

# CHAPTER 1

*Numbers And Calculation With Numbers*

---

# CONTENTS

<b>1</b>	<b>Number formats and conventions</b>	<b>1</b>
1.1	Exercise 1: Large Numbers . . . . .	1
1.2	Exercise 2: Fractions . . . . .	2
1.3	Exercise 3: Positive and Negative Numbers . . . . .	3
1.4	Square numbers and roots . . . . .	3
1.5	Exercise 4: Square Numbers Roots . . . . .	4
1.6	Exercise 5: Mathematical Language and Estimation . . . . .	4
<b>2</b>	<b>Operations Using Numbers and Calculator Skills</b>	<b>5</b>
2.1	Order of operations (BODMAS) . . . . .	5
2.2	Exercise 6: BODMAS . . . . .	6
<b>3</b>	<b>Rounding</b>	<b>6</b>
3.1	Exercise 7: Several Exercises on Rounding . . . . .	6
3.2	Exercise 7 Continued: Implications of Rounding . . . . .	7
<b>4</b>	<b>Ratios</b>	<b>9</b>
4.1	Exercise 8: Ratios . . . . .	9
<b>5</b>	<b>Rate</b>	<b>10</b>
5.1	Exercise 9: Rate . . . . .	10
<b>6</b>	<b>Proportion</b>	<b>13</b>
6.1	Exercise 10: Proportion . . . . .	13
<b>7</b>	<b>Percentages</b>	<b>13</b>
7.1	Exercise 11: Percentages . . . . .	14
<b>8</b>	<b>Answers for exercises</b>	<b>15</b>
8.1	Exercise 1 . . . . .	15
8.2	Exercise 2 . . . . .	15
8.3	Exercise 3 . . . . .	16
8.4	Exercise 4 . . . . .	16
8.5	Exercise 5 . . . . .	16
8.6	Exercise 6 . . . . .	17
8.7	Exercise 7 . . . . .	17
8.8	Exercise 8 . . . . .	20
8.9	Exercise 9 . . . . .	20

---

8.10 Exercise 10 . . . . .	21
8.11 Exercise 11 . . . . .	22

April 20, 2021

---

# 1 NUMBER FORMATS AND CONVENTIONS

- A million has 6 zeroes: 1 000 000
- A billion/milliard has 9 zeroes: 1 000 000 000
- A trillion has 12 zeroes: 1 000 000 000 000

Sometimes one can become confused between the use of a comma and the point. In South Africa the decimal comma separates the whole number from the fraction. e.g. 3 000 000,453

Note, however, that some calculators use a comma to separate the thousands and the point to separate the fractions, e.g. 3,000,000.453 while others use spaces e.g. 3 000 000.453; it can also be represented as 3'000'000,453 To indicate an amount of money, separate the Rand from the cents with a comma and use spaces to indicate thousands e.g. R123 345,45

## 1.1 Exercise 1: Large Numbers



Figure 1: Gariep Dam

1. The Gariep Dam is the largest water reservoir in South Africa. This dam has a total storage capacity of approximately 5,3 trillion litres. It has a surface area of more than 370 square kilometres.
  - 1.1 The capacity of one Olympic standard swimming pool is 2,5 million litres. How many swimming pools will fill the Gariep Dam?
  - 1.2 A factory uses about 287 458 kl of water to manufacture a product. How many Olympic standard swimming pools will this factory empty in the process?

- 
- 1.3 The wall of the Gariep Dam is 88 m high and contains approximately 1,73 million cubic metre concrete. One concrete truck takes  $6\text{m}^3$ . How many trucks of concrete did they order to build this wall?
- 1.4 The surface area of South Africa is  $1\,221\,037\text{ km}^2$ . What percentage of South Africa's surface area is taken by the Gariep Dam with a 370 square kilometre surface?
2. The surface area of South Africa is  $1\,221\,037\text{ km}^2$  and its population is estimated at 48 million people. What is the average number of people per square kilometre?
3. The sun is 148 million km from the earth and a space shuttle can reach a height of 207 thousand km above the earth. How many times more will it have to travel this distance in order to reach the sun?
4. South Africa's population is estimated at 48 million people. If the average household has more or less 6 members, how many households are in the country?
5. The average distance between the earth and the moon is 384 392 km. How much further is the sun from the moon?
6. 300 000 000 m/s is the speed of light. Write this speed in words.
7. In 1996, researchers found that 5,6 million adults in England had taken illegal drugs in the previous year. By 2009, this number had fallen substantially, to 4,4 million. What was the difference in the number of people between 1996 and 2009?

