डिजाइन गरिएको छ। एउटा त्रिभुजाकार टायलको भूजाहरू 8cm, 8cm र 10cm भए भने सो टायलहरूलाई प्रति वर्ग मी रू. 15 का दरले मानिस लगाउन लाग्ने जम्मा खर्च पत्ता लगाउनुहोस्।
   A floral design an floor is made up of 20 tiles which are triangular, the sides of triangle being 6cm , 8cm and 10cm . Find the cort of polishing that tiles at the rate os Rs. 15 prefer square cm.
4. क्षेत्रफल 336 वर्ग मि. र परिमिति 84 मिटर भएको एउटा त्रिभुजाकार गजग्गाको एउटा किनाराको लम्बाई 26 मिटर छ। उक्त जग्गाको बाँकी दुई भुजाको किनाराको नाप निकान्दनुहोस् ।
   A triangular land having area 336cm^2 and perimeter 84 m has length of edge 25m. Find the measure of remaining two sides.