



# Lesson 1

## Introduction

The Pythagorean Theorem is a fundamental principle in geometry that relates the three sides of a right-angled triangle. It states that the square of the length of the hypotenuse (the side opposite the right angle) is equal to the sum of the squares of the lengths of the other two sides (the legs).

Mathematically, if  $a$  and  $b$  are the lengths of the legs and  $c$  is the length of the hypotenuse, the theorem is expressed as:

$$a^2 + b^2 = c^2$$

This theorem has numerous applications in mathematics, science, and engineering, and it has been proven in many different ways throughout history.

## Objective

Students will be able to apply the Pythagorean Theorem to solve problems involving right-angled triangles.

## Warm-up

1. A right-angled triangle has legs of length 3 and 4. Find the length of the hypotenuse.

2. A right-angled triangle has a hypotenuse of length 5 and one leg of length 3. Find the length of the other leg.