## 1.2 Exercise 2: Fractions

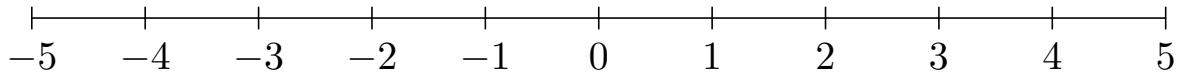
(a) Complete the following table:

Common Fraction	Decimal Fraction
$\frac{13}{100}$	
	0,004
$\frac{1}{1\,000}$	
	1,012
$\frac{32}{20\,000}$	
	100,001
$2\frac{6}{10}$	
	1,03
$\frac{50}{100}$	

---

### 1.3 Exercise 3: Positive and Negative Numbers

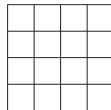
Make use of a number line to do the following without your calculator:



1. The current temperature is  $7^{\circ}\text{C}$ . It drops with  $8^{\circ}\text{C}$ . What is the temperature now?
2. The water level of the Gariep Dam is normal in the beginning of the summer. The previous year was very dry and the water level was three cm below normal. During the rainy season the water level rises to 5 cm above normal. What is the difference between these two levels?
3. The time difference between South Africa and the United States of America is 7 hours. It is 2 o'clock in the morning in South Africa. What is the time in the United States of America? They are behind us. (Make use of the number line)
4. The current temperature is  $-7^{\circ}\text{C}$ . It drops with  $2^{\circ}\text{C}$ . What is the temperature now?

### 1.4 Square numbers and roots

You are able to calculate the length of the square if the area is known.



- You count 16 squares.
- The length of the side is 4 units.
- Therefore  $\sqrt{16} = 4$ .

**Examples of square numbers: (know these by heart)**

$1^2$	$2^2$	$3^2$	$4^2$	$5^2$	$6^2$	$7^2$	$8^2$	$9^2$	$10^2$	$11^2$	$12^2$	$13^2$
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
1	4	9	16	25	36	49	64	81	100	121	144	169

---

## 1.5 Exercise 4: Square Numbers Roots

Complete the table below: (Make use of your calculator)

(1.1)	$\sqrt{9} =$	(1.6)	$\sqrt{25} \div \sqrt{16} =$
(1.2)	$\sqrt{9 + 16} =$	(1.7)	$\sqrt{2^2} =$
(1.3)	$\sqrt{2 \left(\frac{1}{2}\right)} =$	(1.8)	$\sqrt{144} =$
(1.4)	$\sqrt{2\frac{1}{2}} =$	(1.9)	$\sqrt{32 - 4} =$
(1.5)	$\sqrt{\frac{16}{4}} =$	(1.10)	$\sqrt{9} + \sqrt{16} =$

1. The area of a patio is in a square shape. It measures  $25\text{m}^2$ . What is the length of its sides?
2. The area of a square table is  $1\text{ m}^2$ . What is the perimeter of the table?
3. The area of a square room measures  $9\text{ m}^2$ . What is the length of one wall?

## 1.6 Exercise 5: Mathematical Language and Estimation

1. Complete the table:

Sentence	Number sentence
The <b>difference</b> between six and twelve.	
Four <b>times</b> ten	
Thirty thousand <b>divided by</b> ten.	
<b>The total</b> of 10, 200 and 23 is.	
<b>Add up</b> seventy and one hundred and ten.	
<b>The product</b> of twenty five and hundred.	
<b>Reduce</b> R87 by R12, 50.	
<b>Subtract</b> sixty from twelve.	
<b>Half of</b> $24\text{m}^2$ .	
<b>Reduce</b> six by ten.	

