

Mathematical Literacy Grade 11

Teacher's Guidelines

This book was compiled and processed by E.J. Truter in 2013.

Publisher: ABC Mathematics

Contact number: 086 618 3709 (Fax!)

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ISBN 978-1-920505-29-5

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1 NUMBERS AND CALCULATION WITH NUMBERS

1.1 Number Formats and Conventions

Worksheet 1: Number Formats and Conventions

Study the table below. There are 2 scales in use in the world for indicating large numbers: the “long” scale and the “short” scale. In South Africa we work with both and therefore you have million and billion (two names) on the representation below. South Africa, Canada and Puerto Rico use both scales, because of the fact that English is one of the languages in these countries.

Compare the 2 scales

Long Scale		Short Scale	
Million	6 zeroes	Million	6 zeroes
Milliard	9 zeroes	Billion	9 zeroes
Billion	12 zeroes	Trillion	12 zeroes
Billiard	15 zeroes		
Trillion	18 zeroes		

For Mathematical Literacy we use billion as 1 000 000 000.

Trillion			Billion			Million			Thousands			One		
HT	TT	T	HB	TB	B	HM	TM	M	HT	TT	T	H	T	O

Furthermore:

Study the following number with a decimal fraction:

T **H** **T** **O** , **t** **h** **t**
3 **2** **5** **4** , **6** **7** **9**

$$3 \times 1000 = 3000$$

$$2 \times 100 = 200$$

$$5 \times 10 = 50$$

$$4 \times 1 = 4$$

$$6 \times \frac{1}{10} = 0,6$$

$$7 \times \frac{1}{100} = 0,07$$

$$9 \times \frac{1}{1000} = 0,009$$

So we say 3 thousand

2 hundred

54 fifty four

Comma six seven nine

Sometimes one can get confused between the use of a comma and the point. In South Africa the decimal comma separates the whole number from the fraction. In Mathematics the point is used for **multiplication**, 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 Rands from the cents with a comma and use spaces to indicate thousands e.g. R123 345,45

- i. Expand the following number. (Use the example above) : 7 321,146

$$\begin{aligned} & 7 \times 1\,000 + 3 \times 100 + 2 \times 10 + 1 \times 1 + 1 \times 0,1 + 4 \times 0,01 \\ & + 6 \times 0,001 \end{aligned}$$

- ii. Write the following numbers in words:

- i. 289,5

Two hundred and eighty-nine comma five

- ii. 4 693,592

Four thousand six hundred and ninety-three comma five nine two.

- iii. 123 618 698 967,250

One hundred and twenty-three billion, six hundred and eighteen million six hundred and ninety-eight thousand nine hundred and sixty-seven comma two, five zero.

Worksheet 2: Large Numbers

(a) Do the following calculations without your calculator:

- i. $123,456 \times 100 = \underline{12\,3456}$ ii. $20 \div 1\,000 = \underline{0,02}$
- iii. $123 \times 10\,000 = \underline{1230000}$ iv. $3\,023,20 \times 1\,000 = \underline{3\,023\,200}$
- v. $23,33 \div 100 = \underline{0,2333}$ vi. $10\,000 \div 100 = \underline{100}$
- vii. $234,908 \times 10 = \underline{2\,349,08}$ viii. $12\,00 \div 100 \times 10 = \underline{120}$
- ix. $12\,009 \div 1\,000 = \underline{12,009}$ x. $120 \div 40 = \frac{120}{40} = \underline{3}$
- xi. $140 \div 10 \times 100 = \underline{1400}$ xii. $0,02 \times 0,003 = \underline{0,00006}$
- xiii. $20 \div 20 = \underline{1}$ xiv. $234\,098 \div 10 = \underline{23409,8}$
- xv. $10^2 = \underline{100}$ xvi. $10^3 = \underline{1000}$
- xvii. $3\,001,1 \div 100 = \underline{30,011}$ xviii. $10 \times 10 \div 10 = \underline{10}$
- xix. $0,012 \div 100 = \underline{0,00012}$ xx. $17 \div 170 = \underline{0,1}$

(b) One packet of Jelly Beans has 88 Jelly Beans. It weighs 125g.

i. How many packets will be in a ton?

$$1 \text{ ton} = 1000 \text{ 000 g} \cdot \frac{1000 \text{ 000 g}}{125 \text{ g}} = 8000 \text{ packets.}$$

ii. How many Jelly Beans will be in a ton?

