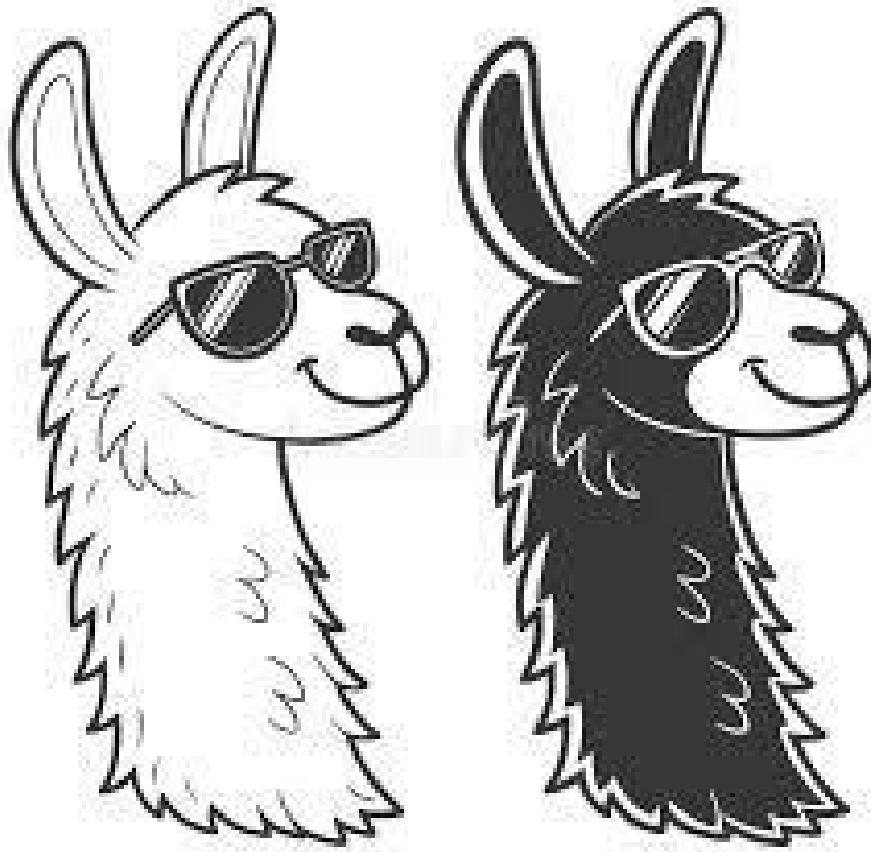


Laerskool Nelspruit
Mathematics

Example book
Grade 6
Term 2



Name: _____

Topic 5 Lesson 1

Writing Number Sentences

Homework

Worksheet T5 L1

Pop Quiz

Write the operation sign.

	Terminology	Calculation		Terminology	Calculation
1.	Sum of		6.	Reduce	
2.	Difference Between		7.	Times	
3.	Coefficient		8.	Altogether	
4.	Increase		9.	Divided	
5.	Product		10.	Repeat	

Important terminology you need to know:

Sum of $\square$ plus (+) Difference between $\square$ minus (-) Double $\square \times 2$
 Product $\square$ times (x) Coefficient $\square$ divide ($\div$) Halve $\square \div 2$

When calculations are given in words, we should be able to write the number sentence of it.

Example Find the sum of 12 and 8. We then write:

$$12 + 8 = 20$$

Sometimes we get number sentences with more than one calculation

Example: Multiply the sum of 4 and 6 by 5.

Now you have to read carefully to determine which calculation should be done first.

$$(4 + 6) \times 5$$

$$= 10 \times 5$$

$$= 50$$

But letters can also be used as placeholders like x , y , a , b

Example The sum of 5 and x equals 9. We then write:

$$5 + x = 9$$

$$x = 4$$

Worksheet T5 L1

1. Write a number sentence for each word problem and then find the Answer

- a) The sum of 95 and 55
- b) The difference between 35 and 100
- c) The product of 9 and 15
- d) The coefficient if 248 is divided by 4.
- e) 10 deducted from 4 500
- f) The product of two numbers is 60. The one number is 4. What is the other number?
- g) The difference between two numbers is 450. The larger number is 1 000. What is the other number?