2. Study the following advertisement and estimate the following answers:

**CRAZY DAYS SALE!!!!**

Hats	R25, 95
Socks	R13, 45
T-Shirts	R49, 35
Jeans	R75, 59

2.1 Will 4 hats cost more or less than R 100, 00?

2.2 Estimate the price of 2 pairs of socks.

2.3 Will 3 hats cost more or less than 1 jean?

2.4 Will 4 pairs of socks cost more or less than 2 hats?

## 2 OPERATIONS USING NUMBERS AND CALCULATOR SKILLS

### 2.1 Order of operations (BODMAS)

<b>B</b>	Brackets - Square numbers and roots
<b>O</b>	Of (Means Multiply)
<b>DM</b>	Multiplication and Division (From left to right)
<b>AS</b>	Add and Subtract (From left to right)

Example:

$$\begin{aligned} & 2 \times 3 + 4 \div 2 + (9 - 1) - \frac{1}{2} \text{ of } 8 \\ & = 2 \times 3 + 4 \div 2 + 8 - \frac{1}{2} \times 8 \\ & = 2 \times 3 + 4 \div 2 + 8 - 4 \\ & = 6 + 2 + 8 - 4 \\ & = \mathbf{12} \end{aligned}$$

First the brackets

of (this is multiplication)

then multiply and divide from left to right



---

## 2.2 Exercise 6: BODMAS

Determine the following: (You may use your calculator)

(1.1)	$2(2 - 3)^2 - 6 \div 2$	(1.9)	$6 \times 8 \div 2 + 3$
(1.2)	$5^2 - \sqrt{42} - 6$	(1.10)	$983,5 - 100 - 10$
(1.3)	$R450 - R32,50 \times 10$	(1.11)	$325 - 36,3 \div 0,3 + 100$
(1.4)	$58 \div 2 + 2 \times 4 - \frac{2}{3} \text{ of } 30$	(1.12)	$3 \times 7 - 11 \div 2 \times 6 + 1$
(1.5)	$10000 \times 100 - 10 \times 10 + 10$	(1.13)	$1 \times 1 - 1 + 1 \div 1 + 12$
(1.6)	$10000(1,01)^2 - 1 \times 1$	(1.14)	$3,6(2,01 + 102,5)$
(1.7)	$20 - \frac{3}{5} \text{ of } 205$	(1.15)	$\frac{2}{5} \left(1\frac{4}{9}\right) - 1$
(1.8)	$\frac{\sqrt{160-16}}{12} - 32 \div 8$	(1.16)	$10^2 + \frac{1}{2}$

## 3 ROUNDING

### 3.1 Exercise 7: Several Exercises on Rounding

1. Round off to two decimal places:

E.g. 354,7899  $\approx$  354,79 but 354,7824  $\approx$  354,78

(1.1)	123,2225	(1.7)	12,504
(1.2)	325,4567	(1.8)	11,406
(1.3)	341,455	(1.9)	0,008
(1.4)	19,999	(1.10)	0,00009
(1.5)	34,354999	(1.11)	0,005
(1.6)	67,899	(1.12)	1239,95443

2. Round off to the nearest 10:

(2.1)	15	(2.6)	457,345
(2.2)	343,35	(2.7)	568,224
(2.3)	169,991	(2.8)	299,201
(2.4)	22,09	(2.9)	342,456
(2.5)	936,789	(2.10)	11299,67

---

3. Round off to the nearest 5:

(3.1)	20	(3.5)	431
(3.2)	77	(3.6)	438, 45
(3.3)	334	(3.7)	432, 89
(3.4)	23	(3.8)	79

4. Round off the nearest cent:

Round off to the nearest cent	
(4.1)	R134, 905
(4.2)	R23, 544
(4.3)	R13, 222222
(4.4)	R45, 2899
(4.5)	R999, 999

5. Round off the nearest rand:

Round off to the nearest Rand	
(5.1)	R23, 99
(5.2)	R24, 21324
(5.3)	R999, 999
(5.4)	R345, 578
(5.5)	R13, 46

## 3.2 Exercise 7 Continued: Implications of Rounding

**Rounding up or down can have significant implications in real life.**

- 6 If you work in a bank which holds accounts of 1 million people and you make a rounding mistake of one cent on each account in favor of the clients, how much money will the bank lose?

7 Complete this table: (Make sure you know when you must round **up** or **down**. This is determined by the context.)

7.1	The government printer can only print in units of one million. How many ballot papers will you need to print if you expect 2,3 million voters for the election?
7.2	You prepare food for a big event and you double your recipe. You now need 2,24 kg rice. How much rice will you buy to the nearest kg?
7.3	You need 4,3ℓ paint for your room. They sell the paint in one litre containers. How many containers do you need to buy?
7.4	144 boxes need to be packed onto the shelves. Each shelf can hold 13 boxes. Calculate how many shelves will be needed.
7.5	A recipe states that a single portion of a particular dish requires 250 g of flour. Using this recipe, how many people can be fed with 5,55 kg of flour?
7.6	A CD costs R 145,99. Calculate the cost of 13 CD 's
7.7	How many bricks do you need to buy if you calculated that you need 234,3 bricks?
7.8	Susan buys fabric to sew a dress. She needs 2,3 m <sup>2</sup> . They sell the fabric in 1 m <sup>2</sup> . How much must she buy?
7.9	Peter calculated that he needs 24,4ℓ petrol to do his trip. They only sell petrol in 5ℓ cans. How many cans must he buy?
7.10	One piece of gum costs 22c. How many pieces of gum can you buy for R4,25?