$$8000 \times 88 = 704 \text{ 000 jelly beans.}$$

iii. There are nine different colours in a packet. What is the average number per colour in a packet if the colours are evenly distributed?

$$88 \div 9 = 9,78 \approx 10 \text{ per colour.}$$

iv. What is your favourite colour? _____

v. One packet costs R12,99. What will you pay for 1kg Jelly Beans?

$$\frac{1000 \text{ g}}{125 \text{ g}} = 8 \text{ packets.} \quad 8 \times R12,99 = R103,92.$$

vi. What will the price be for 1 ton?

$$8000 \times R12,99 = R103 \text{ 920,00}$$

vii. The profit the factory makes on one packet is R5,49. What will be the profit on one ton?

$$8000 \times R5,49 = R43 \text{ 920,00 Profit per ton.}$$

(c) You buy 6 carry bags every time you go shopping. You shop 3 times a week. You pay 46 cent per bag. What will you spend on carry bags per year?

$$1 \text{ year} = 52,177 \text{ 457 weeks.} \approx 52 \text{ weeks.}$$

$$\text{Shopping } 52 \times 3 = 156. \quad \text{Nr of carry bags: } 156 \times 6 = 936$$

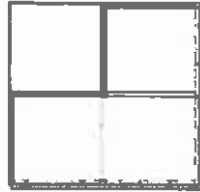
$$936 \times 46 = 43056 \text{ c} = R430,56 \text{ per year.}$$

Worksheet 3: Fractions and Integers

A definition of Fractions: Fractions are parts of whole numbers. The top number reflects the number of parts you have in comparison with the bottom number. The bottom number reflects how many equal parts there are in total.

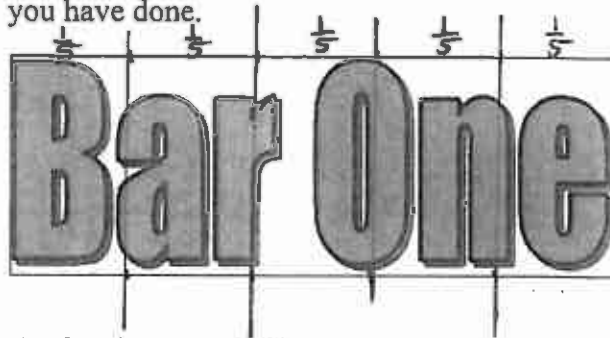
E.g.

$\frac{1}{4}$ means 1 part out of 4 equal parts



(a) Bring a Bar One to school.

Divide the Bar One into fifths and also share with you friends. Show on the figure below what you have done.



Write down the fraction of the Bar One that you have eaten.

(b) A farmer has a square sized farm and wants to use $\frac{3}{4}$ of the land for grazing. He wants to use $\frac{2}{8}$ of the land to cultivate maize. Draw the sections on the figure below. Calculate the size of each section and state the size in hectares assuming that the size of the farm is 32 hectares

$\frac{1}{4}$ grazing	$\frac{1}{4}$ grazing
$\frac{1}{4}$ maize	$\frac{1}{4}$ grazing

$$\frac{3}{4} \times 32 \text{ hectares} = 24 \text{ hectares}$$

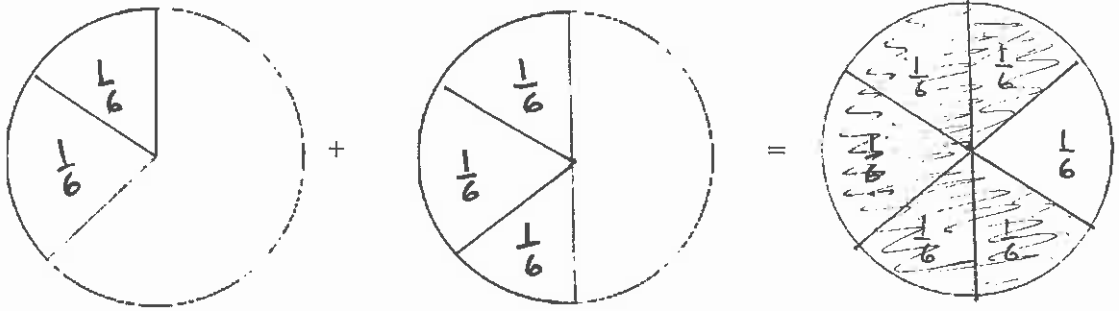
$$\frac{1}{4} \times 32 \text{ hectares} = 8 \text{ hectares}$$

$$8 \text{ hectares} = 8 \times 10\,000 \text{ m}^2$$

$$\therefore 80\,000 \text{ m}^2$$

(c) Adding the following fractions with unequal denominators:

