CBSE Class 9 Maths Notes Chapter 12: We are offering a free PDF of the CBSE Class 9 Maths Chapter 12 Herons Formula notes to assist students study the chapter efficiently and do well on the test. This will enable students to answer questions based on Heron's formula quickly and accurately during exams.

Experts have created these CBSE Class 9 Maths Herons Formula notes, making sure to utilize straightforward language that facilitates rapid and easy topic comprehension for students. Before tests, students may easily review all of the key terms from each chapter with the aid of these notes, which are an excellent reference resource. Students in class 9 can use the link below to get the Herons Formula revision notes for Maths Chapter 12.

CBSE Class 9 Maths Notes Chapter 12 Overview

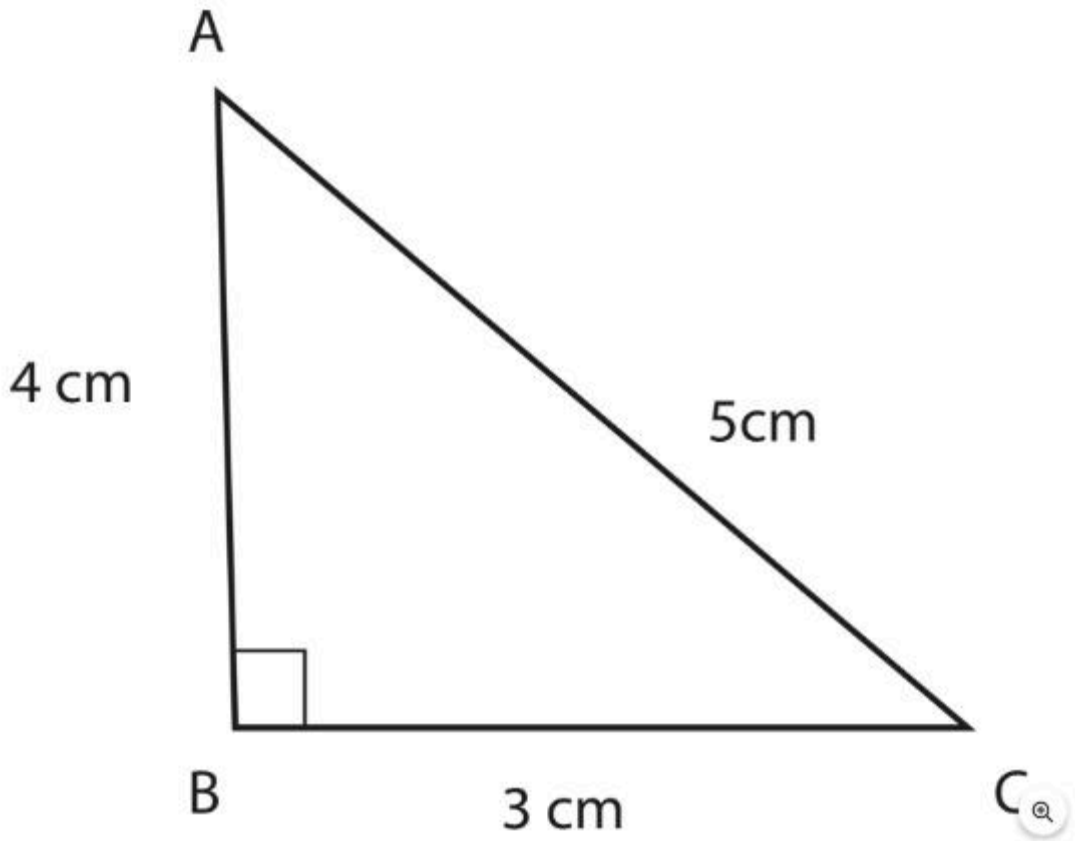
Notes for Heron's Formula Class 9 Students need this material to help them navigate the fascinating world of geometry: CBSE Maths Chapter 12. These carefully written notes—which are freely downloadable as PDF files—deconstruct the mysterious Heron's Formula and enable students to compute triangle areas quickly and accurately.

They offer a thorough grasp of this mathematical instrument, covering everything from its creation to real-world uses. These notes provide students with a skill set for problem-solving that goes beyond the classroom; they are not merely for exam preparation. They are an essential tool for students who want to do well in their CBSE Class 9 maths curriculum because of their instructional worth and accessibility.

CBSE Class 9 Maths Notes Chapter 12

Area of Triangle

- Area of a triangle when height is known is given by $Area = \frac{1}{2} \times base \times height$
- For example: Let a triangle ABC



In the triangle ABC height is $4cm$ and base is $3cm$
Therefore, area of triangle ABC is given by

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

$$Area = \frac{1}{2} \times 3 \times 4$$

$$Area = 6cm^2$$

The area of an isosceles triangle, an equilateral triangle, and a right-angle triangle may all be calculated using this formula.