---

## 4 RATIOS

A **ratio** is the quotient obtained when comparing quantities of the **same kind** and the same units through division, e.g. there are 27 boys and 21 girls in a class. Therefore the ratio of boys to girls is  $\frac{27}{21}$  and is simplified (divide each part of the ratio with the same number) to  $\frac{9}{7}$ . We write the ratio of boys to girls as  $27 : 21 = 9 : 7$  (Or girls : boys = 7 : 9) Note that in this ratio notation **no units** are written down.

The ratio  $\pi$  is often used in Maths and is the ratio between the circumference of a circle and its diameter.

$$\pi = \frac{\text{Circumference of the circle}}{\text{Diameter of the circle}} \approx \frac{22}{7} \approx 3,14159 \approx 3,142$$

### 4.1 Exercise 8: Ratios

Answer the following questions: (Answer in full sentences and show all your calculations)

1. Sipho and Thandi own a business together and divide their profits in the ratio 4 : 3.
  - 1.1 Who receives the greater share of the profit?
  - 1.2 What fraction of the profit will each one get?
  - 1.3 What fraction of the profit will Thandi get?
  - 1.4 If they make a profit of R3 416 in one month, how much will each one receive?
  - 1.5 If they make a profit of R 3 416 in one month, how much will Thandi receive?
2. Mrs Ahmad prepares oats porridge for her children. For each bowl of oats porridge, she always uses 3 cups of water for every 2 cups of oats.
  - 2.1 Find the ratio of the number of cups of water to the number of cups of oats used.
  - 2.2 If she wants to prepare 5 bowls of oats porridge, how many cups of water and how many cups of oats does she need?
  - 2.3 If she wants to prepare 5 bowls of oats porridge, how many cups of oats does she need?
  - 2.4 If she uses 18 cups of oats, how many cups of water does she need?
3. John, Andre and Peter are business partners, and share in the profit proportional to their original capital contributions. John contributed R85 000, Andre R120 000 and Peter R105 000. After a profit of R156 500 was declared, they gave 7% of the profit to a welfare organization and then divided the balance of the profit.
  - 3.1 How much did John receive?
  - 3.2 How much did Andre receive?
  - 3.3 How much did Peter receive?

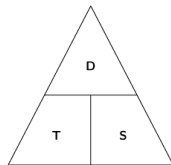
- 
4. The instructions on a packet of crack filler state that one part of water must be added to two parts of crack filler and then mixed into a paste.
    - 4.1 How much crack filler must you add to 150ml of water?
    - 4.2 How much water must be used with 550ml crack filler?
  5. A professional hair stylist wants to colour her hair. The manufacturer's instructions of how to mix the tint, recommend the ratio of peroxide to hair colour as 1 : 2. She measures 10ml of hair colour. How many ml of peroxide must she mix it with?
  6. A traffic officer finds that 18 567 vehicles pass over the freeway during one week. The ratio of cars to trucks is given as 6 : 1. Find the number of trucks which used the freeway during that week.
  7. Elna and Susan are paid R440 for a task on which they worked  $2\frac{1}{2}$  and  $1\frac{1}{2}$  hours respectively.
    - 7.1 How much will Elna receive for the task?
    - 7.2 How much will Susan receive for the task?

## 5 RATE

### 5.1 Exercise 9: Rate

**Rate** is when comparing **two different** quantities or different kinds or units through division. Rate is always expressed as "... per ...". The symbol used is ".../..." Examples of rates include: Speed, distance and time relationships (e.g. km/h), product pricing (e.g. R/kg) etc.