Assume that the figure is a pizza. The coloured part is the part that has been eaten.
Colour the last pizza to represent the total part that has been eaten



$$\frac{1}{3} + \frac{1}{2} =$$

Divide the circles in equal pieces, so that both fractions can be shown. How many equal pieces are there now? Show your calculations.

$$\frac{2}{6} + \frac{3}{6} = \frac{5}{6}$$

(d) Mixed numbers: Numbers that are made up with a whole number and a fraction

e.g: $2\frac{1}{5}$ means $2 + \frac{1}{5}$ which is the same as $\frac{11}{5}$ (improper fraction)

Complete the table:

Mixed number	Improper fraction
$3\frac{1}{3}$	$\frac{10}{3}$
$7\frac{1}{2}$	$\frac{15}{2}$
$1\frac{1}{5}$	$\frac{6}{5}$
$3\frac{1}{4}$	$\frac{13}{4}$
$2\frac{2}{5}$	$\frac{12}{5}$
$9\frac{14}{19}$	$\frac{185}{19}$
$3\frac{1}{33}$	$\frac{100}{33}$

(e) Do the following without your calculator:

i. $\frac{1}{3} + \frac{5}{9}$	ii. $\frac{3}{4} \div \frac{3}{8}$
iii. $\frac{3}{9} + \frac{27}{81}$	iv. $\frac{3}{9} \times \frac{27}{81}$
v. $\frac{1}{2} + \frac{2}{3}$	vi. $\frac{3}{9} - \frac{27}{81}$
vii. $\frac{1}{2} - \frac{2}{8}$	viii. $\frac{1}{2} \div \frac{2}{8} \times \frac{3}{6}$
ix. $\frac{2}{9} + \frac{1}{24} \times \frac{12}{3}$	x. $\frac{1}{2} \div \frac{1}{6} \times 2$

$$i. \frac{1}{3} + \frac{5}{9} = \frac{3}{9} + \frac{5}{9} = \frac{8}{9}$$

$$ii. \frac{3}{4} \div \frac{3}{8} = \frac{3}{4} \times \frac{8}{3} = 2$$

$$iii. \frac{3}{9} + \frac{27}{81} = \frac{27}{81} + \frac{27}{81} = \frac{54}{81} = \frac{2}{3}$$

$$iv. \frac{3}{9} \times \frac{27}{81} = \frac{1}{9}$$

$$v. \frac{1}{2} + \frac{2}{3} = \frac{3}{6} + \frac{4}{6} = \frac{7}{6} = 1\frac{1}{6}$$

$$vi. \frac{3}{9} - \frac{27}{81} = \frac{27}{81} - \frac{27}{81} = 0$$

$$vii. \frac{1}{2} - \frac{2}{8} = \frac{4}{8} - \frac{2}{8} = \frac{2}{8} = \frac{1}{4}$$

$$viii. \frac{1}{2} \div \frac{2}{8} \times \frac{3}{6} = \frac{1}{2} \times \frac{8}{2} \times \frac{3}{6} = 1$$

$$ix. \frac{2}{9} + \frac{1}{24} \times \frac{12}{3} \quad \text{BODMAS}$$

$$= \frac{2}{9} + \frac{1}{6}$$

$$= \frac{4+3}{18} = \frac{7}{18}$$

$$x. \frac{1}{2} \div \frac{1}{6} \times 2$$

$$\frac{1}{2} \times \frac{6}{1} \times \frac{2}{1}$$

$$= 6$$

Worksheet 4: Positive and Negative Numbers

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



- i. $-5 + 3 = \underline{-2}$
- ii. $-5 + 5 = \underline{0}$
- iii. $-4 + -1 = \underline{-5}$
- iv. $0 - 3 = \underline{-3}$
- v. $5 - 8 = \underline{-3}$
- vi. $-4 + 8 = \underline{+4}$

