

Chapter 1

Introduction

In this chapter, we will introduce the concept of mathematical equations and their significance in various fields of study.

1.1 Equations

One of the fundamental equations in mathematics is the Pythagorean theorem, given by:

$$a^2 + b^2 = c^2 \tag{1.1}$$

where a and b are the lengths of the two shorter sides of a right-angled triangle, and c is the length of the hypotenuse.

1.2 Applications

The Pythagorean theorem finds applications in various fields, such as engineering, architecture, and physics. For example, it is essential in calculating distances and areas in surveying and mapping.