**Answer the following questions: (show all your calculations)**



**Know this triangle by heart!**

$$\text{Time} = \frac{\text{distance}}{\text{speed}},$$

$$\text{Speed} = \frac{\text{distance}}{\text{time}},$$

$$\text{Distance} = \text{time} \times \text{speed}$$

1. Mr Klumper asked his driver to undertake a trip of 650 km. He drives at an average speed of 120 km/h. How long will it take him to do the trip? Write your answer down in hours and minutes.
2. Which car drives the fastest? Motorcar A drives 570 km in 4,75 hours; motorcar B drives 275 km in  $2\frac{1}{2}$  hours and motorcar C drives 640 km in 5 hours 20 minutes.
3. A car drives at a constant speed and the distance covered is presented in the following table (complete the table):

Hours:	1	2	3	6	7		10			
Km:		160	240			680		880	1640	2400

4. Determine the distance in meters if a vehicle travels at an average speed of 27,95 m/s for 1,36 seconds.
5. You walk 21 km in 4 hours. What is your average speed?
6. An aeroplane flies 512 km in 40 minutes. What was its speed?
7. It takes Mr. Gouws 30 minutes to cover a distance of 132 km.
  - 7.1 Determine his average speed in km/h.
  - 7.2 Did he drive according to the speed limit on the South African roads?
  - 7.3 What should his speed have been to keep within the speed limit?
  - 7.4 If he kept the speed limit, how long would it take him then?
8. The Gautrain departs at 07:42 from a station and reaches the next station at 8:04. How far are the stations apart if the train moves at 130 km/h?
9. Ernst runs 400 meters in 58 seconds.
  - 9.1 What is his average speed in m/s?
  - 9.2 What is his average speed in km/h?
10. Felix Baumgartner set the record for the highest manned balloon flight and fastest speed of free fall at 1357,64 km/h, making him the first human to break the sound barrier (343,2m/s) outside of a vehicle. The mission took place on 14 October 2012 when Baumgartner landed in eastern New Mexico after jumping from a world record height of 38 969,3 m above the earth.

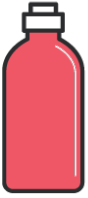
- 10.1 Calculate his free fall speed in m/s.
- 10.2 How much faster was this than the sound barrier?
- 10.3 What was his height in kilometres above the earth?
- 10.4 How long ago did this event take place? (Round your answer to the nearest month)



Figure 2: Felix Baumgartner before his jump


### Product Pricing

Best Buy



$300\text{ml} \div 10 = 30\text{ml}$

$\text{R}17,95 \div 10 = \underline{\text{R}1,79}$



$600\text{ml} \div 20 = 30\text{ml}$

$\text{R}34,99 \div 20 = \underline{\text{R}1,70}$  ✓

11. Consider the advertisement on the left, work out the rate per 100ml in both cases and determine which one is cheaper to buy.
12. Sandra bought 7 meters of material for R 84.
- 12.1 What is the price of the material per meter?
- 12.2 What is the rate in this case?
13. A wholesaler buys a container with 60 light bulbs for R261. How much did he pay per bulb?
14. 500 g margarine costs R 7,35 and 350 g of the same kind costs R 5,50. Which size is cheaper to buy?

---

## 6 PROPORTION

### 6.1 Exercise 10: Proportion

Answer the following questions:

1. A truck, 3,5 m high, casts a shadow of 10,5 m long. How long is the shadow of a building, 20 m high, at the same moment?
2. 150 one litre bottles of cooldrink are needed to fill up a big tank. How many 1,5 litre bottles are needed to fill up the same tank?
3. An airplane, flying at a speed of 450 km/h, covers a certain distance in 3 hours and 15 min. At what speed must it fly to cover the same distance in 2 hours and 30 min?
4. A distance of 10 km is represented on a map by 1,5 cm. How is a distance of 50 km represented on this map? The distance between 2 towns on this map is 10 cm. What is the real distance?
5. A strip of metal, 16 cm long, has a mass of 60 g.
  - 5.1 Calculate the mass of a strip which is 8 cm long.
  - 5.2 How long is a strip with a mass of 120 g?
6. When eight check-out points at a supermarket are open, it takes an average of 48 minutes to deal with 100 customers. If 12 check-out points were open, how long would it take to deal with the same 100 hundred customers? Is this an example of direct or indirect proportion?

## 7 PERCENTAGES

A percentage expresses a part of 100. E.g. 45% means  $\frac{45}{100}$ .