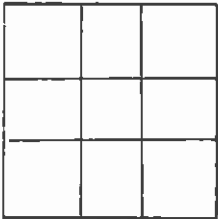
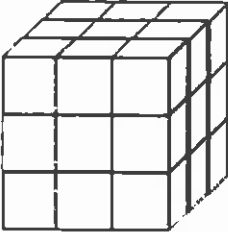
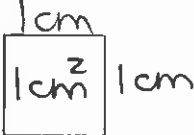
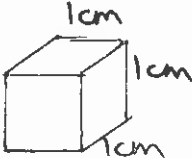
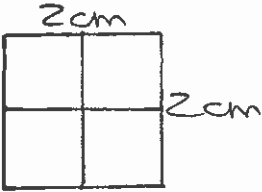
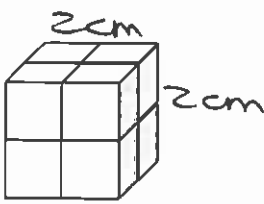
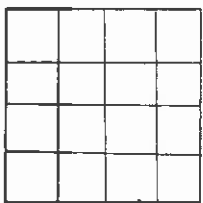
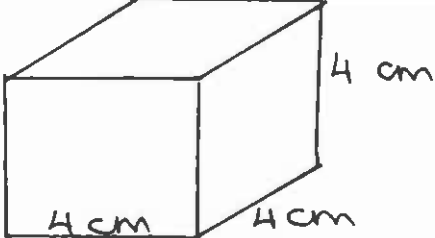
(b) This is a building with a parking lot. Study this picture and answer the following questions.



- i. Your car is parked at level 7, you are at level 3. How many levels are you from your car?
 $7 - 3 = 4$ levels
- ii. Your car is parked at level -1, you are at level 3. How many levels are you from your car?
 $3 - (-1) = 3 + 1 = 4$ levels
- iii. Your car is parked at level 7, you are at level -3. How many levels are you from your car?
 $7 - (-3) = 7 + 3 = 10$ levels

Worksheet 5: Square Numbers and Roots; Cube Numbers and Roots

(a) Complete the following table:

2D AREA	3D Volume
 <p>3cm</p> <p>3cm</p> <p>Square: $(3\text{cm})^2 = 9\text{cm}^2$</p> <p>Square root: $\sqrt{9\text{cm}^2} = 3\text{cm}$</p>	 <p>3cm</p> <p>3cm</p> <p>Cube: $(3\text{cm})^3 = 27\text{cm}^3$</p> <p>Cube root: $\sqrt[3]{27\text{cm}^3} = 3\text{cm}$</p>
 <p>1cm</p> <p>1cm</p> <p>Square: $(1\text{cm})^2 = 1\text{cm}^2$</p> <p>Square root: $\sqrt{1\text{cm}^2} = 1\text{cm}$</p>	 <p>1cm</p> <p>1cm</p> <p>1cm</p> <p>Cube: $(1\text{cm})^3 = 1\text{cm}^3$</p> <p>Cube root: $\sqrt[3]{1\text{cm}^3} = 1\text{cm}$</p>
 <p>2cm</p> <p>2cm</p> <p>Square: $(2\text{cm})^2 = 4\text{cm}^2$</p> <p>Square root: $\sqrt{4\text{cm}^2} = 2\text{cm}$</p>	 <p>2cm</p> <p>2cm</p> <p>2cm</p> <p>Cube: $(2\text{cm})^3 = 8\text{cm}^3$</p> <p>Cube root: $\sqrt[3]{8\text{cm}^3} = 2\text{cm}$</p>
 <p>Square: $(4\text{cm})^2 = 16\text{cm}^2$</p> <p>Square root: $\sqrt{16\text{cm}^2} = 4\text{cm}$</p>	 <p>4cm</p> <p>4cm</p> <p>4cm</p> <p>Cube: $(4\text{cm})^3 = 64\text{cm}^3$</p> <p>Cube root: $\sqrt[3]{64\text{cm}^3} = 4\text{cm}$</p>

(b) Make use of your calculator to do the following: [Always try to estimate the answer first.] (Round off to two decimal places where necessary.)

