

# Contents

0.1	Division . . . . .	1
0.1.1	Introduction . . . . .	1
0.1.2	Division of natural numbers . . . . .	1
0.1.3	Division is not commutative . . . . .	1
0.1.4	Division is not associative . . . . .	1
0.1.5	Division is not left distributive . . . . .	1
0.1.6	Division is right distributive . . . . .	1
0.1.7	Division of integers . . . . .	2

## 0.1 Division

### 0.1.1 Introduction

We have inverse functions for multiplication. This is division.

These will not necessarily have solutions for natural numbers or integers.

### 0.1.2 Division of natural numbers

$$a.b = c \rightarrow b = \frac{c}{a}$$

### 0.1.3 Division is not commutative

Division is not commutative:

$$\frac{x}{y} \neq \frac{y}{x}$$

### 0.1.4 Division is not associative

$$\frac{\frac{x}{y}}{z} \neq \frac{x}{\frac{y}{z}}$$

### 0.1.5 Division is not left distributive

Division is not left distributive over subtraction:

$$\frac{a}{b-c} \neq \frac{a}{b} - \frac{a}{c}$$

### 0.1.6 Division is right distributive

Division is right distributive over subtraction:

$$\frac{a-b}{c} = \frac{a}{c} - \frac{b}{c}$$

### 0.1.7 Division of integers