Exam No. 2 Review
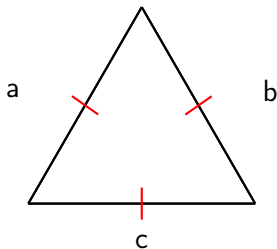
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23 October 2024

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Introduction

Objective

Write a multi-function program to calculate the area, perimeter, and type of triangle for inputs of the three sides.
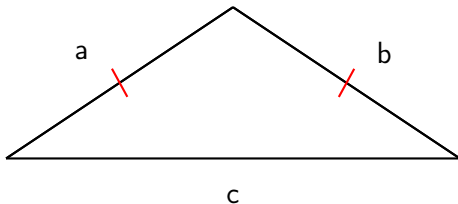
Definitions

Equilateral Triangle

Definition 1.

An *equilateral triangle* is that shape whose three constituent sides are congruent.

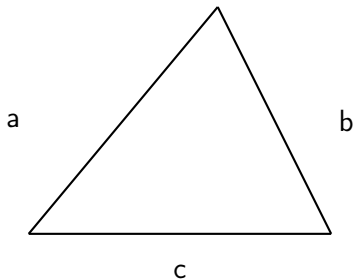
Definitions (cont'd)

Isosceles Triangle

Definition 2.

An *isosceles triangle* is that shape whose two of three constituent sides are congruent.

Definitions (cont'd)

Scalene Triangle

Definition 3.

An *isosceles triangle* is that shape whose three constituent sides are not congruent.

Formulas

Heron's Formula.

Given a triangle with sides a, b, and c, the area A of the triangle is given by Heron's formula:

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

where s is the semiperimeter of the triangle.

Semiperimeter.

The semiperimeter s of a triangle with sides a, b, and c is given by:

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

Perimeter.

The perimeter P of a triangle with sides a, b, and c is given by:

$$P = a + b + c$$

Formulas (cont'd)

Note on the Semiperimeter.

The semiperimeter is a natural division of the perimeter that balances the contributions from all three sides of the triangle. It equally factors in all sides, providing a central quantity that relates directly to both the sides and the area.