2. More difficult number sentences

- a) Multiply the sum of 7 and 3 by 9
- b) Multiply the difference between 12 and 4 by 7
- c) Add 9 to the product of 6 and 7
- d) Subtract 7 from the product of 6 and 9
- e) Divide the sum of 15 and 25 by 8
- f) Multiply the difference between 4 and 9 by 12
- g) Divide 72 by the product of 4 and 6

3. Write the Number Sentence and Answer

- a) The sum of x and 12 is 30
- b) The difference between x and 3 is 10
- c) The product of 9 and x is 54
- d) y reduced by 3 equals 17
- e) 15 reduced by is $8x$
- f) y multiply by 4 is equal to 64
- g) Half of x equals 8
- h) Half of y equals 12
- i) Double a equals 10
- j) Double b is 36

Topic 5 Lesson 2

Number sentence solutions

Homework

Worksheet T5 L2

Pop Quiz

Add and subtract as fast as you can

1	$9 + 7 =$	6	$37 - 19 =$
2	$17 - 9 =$	7	$8 + 9 =$
3	$17 + 9 =$	8	$137 - 9 =$
4	$27 - 9 =$	9	$18 + 9 =$
5	$17 + 19 =$	10	$28 + 19 =$

Remember a "=" means that the value on both sides of it must be the same.

Worksheet T5 L2

1. Complete by making a "✓" in the correct block.

	True	False
a) $98 + 87 = 87 + 98$		
b) $631 - 462 = 462 - 631$		
c) $356 \times 49 = 49 \times 356$		
d) $400 \div 20 = 20 \div 400$		
e) Two numbers can be divided in any order		
f) Two numbers can be added in any order		

2. Complete by writing a = or $\neq$ to make the statement true.

a) $347 + 249$ _____ $249 + 347$

b) $550 - 367$ _____ $367 - 550$

c) $900 \div 12$ _____ $12 \div 900$

d) 395×47 _____ 47×395

3. Fill in the missing numbers.

a) $40 \times 3 =$ _____ $\times 40$

b) $57 + 62 =$ _____ $+ 57$

c) _____ $\times 37 = 37 \times 295$

d) $812 + 29 = 29 +$ _____

e) $90 \times$ _____ $= 70 \times 90$

f) $873 + 170 =$ _____ $+ 873$

4. Complete

a) $16 = 20 - \text{♫}$ so $\text{♫} =$ _____

b) $\clubsuit + 7 = 15$ so $\clubsuit =$ _____

c) $45 = 18 + \ominus$ so $\ominus =$ _____

d) $24 = 8 \times \text{💣}$ so $\text{💣} =$ _____

e) $\rightarrow \times 9 = 72$ so $\rightarrow =$ _____

f) $20 \times \square = 600$ so $\square =$ _____

g) $\square \div 2 = 5$ so $\square =$ _____

h) $8 = 48 \div \square$ so $\square =$ _____

i) $15 = \text{💧} \div 3$ so $\text{💧} =$ _____

Tema 5 Lesson 3

Plus and minus of three numbers.

Homework

Worksheet T5 L3

Pop Quiz

Add and subtract as quickly as you can

1	$10 = 8 +$	6	$10 = 3 +$
2	$10 = 4 +$	7	$10 = 1 +$
3	$10 = 9 +$	8	$10 = 6 +$
4	$10 = 7 +$	9	$10 = 2 +$
5	$10 = 5 +$	10	$20 = 16 +$

Worksheet T5 L 3

1. Use the easiest method to add up the 3 numbers.

Example: $36 + 7 + 4 = 40 + 7 = 47$ a) $13 + 8 + 7$ b) $4 + 26 + 9$ c) $26 + 32 + 8$ d) $17 + 5 + 73$ f) $35 + 19 + 11$

2. Fill in the missing numbers

a) $7 + \underline{\quad} + 3 = 14$ b) $20 = \underline{\quad} + 11 - 3$ c) $17 + \underline{\quad} + 13 = 45$ d) $\underline{\quad} + 25 - 9 = 18$ e) $12 - 4 - \underline{\quad} = 3$ f) $\underline{\quad} + 25 = 50 - 8$ g) $25 = 16 + 14 - \underline{\quad}$ h) $9 + 7 - 3 = \underline{\quad} + 10$ i) $40 = \underline{\quad} + 25 - 7$

3. Complete each pair of number sentences. Work from left to right and show all calculations.

Example $9 - 6 - 2$

$$= 3 - 2$$

$$= 1$$

a) $8 - 4 - 3$ b) $90 - 50 - 20$ c) $8 - 3 - 4$ d) $90 - 20 - 50$

4. Calculate the following:

a) $8 - 6 + 3$ b) $5 + 21 - 7$ c) $9 - 3 + 7$ d) $15 - 3 - 5$ e) $16 + 5 - 9$ f) $17 - 8 + 5$ g) $18 + 5 + 4$ h) $14 + 7 - 3$ i) $12 - 7 + 6$ j) $26 + 4 - 15$

4. Calculate the following. Remember your order of operation

a) $(8 - 4) - 3$ b) $(90 - 50) - 20$ c) $8 - (4 - 3)$ d) $90 - (50 - 20)$

Topic 5 Lesson 4

Multiply and Division of three numbers

Homework

Worksheet T5 L4

Pop Quiz

Add and subtract as quickly as possible.

