

# 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

$\Theta(1)$ .