Triangle Calculator

Find a triangle’s area, perimeter, angle type and equilateral, isosceles or scalene side type. Angle comparisons are scaled; side equality uses the entered lengths exactly.

Formula: s = (a+b+c)/2; area = sqrt(s(s-a)(s-b)(s-c)); angle type compares largest^2 with other1^2 + other2^2; side type compares entered lengths

INPUTS AND EXAMPLE VALUES

First side: 3

Second side: 4

Third side: 5

CHECK THE DEFAULT EXAMPLE

Area (Heron): 6

Perimeter: 12

Angle type (within floating-point tolerance): Right

Side type (exact equality of entered lengths): Scalene

LIMITS AND CONVENTIONS

Sides must be positive, use one length unit and satisfy the strict triangle inequality.

Angle classification uses a stated binary64 tolerance; a nearly right measured triangle may be reported as right.

Side equality is exact for parsed input lengths, without a measurement-error tolerance. Nearly equal measurements are not automatically equilateral or isosceles.

METHOD AND SOURCES

https://azhanmh.com/guides/tools/triangle-calculator

OpenStax - Area and Heron’s formula: https://openstax.org/books/contemporary-mathematics/pages/10-6-area

OpenStax - Triangles and the Pythagorean theorem: https://openstax.org/books/prealgebra-2e/pages/9-3-use-properties-of-angles-triangles-and-the-pythagorean-theorem

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Display precision is for reporting; keep unrounded values for later calculations. Verify units and conventions. This reference does not replace institution, employer or network rules.