



## DIFFERENT METHODS OF FINDING THE AREA OF A TRIANGLE

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<https://doi.org/10.5281/zenodo.15123487>

### ARTICLE INFO

Received: 27<sup>th</sup> March 2025

Accepted: 30<sup>th</sup> March 2025

Online: 31<sup>st</sup> March 2025

### KEYWORDS

Triangles, surface calculation, basis and height, Heron formula, trigonometric formulas, triangle side and angles,, mathematics methods, surface find methods and formulas.

### ABSTRACT

*This written in the article triangles about and his/her the surface to find diverse methods that is then given to the characteristic according to calculation methods seeing let's go out. Geometry in the field main from issues one this triangle his face is a calculation. This topic according to presented being done methods, triangle various to the characteristics based on, for example, basis and height, trigonometric formulas, Heron from the formula use, also of the triangle two or three side and corners about information to give through surface to find help gives This in the article, every one of the method advantages and disadvantages, as well as obvious results to take for necessary was additional parameters illuminated.*

Human life during young that's it his/her in life mathematics place very big In particular, the daily in life account book issues, human The mind - even in its imagination - is filled with mathematics. weighty place there is if we say not mistaken let's be. Geometry and mathematics one field considered, around us under construction all buildings that is from schools pull to universities everything, first of all, mathematics hypotheses through come comes out and based on that without buildings is built. Geometry basis and triangles organization Because, every one being given of forms all from triangles organization found is considered. And we so triangles various kind in methods occupying standing industry their faces calculation formulas seeing If we go out: No one three point one correct on the line not lying down three the point cuts through from ignition harvest was closed to the field that is to form is called a triangle. Triangle to the sides and to the corners according to three to the type divisible the most solid is a form.

To the parties according to:

1. Equilateral
2. Equilateral
3. Different sided

To the corners according to:

1. True angular
2. Sharp angular
3. Impassable angular

Triangle his face of calculation one how much kind of methods and their proof learned if we go out:

1. To us triangle optional 2 sides and they between corner sinus given if this triangle face as follows is found.



$$S = \frac{1}{2}absin\alpha$$

Now and formula proof with Let's get acquainted.

Hypothesis Let's say the triangle is ABC, AB=c, BC=a, AC=b. and  $\angle C = \alpha$  Now the total area of the triangle is formula  $S = \frac{1}{2}ah$  We can write.

In this first of all height corner through expressing from taking Let's start. Assumption let's do it, basis as  $\beta = AC$  we get. Corner  $\angle B = \alpha$  According to, the following sine relation between the sides using we get: in the triangle height h to side a perpendicular as you can download if we are:  $h = bsin\alpha$

Now and, with the above formula surface we calculate:  $S = \frac{1}{2}ah = \frac{1}{2}absin\alpha$

So as  $S = \frac{1}{2}absin\alpha$  The formula has been proven.

Example: Sides 10 cm and 12 cm was and they between corner with a sine of 0.7 triangle given. Its Find the face ?

Given: a=10 cm, b =12 cm,  $sin\alpha = 0,7$  S=?

Solution:  $S = \frac{1}{2}absin\alpha = \frac{1}{2} * 10 * 12 * 0,7 = 42 sm^2$  Answer:  $42 sm^2$

2. To us triangle optional one side and this towards lowered height given if, triangle face  $S = \frac{1}{2}ah$

equal to will be.

Example: One side is 7cm and this towards lowered height is equal to 4 cm. was triangle Find the face.

Solution: a=7 cm, h=4 cm  $S = \frac{1}{2}ah = \frac{1}{2} * 7 * 4 = 14 sm^2$

Answer:  $14sm^2$

3. Triangle his face Heron formula through calculation:

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

a, b, c = triangle sides p= semi- perimeter  $p = \frac{a+b+c}{2}$

Example: Sides 5 cm, 12 cm, 13 cm was triangle given if his/her the surface count.

Solution: a=5 cm, b=12 cm, c=13 cm  $p = \frac{a+b+c}{2} = \frac{5+12+13}{2} = 15$

$$S = \sqrt{p(p-a)(p-b)(p-c)} = \sqrt{15(15-5)(15-12)(15-13)} = \sqrt{15 * 10 * 3 * 2} = 30 sm^2$$

Answer:  $30 sm^2$

4. Triangle his face his/her to the sides lowered medians based on find:

$$S = \frac{4}{3}\sqrt{m(m-m_a)(m-m_b)(m-m_c)}$$

m- medians of the sum half  $m = \frac{m_a+m_b+m_c}{2}$

$m_a$  – a tomonga tushurilgan mediana

$m_b$  – b tomonga tushirilgan mediana

$m_c$  – c tomonga tushirilgan mediana

Example: The sides of a triangle are 10 cm, 24 cm. and equal to 26 cm was medians given Let this triangle be Find the face.



Solution:  $m_a = 10 \text{ sm}$   $m_b = 24 \text{ sm}$   $m_c = 26 \text{ sm}$

$$m \frac{m_a + m_b + m_c}{2} = \frac{10 + 24 + 26}{2} = 30$$

$$S = \frac{4}{3} \sqrt{m(m - m_a)(m - m_b)(m - m_c)} = \frac{4}{3} \sqrt{30(30 - 10)(30 - 24)(30 - 26)}$$
$$= \frac{4}{3} \sqrt{30 * 20 * 6 * 4} = 160 \text{ sm}^2$$

Answer:  $160 \text{ sm}^2$

5. Circle and to him/her internal drawn triangle his face find for this circle radius and triangle sides given if triangle surface as follows found:

$$S = \frac{a * b * c}{4R}$$

a,b,c - triangle sides

R- external drawn circle radius

Example: The sides are 3cm, 4cm, 5cm. correct angular triangle and to him/her external drawn circle Let the radius be 2.5 cm. Its Find the face ?

Solution:

$$S = \frac{a * b * c}{4R} = \frac{3 * 4 * 5}{4 * 2,5} = \frac{60}{10} = 6 \text{ sm}^2$$

Answer:  $6 \text{ sm}^2$

Showing passed triangle We are very familiar with the formulas for finding the surface areas of many We use the above. similar again one how many kind methods through triangle private to the cases relatively their surfaces find We can also use formulas possible.

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