1	$60 + 50 =$	6	$130 - 70 =$
2	$70 + 80 =$	7	$280 + 320 =$
3	$90 - 30 =$	8	$240 - 120 =$
4	$120 - 80 =$	9	$540 + 160 =$
5	$170 + 130 =$	10	$380 - 180 =$

1. Complete every number sentence

Example. $(2 \times 3) \times 4$ a) $(2 \times 4) \times 3$ b) $(3 \times 4) \times 5$ c) $2 \times (3 \times 4)$
 $= 6 \times 4$
 $= 24$ d) $2 \times (4 \times 3)$ e) $3 \times (4 \times 5)$

2. Three numbers can be grouped and multiplied in any order. (True / False)

3. Multiply the numbers in the easiest order.

Example. $5 \times 6 \times 2$
 $= 10 \times 6$
 $= 60$

a) $2 \times 5 \times 9$ b) $16 \times 5 \times 2$ c) $7 \times 4 \times 5$ d) $5 \times 3 \times 4$ e) $12 \times 5 \times 4$

4. Complete each number sentence.

a) $24 \div 4 \div 2$ b) $24 \div 2 \div 4$ c) $48 \div 6 \div 2$ d) $48 \div 2 \div 6$

e) $(24 \div 6) \div 2$ f) $24 \div (6 \div 2)$ g) $(48 \div 8) \div 2$ h) $48 \div (8 \div 2)$

True or false: $(12 \div 6) \div = 12 \div (6 \div 2)$ _____

5. Calculate

a) $4 \times 6 \div 3$ b) $4 \times 3 \div 2$ c) $12 \div 4 \times 5$ d) $4 \times 5 \times 7$ e) $15 \div 5 \times 9$

f) $40 \div 8 \times 6$ g) $72 \div 9 \div 4$ h) $8 \times 6 \div 2$

Topic 5 Lesson 5

Mixed calculations

Homework

Worksheet T5 L5

Pop Quiz

Calculations with 0 or 1

1	$23 + 0 =$	6	$14 \div 1 =$
2	$8492 - 0 =$	7	$6\,245 - 1 =$
3	$7 \times 0 =$	8	$15 \times 0 =$
4	$63 + 1 =$	9	$67\,841 + 1 =$
5	$86 \div 1 =$	10	245×1

Order of calculation

Brackets ()

OF

Multiply and divide $\times ; \div$ Minus and Plus $- ; +$ **Worksheet T5 L5**

1. Mixed Operations with Brackets - Part 1

- a) $(5 + 3) \times 6$ b) $(20 + 25) \div 5$ c) $(5 \times 8) - (4 \times 6)$ d) $(15 - 6) \times (8 + 4)$
 e) $(8 + 8 + 8) \div 2$ f) $(25 + 15) \div (12 - 4)$

2. Mixed Operations with Brackets - Part 2

- a) $30 - (5 \times 2)$ b) $24 \div (10 - 4)$ c) $24 - (6 \times 3)$ d) $42 \div (4 + 3)$
 e) $96 \div (4 \times 2)$ f) $105 - (5 \times 3)$

3. Mixed operations without brackets

- a) $5 \times 6 + 6$ b) $21 \div 7 + 5$ c) $9 \times 3 - 7$ d) $42 \div 6 - 6$
 e) $20 - 2 \times 9$ f) $8 + 8 \div 8$ g) $9 + 9 \times 4$ h) $30 - 4 \times 6$
 i) $50 \div 5 - 8$ j) $9 \times 7 - 7$ k) $50 - 48 \div 6$ l) $52 + 6 \times 8$

Topic 6 Les 1

Numeric Patterns: Number Sequences

Homework

Worksheet T6 L1

Number row

A sequence of numbers is numbers that follow one another in a certain pattern.

Example 1

3 ; 6 ; 9 ; 12 ; ___ ; ___ ; Getting the next number 3 is added each time
 $+3 \quad +3 \quad +3 \quad +3$

Example 2:

1 ; 3 ; 9 ; 27 ; ___ ; ___ ; To get the next number you multiply by 3 each time
 $\times 3 \quad \times 3 \quad \times 3 \quad \times 3$

Constant Difference

When the number sequence's pattern is consistent with the same number that is added or minus, we talk about a constant difference.

Example 1

8 ; 14 ; 20 ; 26 Pattern is +6 therefore a constant difference.
 $+6 \quad +6 \quad +6$

Example 2

20 ; 16 ; 12 ; 8 Pattern is -4 therefore a constant difference
 $-4 \quad -4 \quad -4$

Constant ratio

When the number sequence's pattern multiplies or divides by the same number all the time, we speak of a constant ratio.