i. $\sqrt{144} = 12$

ii. $\sqrt{22} = 4,69$

iii. $\sqrt[3]{8} = 2$

iv. $\sqrt{9} = 3$

v. $\sqrt{\frac{16}{4}} = \frac{4}{2} = 2$

vi. $\sqrt[3]{\frac{27}{8}} = \frac{3}{2} = 1\frac{1}{2} = 1,5$

vii. $\sqrt{15} = 3,8729 \approx 3,87$

viii. $\sqrt{32-4} = \sqrt{28} = 5,291 \approx 5,29$

ix. $\sqrt{9+16} = 5$

x. $\sqrt{9} + \sqrt{16} = 3+4=7$

xi. $5^2 + 10^3 = 25 + 1000 = 1025$

xii. $\sqrt[3]{8} + \sqrt{169} = 2 + 13 = 15$

xiii. $10 + 10^3 = 10 + 1000 = 1010$

xiv. $\sqrt{2^2} = 2$

xv. $\sqrt{2^2} = 2$

xvi. $\sqrt{2} \times \sqrt{2} = 2$

xvii. $10 \times 10^3 = 10^4 = 10000$

xviii. $2^3 + 3^2 = 8 + 9 = 17$

xix. $0,1^3 = 0,1 \times 0,1 \times 0,1$
 $= 0,001$

xx. $1^3 = 1$

Worksheet 6: Mathematical Language

(a) Complete the following table:

Word	Sign
product	\times
difference	$-$
times	\times
total	$+$
plus	$+$
minus	$-$
divide	\div
add	$+$
subtract	$-$

(b) Give solutions to the following problems:

- i. What is the difference in time between US and South Africa in our summer?

7 hours.

- ii. You spend R2,34 and R3,78 in a tuck shop. What is the total amount that you have spent?

$$R2,34 + R3,78 = R6,12.$$

- iii. What is the difference in time between UK and South Africa in our summer?

2 hours.

- iv. Subtract 2 from 1.

$$1 - 2 = -1$$

1.2 Operations Using Numbers and Calculator Skills

Worksheet 7: Order of Operations: BODMAS

E.g. BRACKETS

SQUARE NUMBERS AND ROOTS

OF \rightarrow \times

MULTIPLICATION AND DIVISION

ADD AND SUBTRACT

EXAMPLE:

$$\begin{aligned}
 & 2 \times 3 + 4 \div 2 + (9 - 1) - \frac{1}{2} \text{ of } 8 && \text{First the brackets} \\
 & = 2 \times 3 + 4 \div 2 + 8 - \frac{1}{2} \times 8 && \text{of (this is multiplication)} \\
 & = 2 \times 3 + 4 \div 2 + 8 - 4 && \text{then multiply and divide from left to right} \\
 & = 6 + 2 + 8 - 4 && \text{then add and subtract from left to right} \\
 & = \underline{12}
 \end{aligned}$$

Determine the following: (You may use your calculator, but show your steps)

- | | |
|--|---|
| i. $3 \times 7 - 11 \div 2 \times 6 + 1$ | ii. $58 \div 2 + 2 \times 4 - \frac{2}{3} \text{ of } 30$ |
| iii. $2(2 - 3)^2 - 6 \div 2$ | iv. $\frac{\sqrt{160 - 16}}{12} - 32 \div 8$ |
| v. $6 \times 8 \div 2 + 3$ | vi. $983,5 - 100 - 10$ |
| vii. $250 - 25 \times 4 + 100$ | viii. $\frac{3}{5} \text{ of } 205$ |
| ix. $280 + 24,8 \times 20 \div 2$ | x. $\frac{2}{3} \text{ of } 120\text{km} + 7\text{km}$ |
| xi. $\frac{2}{5} \left(1 \frac{4}{9} \right)$ | xii. $\frac{1}{2} + \frac{2}{3} \times \frac{9}{6} - \frac{1}{4}$ |
| xiii. $1 \div 1 \times 1 - 1 + 1$ | xiv. $17 + 3 \times 2 - 1$ |
| xv. $325 - 36 \div 3 + 100$ | xvi. $(5 - 4)^2 - \sqrt[3]{27} \times 4$ |
| xvii. $R450 - R32,50 \times 10$ | xviii. $2 \frac{2}{3} + 6 \frac{5}{6}$ |
| xix. $\frac{3}{4}(7 - 2) + 6$ | xx. $\frac{1}{2} \times \frac{1}{3}(36 \div 6) + 3$ |

Take note: When one determines the median of an even number of data, be careful that you consider the order of operations. E.g. If the data is: 1; 3; 4; 5., the middle value between 3 and 4 is not $3+4 \div 2$, but rather $(3+4) \div 2$!