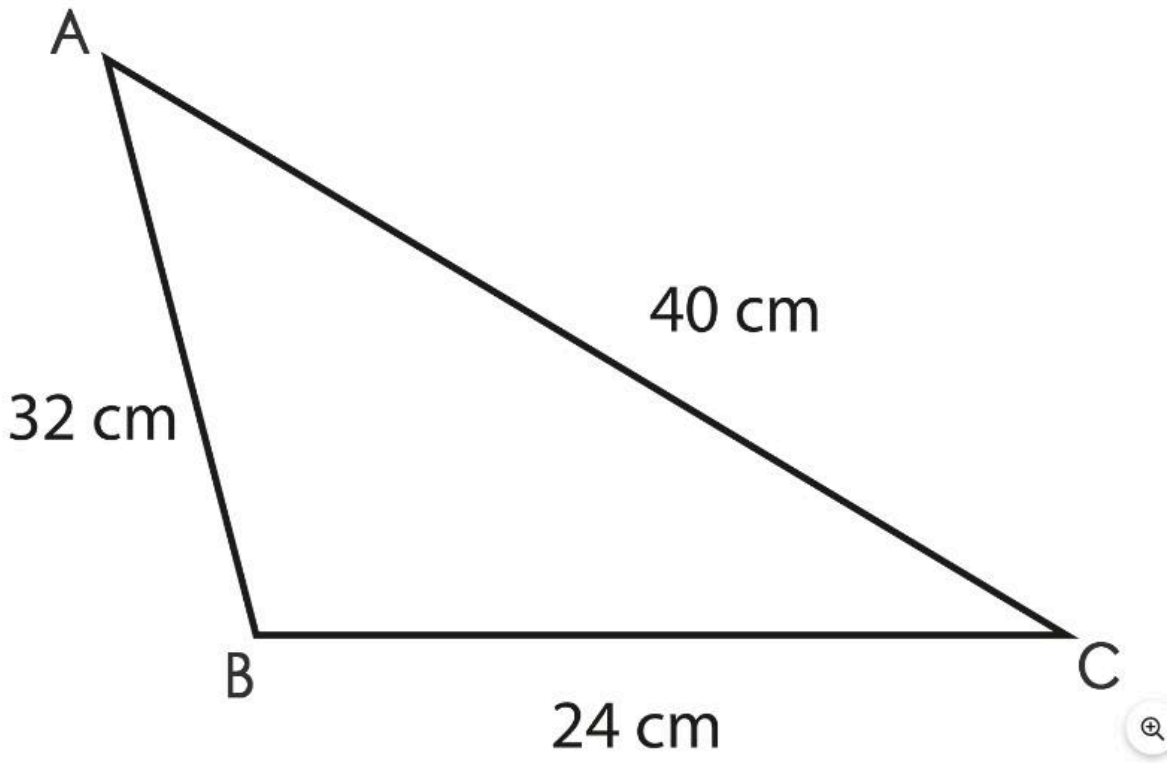
However, we apply Heron's formula to get the area of the triangle when it is difficult to determine the triangle's height, like in the case of the scalene triangle.

Types of Triangles

Based on **sides** – a) Equilateral b) Isosceles c) Scalene
Based on **angles** – a) Acute-angled triangle b) Right-angled triangle c) Obtuse-angled triangle

Area of Triangle – by Heron's Formula:

- Heron's formula for calculating the area of triangle was given by mathematician Heron around 60 CE
- Area of triangle by heron's formula is given by $Area = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$
  Where, a, b, c are the sides of triangle and s is semi-perimeter of triangle
- Semi perimeter of triangle is the half of perimeter of triangle and is given by $s = \dfrac{a+b+c}{2}$
- Heron's Formula is very helpful where it is not possible to find the height of a triangle.
- For example: Let a triangle ABC



