

# Mathematics Glossary

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# Chapter 1

## Introduction

### 1.1 Who is this book for?

This book is for everyone. It contains (hopefully) all of mathematics, from the simplest of subjects to the most advanced. It is not meant to be a textbook, but rather a training tool in the journey of discovering and expanding one's mathematical knowledge and experience.

### 1.2 What is this book about?

This book goes through all of mathematics, from the most basic to the most advanced. It contains the theory and an extensive amount of exercises, some solved and some unsolved. The solved exercises are there to consolidate the theory and the unsolved ones are there to aid in the expansion of their mathematical experience, with the difficulty ranging from easy to difficult.

### 1.3 How to contribute?

This book is meant to free mathematics from any costs associated with studying it. As such, this project is completely free and available online both as the original LaTeX source and as a PDF file.

If you are a teacher or mathematician (amateur or professional) and you would like to contribute to this project, you can do so in several ways:

- You can send exercises via email. They will be added after a thorough review.
- You can fork this repository on GitHub and create a pull request with your changes.
- You can comment on the GitHub repository with your suggestions.



# Chapter 2

## A

### 2.1 Addition

#### 2.1.1 Introduction

**Addition**, usually signified by the **plus** symbol (+), is one of the four basic operations of arithmetic.

The addition of two whole numbers results in the total amount or **sum** of those values.

For example, if we have three apples in a basket and we add two more apples, we now have five apples in total. This can be represented using the mathematical expression  $3 + 2 = 5$  (that is “*three plus two equals five*”).

The main purpose of addition is to count. Addition allows the counting of items, people, real world objects, or it can be defined and executed without referring to concrete objects, using abstractions called numbers.

Addition is a part of arithmetic, which is a branch of mathematics, but can also be found in algebra, also a branch of mathematics, where it can be used on vectors, matrices, and other algebraic structures.

Performing addition is one of the simplest numerical skills. Addition of very small whole numbers is accessible to toddlers, with the most basic task,  $1 + 1$ , being performed by infants as young as 5 months.

Addition is taught in school in the primary grades using the decimal system, starting with single digits and progressively moving to larger numbers.

**2.1.2** Notation and Terminology

**2.1.3** Interpretations

**2.1.4** Properties

**2.1.5** Addition in different bases

**2.1.6** Exercises

**2.1.7** Related Topics



## Chapter 3

# B



## Chapter 4

# C



## Chapter 5

### D



## Chapter 6

### E





## Chapter 7

### F



## Chapter 8

### G



## Chapter 9

# H



## Chapter 10

### I





## Chapter 11

### J



## Chapter 12

### K



## Chapter 13

### L



## Chapter 14

M





## Chapter 15

N



## Chapter 16

### O



## Chapter 17

### P



## Chapter 18

### Q





## Chapter 19

# R



## Chapter 20

### S



## Chapter 21

### T



## Chapter 22

U





## Chapter 23

### V



## Chapter 24

W



## Chapter 25

Y



## Chapter 26

### Z