How to convert percentage to ordinary fractions	E.g. 45% means $\frac{45}{100} = \frac{9}{20}$
How to convert percentage to decimal fractions	E.g. 33,3% = $\frac{33,3}{100} = 0,333$
How to convert ordinary fractions to percentage:	E.g. $\frac{1}{4} \rightarrow \frac{1}{4} \times 100 = \frac{100}{4} = 25\%$ Use a calculator: $(1 \div 4 \times 100 =)$ . Don't use the % -sign on the calculator!
How to convert decimal fractions to percentage	E.g. 0,257 $\rightarrow 0,257 \times 100 = 25,7\%$



---

## 7.1 Exercise 11: Percentages

Answer the following questions:

1. A man bequeaths 50% of his estate to his wife, 20% of the balance to each of his 2 children and the rest to welfare. What amount goes to welfare if the estate is worth R3 000 000?
2. A salesman receives a commission of 5% on his sales, as well as a weekly salary of R1 500. In one week he had sales of R13 000. How much commission did he earn? Express his commission as a percentage of his weekly salary.
3. 18% of a farmer's wheat crop weighs 1 260 tons. What is the weight of the total crop?
4. A lottery winning prize of R 36 000 was split up between three people so that Mary received 25% of the money, Bill got 13% and Sam got the remainder. Find the percentage of the money that Sam received and the amount that Mary received.
5. How much will I save on buying these items in the 15% -off sale?

15% off everything SALE	
Tennis racquet - normally	R420, 54
Pair of shorts - normally	R69, 67
Picture frame - normally	R43, 90
Alarm clock - normally	R38, 96
Stereo radio - normally	R109, 78

---

## 8 ANSWERS FOR EXERCISES

### 8.1 Exercise 1

1.1 2120 thousand

1.2 114 swimming pools

1.3 288 334

1.4 0,03%

2 8 million households

3 39,91 persons/km<sup>2</sup>

4 714,98 times

5 147 615 608 km

6 Three hundred million metres per second

7 1 200 000

### 8.2 Exercise 2

	Common Fraction	Decimal Fraction
	$\frac{13}{100}$	0,13
	$\frac{4}{1000}$	0,004
	$\frac{1}{1000}$	0,001
1)	$1\frac{12}{1000}$	1,012
	$\frac{32}{20000}$	0,0016
	$100\frac{1}{1000}$	100,001
	$2\frac{6}{10}$	2,6
	$1\frac{3}{100}$	1,03
	$\frac{50}{100}$	0,5

### 8.3 Exercise 3

1.  $-1^{\circ}\text{C}$
2. 8
3. 7 o' clock at night
4.  $-4^{\circ}\text{C}$

### 8.4 Exercise 4

(1.1)	$\sqrt{9} = 3$	(1.6)	$\sqrt{25} \div \sqrt{16} = \frac{5}{6}$
(1.2)	$\sqrt{9 + 16} = 5$	(1.7)	$\sqrt{2^2} = 2$
(1.3)	$\sqrt{2 \left(\frac{1}{2}\right)} = 1$	(1.8)	$\sqrt{144} = 12$
(1.4)	$\sqrt{2\frac{1}{2}} = 1,581$	(1.9)	$\sqrt{32 - 4} = 5,29$
(1.5)	$\sqrt{\frac{16}{4}} = 2$	(1.10)	$\sqrt{9} + \sqrt{16} = 7$

1.11 5 m

1.12 4 m

1.13 3 m

### 8.5 Exercise 5

	Sentence	Number sentence
	The <b>difference</b> between six and twelve.	$-6$
	Four <b>times</b> ten	40
	Thirty thousand <b>divided by</b> ten.	3 000
	<b>The total</b> of 10, 200 and 23 is.	180
1.1	<b>Add up</b> seventy and one hundred and ten.	180
	<b>The product</b> of twenty five and hundred.	2500
	<b>Reduce</b> R87 by R12, 50.	R74, 50
	<b>Subtract</b> sixty from twelve.	$-48$
	<b>Half of</b> $24\text{m}^2$ .	$12\text{m}^2$
	<b>Reduce</b> six by ten.	$-4$

- 
- 1.2 • More
  - R27
  - More
  - More

## 8.6 Exercise 6

(1.1)	-1	(1.9)	27
(1.2)	19	(1.10)	873,5
(1.3)	R125	(1.11)	303,4
(1.4)	17	(1.12)	-11
(1.5)	999 910	(1.13)	2
(1.6)	10 200	(1.14)	376,24
(1.7)	-103	(1.15)	-0,42
(1.8)	-3	(1.16)	100,5

## 8.7 Exercise 7

(1.1)	123,22	(1.7)	12,50
(1.2)	325,46	(1.8)	11,41
(1.3)	341,46	(1.9)	0,01
(1.4)	20	(1.10)	0
(1.5)	34,35	(1.11)	0,01
(1.6)	67,9	(1.12)	1239,95

1.