Sides of triangles are

$a = 24cm$

$b = 40cm$

$c = 32cm$

Perimeter of triangle is given by

$Perimeter = a + b + c$

$Perimeter = 24 + 40 + 32$

$Perimeter = 96cm$

Semi perimeter is given by

$$s = \frac{perimeter}{2}$$

$$s = \frac{96}{2}$$

$s = 48cm$

Now, area of triangle is given by

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

$$Area = \sqrt{48\,(48-24)\,(48-40)\,(48-32)}$$

$$Area = \sqrt{48\,(24)\,(8)\,(16)}$$

$$Area = \sqrt{147456}$$

$$Area = 384cm^2$$

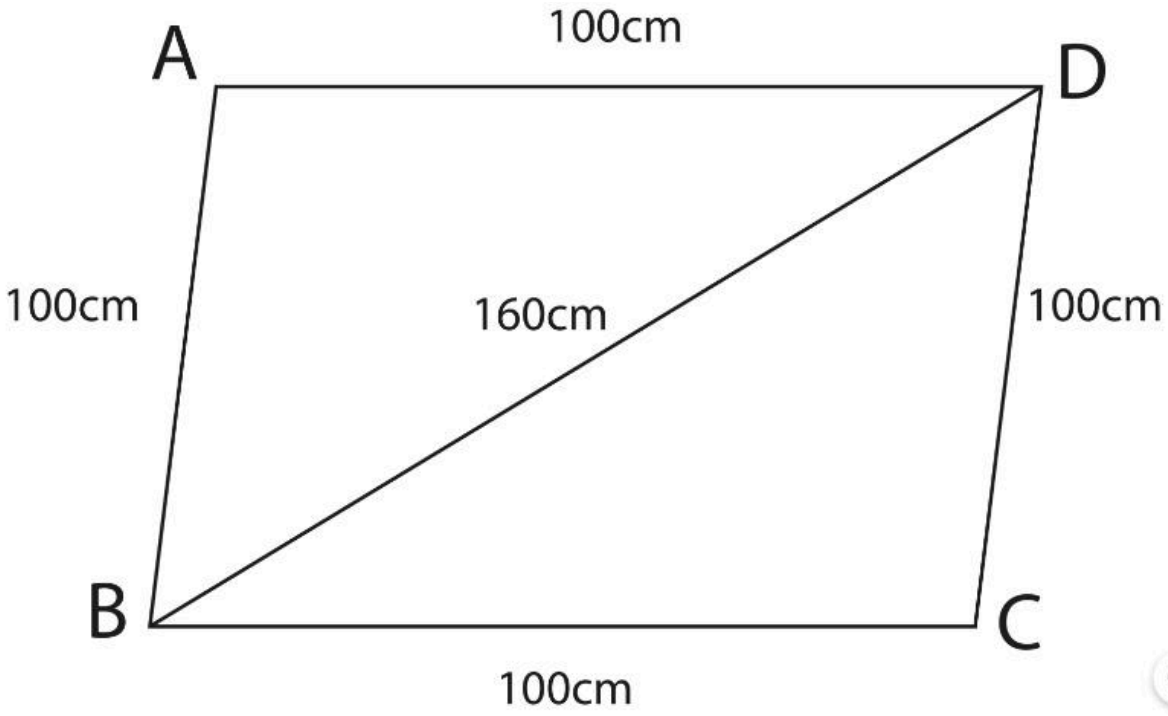
Area of Quadrilateral using Heron’s Formula:

By connecting one of a quadrilateral's diagonals, it is possible to divide it into two triangular sections.

Next, we can calculate the area of two triangular portions using Heron's Formula.

We may then calculate the quadrilateral's area by adding them.

As an illustration, let a rhombus ABCD


A
100cm
D
100cm
160cm
100cm
B
C
100cm

Area of triangle ABD is given by

$$Area_1 = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

Here, $a = 100cm, b = 100cm, c = 160cm$

And semi perimeter is

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

$$s = \frac{100+100+160}{2}$$

$$s = \frac{360}{2}$$

$$s = 180cm$$

$$\therefore Area_1 = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

$$Area_1 = \sqrt{180\,(180-100)\,(180-100)\,(180-160)}$$

$$Area_1 = \sqrt{180\,(80)\,(80)\,(20)}$$

$$Area_1 = \sqrt{23040000}$$

$$Area_1 = 4800cm^2$$

Now, area of triangle BCD is given by

$$Area_2 = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

Here, $a = 100cm, b = 100cm, c = 160cm$

And semi perimeter is

$$s = \frac{a+b+c}{2}$$
$$s = \frac{100+100+160}{2}$$
$$s = \frac{360}{2}$$
$$s = 180cm$$
$$\therefore Area_2 = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$
$$Area_2 = \sqrt{180\,(180-100)\,(180-100)\,(180-160)}$$
$$Area_2 = \sqrt{180\,(80)\,(80)\,(20)}$$
$$Area_2 = \sqrt{23040000}$$
$$Area_2 = 4800cm^2$$
$$\therefore Area of ABCD = Area_1 + Area_2$$
$$Area of ABCD = 4800 + 4800$$
$$Area of ABCD = 9600cm^2$$

How to Calculate the Area of Triangle Using Herons Formula?

Heron's formula is a key reference in this field. If we have the lengths of all three sides of the triangle, we can use this formula to determine the area of the triangle. The two steps shown below can be used to calculate this:

Step 1: Calculate the “s” (half of the triangle’s perimeter):

S= a+ b = c2

Step 2: Then calculate the Area.

This formula is credited to Hero (or Heron) of Alexandria, a Greek Engineer, and Mathematician in 10 – 70 Anno Domini (AD).

Benefits of CBSE Class 9 Maths Notes Chapter 12

If you wish to swiftly gain a deeper understanding of every subject covered in Maths Chapter 12, consult these notes. Your editing process will be strengthened by the remarks' simple writing style.

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