$$i) 3 \times 7 - 11 \div 2 \times 6 + 1$$

$$= 21 - 11 \div 2 \times 6 + 1$$

$$= 21 - 55 \times 6 + 1$$

$$= 21 - 33 + 1$$

$$= -12 + 1$$

$$= -11 \rightarrow$$

$$iii.) 2(2-3)^2 - 6 \div 2$$

$$= 2(-1)^2 - 6 \div 2$$

$$= 2 - 6 \div 2$$

$$= 2 - 3$$

$$= -1 \rightarrow$$

$$v.) 6 \times 8 \div 2 + 3$$

$$= 48 \div 2 + 3$$

$$= 24 + 3$$

$$= 27 \rightarrow$$

$$viii.) \frac{3}{5} \text{ of } 205$$

$$= 123 \rightarrow$$

$$x.) \frac{2}{3} \text{ of } 120 \text{ km} + 7 \text{ km}$$

$$= 80 \text{ km} + 7 \text{ km} = 87 \text{ km} \rightarrow$$

$$xii.) \frac{1}{2} + \frac{2}{3} \times \frac{9}{6} - \frac{1}{4}$$

$$= \frac{1}{2} + \frac{3}{3} - \frac{1}{4}$$

$$= 1\frac{1}{2} - \frac{1}{4} = 1\frac{1}{4} \rightarrow$$

$$ii.) 58 \div 2 + 7 \times 4 - \frac{2}{3} \times 30$$

$$= 58 \div 2 + 2 \times 4 - 20$$

$$= 29 + 8 - 20$$

$$= 37 - 20$$

$$= 17 \rightarrow$$

$$iv.) \frac{\sqrt{160-16}}{12} - 32 \div 8$$

$$= \frac{\sqrt{144}}{12} - 32 \div 8$$

$$= \frac{12}{12} - 4$$

$$= 1 - 4$$

$$= -3 \rightarrow$$

$$vi.) 983,5 - 100 - 10$$

$$= 883,5 - 10$$

$$= 873,5 \rightarrow$$

$$vii.) 250 - 100 + 100$$

$$= 250 \rightarrow$$

$$ix.) 280 + 24,8 \times 20 \div 2$$

$$= 280 + 496 \div 2$$

$$= 280 + 248 = 528 \rightarrow$$

$$xi.) \frac{2}{5} \left(\frac{13}{9} \right) = \frac{26}{45} \rightarrow$$

$$xiii.) 1 \div 1 \times 1 - 1 + 1$$

$$= 1 \times 1 + 1 + 1$$

$$= 1 + 1 + 1 = 3 \rightarrow$$

$$\text{xiv)} \quad 17 + 3 \times 2 - 1$$

$$= 17 + 6 - 1$$

$$= 23 - 1$$

$$= \underline{22} \rightarrow$$

$$\text{xv)} \quad 325 - 36 \div 3 + 100$$

$$= 325 - 12 + 100$$

$$= 313 + 100$$

$$= \underline{413} \rightarrow$$

$$\text{xvi)} \quad (5-4)^2 - \sqrt[3]{27} \times 4$$

$$= (1)^2 - 3 \times 4$$

$$= 1 - 3 \times 4$$

$$= 1 - 12$$

$$= \underline{-11} \rightarrow$$

$$\text{xvii)} \quad R450 - R32,50 \times 10$$

$$= R450 - R325$$

$$= \underline{R125} \rightarrow$$

$$\text{xviii)} \quad 2\frac{2}{3} + 6\frac{5}{6}$$

$$= 8\frac{2}{3} + \frac{5}{6}$$

$$= 8\frac{4}{6} + \frac{5}{6}$$

$$= 8\frac{9}{6}$$

$$= 8 + \frac{6}{6} + \frac{3}{6}$$

$$= \underline{9\frac{1}{2}} \rightarrow$$

$$\text{xix)} \quad \frac{3}{4}(7-2) + 6$$

$$= \frac{3}{4}(5) + 6$$

$$= \frac{15}{4} + 6$$

$$= 3\frac{3}{4} + 6$$

$$= \underline{9\frac{3}{4}} \rightarrow$$

$$\text{xx)} \quad \frac{1}{2} \times \frac{1}{3}(36 \div 6) + 3$$

$$= \frac{1}{2} \times \frac{1}{3}(6) + 3$$

$$= \frac{1}{6}(\frac{6}{1}) + 3$$

$$= 1 + 3$$

$$= \underline{4} \rightarrow$$

Worksheet 8: Estimation

You can do this as a class competition. (See whose estimated answers are the closest)

