

Experiment 01 - Exercise 07: Triangle Area (Heron's Formula)

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Objective

Find the area of a triangle when the lengths of its sides are given.

Input

Three positive side lengths a , b , c .

Output

Area of the triangle (or an error message if the triangle is invalid).

Approach

- Validate triangle inequality: $a + b > c$, $a + c > b$, $b + c > a$.
- Compute semiperimeter: $s = \frac{a+b+c}{2}$.
- Heron's formula:

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

Time Complexity

$O(1)$.