(2.1)	20	(2.6)	460
(2.2)	340	(2.7)	570
(2.3)	170	(2.8)	300
(2.4)	20	(2.9)	340
(2.5)	940	(2.10)	11 300

2.

---

(3.1)	20	(3.5)	430
(3.2)	75	(3.6)	439
(3.3)	335	(3.7)	430
(3.4)	25	(3.8)	80

3.

(4.1)	R134, 91
(4.2)	R23, 54
(4.3)	R13, 22
(4.4)	R45, 29
(4.5)	R1 000

4.

(5.1)	R24
(5.2)	R24
(5.3)	R1 000
(5.4)	R346
(5.5)	R13

5.

6) R10 000, 00

7.1	The government printer can only print in units of one million. How many ballot papers will you need to print if you expect 2, 3 million voters for the election?	3 million
7.2	You prepare food for a big event and you double your recipe. You now need 2, 24 kg rice. How much rice will you buy to the nearest kg?	3 kg
7.3	You need 4, 3ℓ paint for your room. They sell the paint in one litre containers. How many containers do you need to buy?	5ℓ
7.4	144 boxes need to be packed onto the shelves. Each shelf can hold 13 boxes. Calculate how many shelves will be needed.	11
7.5	A recipe states that a single portion of a particular dish requires 250 g of flour. Using this recipe, how many people can be fed with 5, 55 kg of flour?	$\frac{5550}{250} \approx 22$
7.6	A CD costs R 145, 99. Calculate the cost of 13 CD 's	R1900
7.7	How many bricks do you need to buy if you calculated that you need 234, 3 bricks?	235
7.8	Susan buys fabric to sew a dress. She needs 2, 3 m <sup>2</sup> . They sell the fabric in 1 m <sup>2</sup> . How much must she buy?	3m <sup>2</sup>
7.9	Peter calculated that he needs 24, 4ℓ petrol to do his trip. They only sell petrol in 5ℓ cans. How many cans must he buy?	3 cans
7.10	One piece of gum costs 22c. How many pieces of gum can you buy for R4, 25?	19

---

## 8.8 Exercise 8

1.1 Sipho

1.2 He will get  $\frac{4}{7}$  of the profit

1.3 She will get  $\frac{3}{7}$  of the profit

1.4 R 1 952

1.5 R 1 464

2.1. Water : Oats (3 : 2)

2.2. She needs 15 cups of water.

2.3. She needs 10 cups of oats.

2.4. She needs 27 cups of water.

3.1 John: R39 907, 50

3.2 Andre: R56 340, 00

3.3 Peter: R49 297, 16

4.1. 300 ml

4.2. 275 ml

5. 5 ml

6. 2652, 428  $\approx$  2652

7.1 She will receive R 275 for the task.

7.2 She will receive R 165 for the task.

## 8.9 Exercise 9

1. 5 hours 25 minutes

2. Motorcar C is the fastest

3.

Hours:	1	2	3	6	7	8,5	10	11	20,5	30
Km:	80	160	240	480	560	680	800	880	1640	2400

4. 38, 012 m/s

5. 5,25 km/h

- 
6. 764,18 km/h
- 7.1. 264 km/h
- 7.2. No
- 7.3. 120 km/h
- 7.4. 1 h 6 min
- 8 22 minutes apart
- 9.1. 6,9 m/s
- 9.2. 25 km/h
- 10.1. 377,12 m/s
- 10.2. 33,92 m/s faster
- 10.3. 38,97 km
- 10.4. Work it out from the current date.
11. 600 ml
- 12.1 R12 per metre
- 12.2 R/m material
- 13 R4,35 per bulb
- 14 500g

## 8.10 Exercise 10

1. 60 m
2. 100
3. 585 km/h
4.
  - 7,5 cm
  - 66,67 km
5. 5.1. 30 g
- 5.2. 120 g
6. Indirect/Inverse proportion



---

## 8.11 Exercise 11

1. R900 000 000
2. 43,33%
3. 7 000 tons
4.
  - Sam: 62%
  - Mary: R9 000,00
5. Total Savings: R580,42