Situation	Estimation	Real value
What is the diameter of a R5 coin?		
What is the perimeter of a R10?		
How far is it from your math class to the office?		
What is the circumference of your fist?		
What is the length of you hand span?		
What is the area of your classroom?		
What is the volume of your classroom?		
What is the ratio boys to girls in your class?		
What is today's temperature?		
Fill a glass with water. See who can guess the capacity.		
Guess the weight of your shoe. Weigh it and see how close you are.		
Guess how long you can whistle with one breath. Time yourself and see how close you were.		
Guess how long it will take you to say the alphabet. Time yourself and see how close you were.		
How thick is a R5 coin?		

1.3 Rounding

Worksheet 9: Rounding off / Rounding up

Round off to two decimal places

E.g. $354,7899 \approx 354,79$

but

$354,7824 \approx 354,78$

i. $31,2536 \approx 31,25$	ii. $321,456317 \approx 321,46$
iii. $46,9859 \approx 46,99$	iv. $10,00023 \approx 10$
v. $52,9092 \approx 52,91$	vi. $59,995 \approx 60$
vii. $20,1073 \approx 20,11$	viii. $99,99142 \approx 99,99$
ix. $32,9991 \approx 33$	x. $42,74321 \approx 42,74$
xi. $0,003 \approx 0$	xii. $0,005 \approx 0,01$
xiii. $2,3546 \approx 2,35$	xiv. $34,908 \approx 34,91$
xv. $9,0899 \approx 9,09$	xvi. $56,078 \approx 56,08$
xvii. $76,0782 \approx 76,08$	xviii. $7,0989 \approx 7,1$
xix. $4,0125 \approx 4,01$	xx. $2,321 \approx 2,32$

Round off to the nearest 10

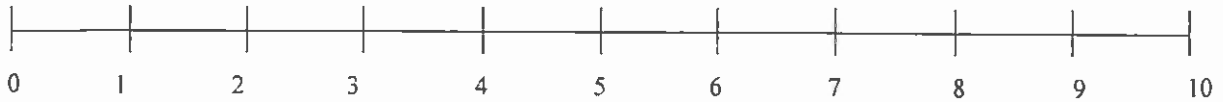
E.g. $34,56 \approx 30$

but $35,56 \approx 40$

i. $3,2 \approx 0$	ii. $879 \approx 880$
iii. $45,12 \approx 50$	iv. $914 \approx 910$
v. $123,4 \approx 120$	vi. $915 \approx 920$
vii. $412 \approx 410$	viii. $999 \approx 1000$
ix. $5,9 \approx 10$	x. $145,89 \approx 150$
xi. $6,8 \approx 10$	xii. $45,881 \approx 50$
xiii. $9149 \approx 9150$	xiv. $657 \approx 660$
xv. $1002 \approx 1000$	xvi. $732 \approx 730$
xvii. $435 \approx 440$	xviii. $106 \approx 110$
xix. $299 \approx 300$	xx. $123 \approx 120$

Round off to the nearest 5

E.g: $2 \approx 0$; $6 \approx 5$; $17 \approx 15$; $18 \approx 20$ etc



Use this line to see if the digit is closer to 0 , 5 or 10 (Only consider the one digit!)

i. $1 \approx 0$	ii. $124 \approx 125$
iii. $2 \approx 0$	iv. $65 \approx 65$
v. $3 \approx 5$	vi. $71 \approx 70$
vii. $4 \approx 5$	viii. $10 \approx 10$
ix. $5 \approx 5$	x. $91 \approx 90$
xi. $6 \approx 5$	xii. $93 \approx 95$
xiii. $7 \approx 5$	xiv. $99 \approx 100$
xv. $8 \approx 10$	xvi. $98 \approx 100$
xvii. $9 \approx 10$	xviii. $33 \approx 35$
xix. $11 \approx 10$	xx. $79 \approx 80$

Round off to the nearest cent:

This is the same as rounding to two decimals.

E.g : $R12,234 \approx R12,23$ but $R132,2355 \approx R132,24$

i. $R12,234 \approx R12,23$	ii. $R10,016 \approx R10,01$
iii. $R190,1254 \approx R190,13$	iv. $R1,712 \approx R1,71$
v. $R3,534 \approx R3,53$	vi. $R80,089 \approx R80,09$
vii. $R2,989 \approx R2,99$	viii. $R14,012 \approx R14,01$
ix. $R5,999 \approx R6$	x. $R4,129 \approx R4,13$
xi. $R1,095 \approx R1,10$	xii. $R90,994 \approx R90,99$
xiii. $R12,081 \approx R12,08$	xiv. $R7,0139 \approx R7,01$
xv. $R41,890 \approx R41,89$	xvi. $R5,982 \approx R5,98$
xvii. $R4,089 \approx R4,09$	xviii. $R99,998 \approx R100$
xix. $R9,0129 \approx R9,01$	xx. $R19,995 \approx R20$

Round off to the nearest randE.g: R142,50 \approx R143 but R43,49 \approx R43

i. R143,76 \approx R 144	ii. R3,76 \approx R 4
iii. R2,45 \approx R 2	iv. R1,23 \approx R 1
v. R4,87 \approx R 5	vi. R3,45 \approx R 3
vii. R3,67 \approx R 4	viii. R12,50 \approx R 13
ix. R13,44 \approx R 13	x. R9,39 \approx R 9
xi. R54,9805 \approx R 55	xii. R12,98 \approx R 13
xiii. R12,987 \approx R 13	xiv. R3,19 \approx R 3
xv. R90,765 \approx R 91	xvi. R56,54 \approx R 57
xvii. R13,655 \approx R 14	xviii. R4,45 \approx R 4
xix. R1,91 \approx R 2	xx. R6,54 \approx R 7

Round off to the nearest integer (whole number)E.g.: 12,54 \approx 13 but 45,567 \approx 46

i. 43,5 \approx 44	ii. 78,09 \approx 78
iii. 89,35 \approx 89	iv. 88,45 \approx 88
v. 45,67 \approx 46	vi. 14,54 \approx 15
vii. 35,12 \approx 35	viii. 90,15 \approx 90
ix. 87,94 \approx 88	x. 89,51 \approx 90

Round up/ down:

Complete the table:

You must organize accommodation for 112,4 people. For how many people would you prepare the accommodation?	113
You want 116,23m ² to be tiled. For how many square meters would you order tiles?	117m ²
You need to buy paint and according to your calculations, you need 4,4cans of paint. How many cans would you buy?	5 cans
You need 1,3kg rice for a function. How many kilograms would you buy?	2kg
Why should you round temperature to the nearest 5 degrees? The temperature is 6 ^o C, round it to nearest 5 degrees	You should round temperature to the nearest 5 ^o C. Therefor 6 ^o C \approx 5 ^o C

1.4 Ratios

Worksheet 11: Ratios

(a) You bought Oros Squash. It must be diluted in a ratio of 1:4

- i. You have 500ml Squash; write down the ratio in ml to mix it.

1 part Squash : 4 parts Water \therefore 500ml : 2000 ml.

- ii. Which fraction of the cold drink is water? $\frac{4}{5}$ parts is water.

- iii. You want to mix 1ℓ (1000ml) of Oros cold drink. How much squash do you need to pour into your jar to make it drinkable?

$\frac{1}{5} \times 1000 \text{ ml} = 200 \text{ ml}.$

(b) Write the following ratios in their simplest form in the space provided:

70c to R1	70 : 100 =	7 : 10
300ml to 2 litres	300 : 2000	3 : 20
3kg to 750g	3000 : 750	4 : 1
90min to 2 hours	90 : 120	3 : 4
6m to 28m	6 : 28	3 : 14
4cm to 40mm	40 : 40	1 : 1
18 hours to 1 day	18 : 24	3 : 4
2 months to 2 years	2 : 24	1 : 12
0,54 to 1,2	54 : 120	9 : 20
$2\frac{1}{2}$ to $1\frac{2}{3}$	$\frac{5}{2} : \frac{5}{3} \therefore \frac{15}{6} : \frac{10}{6}$	$\frac{15}{6} : \frac{10}{6}$ 15 : 10 3 : 2
R4,20 to 30c	420 : 30	14 : 1
30 min : 2 hours	30 : 120	1 : 4
4c : R3,24	4 : 324	1 : 81