Example 1

1 ; 3 ; 9 ; 27 Pattern is $\times 3$ therefore a constant ratio
 $\times 3 \quad \times 3 \quad \times 3$

Example 2

64 ; 16 ; 4 ; 1 Pattern is $\div 4$ therefore constant ratio.
 $\div 4 \quad \div 4 \quad \div 4$

1 ; 5 ; 2 ; 6 ; 3 ; 7 ; -- There is no pattern of a constant difference or a constant relationship here. We just say "None"

Worksheet T6 L1

Complete each number row. Say if there is a constant difference, constant relationship or none.

1a) 1 ; 3 ; 5 ; 7 ; 9 (+2) Constant difference b) 1 ; 5 ; 9 ; ___ ; ___ _____

c) 7 ; 12 ; 17 ; ___ ; ___ _____ d) 8 ; 17 ; 26 ; ___ ; ___ _____

e) 14 ; 11 ; 8 ; ___ ; ___ _____ f) 31 ; 24 ; 17 ; ___ ; ___ _____

g) 100 ; 85 ; 70 ; ___ ; ___ _____ h) 2 ; 4 ; 8 ; ___ ; ___ _____

i) 6 ; 12 ; 24 ; ___ ; ___ _____ j) 20 ; 60 ; 180 ; ___ ; ___ _____

k) 64 ; 32 ; 16 ; ___ ; ___ l) 80 ; 40 ; 20 ; ___ ; ___

m) 480 ; 240 ; 120 ; ___ ; ___ n) 3 ; 7 ; 12 ; 18 ; ___ ; ___

o) 4 ; 6 ; 10 ; 16 ; ___ ; ___ p)) 9 ; 1 ; 8 ; 2 ; 7 ; 3 ; ___ ; ___

q) 1 ; 1 ; 2 ; 3 ; ___ ; ___ ; ___ r) 2 ; 3 ; 5 ; 8 ; ___ ; ___ ; ___

Topic 6 Lesson 2

Numerical Patterns: Flow diagrams

Homework

Worksheet T6 L2

RB p. 73, 74 and 75

Flow diagram

A flow diagram consists of an input value; Rule and output value.

Flow diagram works like a machine.

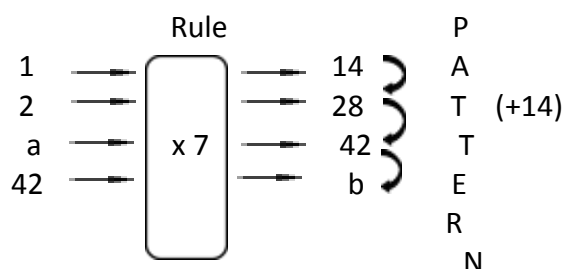
Input is what goes into the machine .

Output is what comes out after the rule has been applied.

Rule is what happens in the machine, i.e. Input $\square$ Calculation $\square$ Output

Pattern: For the pattern, you **only** look at the **output numbers** but the input numbers should follow each other.

When you have the output but not the input, the machine moves backwards. You need to do the inverse operation of the rule (opposite of forward is backward)
so inverse of + is – and
and inverse of x is $\div$)



Worksheet T6 L2

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Draw and complete the flow diagrams

Topic 6 Lesson 3

Pattern and rule from tables

Homework

Worksheet T6 L3.1 and T6 L3.2

Tables

Tables also have patterns and rules that need to be calculated

- Pattern you only look at the output (answers)  Question do I do with the input to **get output**)

!!!! If you're struggling to find the rule, go draw yourself a flowchart !!!!

Example

Calculate the rule

Import		3	4	b	20
Export		11	14	26	c

Pattern: +3 (make sure the numbers follow the pattern, he's going to the next number)
 Rule: $\times 3 + 2$ (look at the numbers to help you)

If you're struggling to find the rule, go draw yourself a flowchart to see if it works.

Input	Rule	Output
2		8
3		11
4		14
7		a
b		26
20		c

Now you can calculate the unknowns by applying the rule.

For "a" $7 \times 3 = 21$ $21 + 2 = 23$ $a = 23$
 For "b" $26 - 2 = 24$ $24 \div 3 = 8$ $b = 8$
 For "c" $20 \times 3 = 60$ $60 + 2 = 62$ $c = 62$

Worksheet T6 L3.1

Draw and complete the tables.

Input	1	2	3	4	5		20
Output	2	8	14	20	26	68	

Pattern: _____

Rule: _____

Input	1	2	3	4	5		20
-------	---	---	---	---	---	--	----

Output	3	5	7	9	11	19	
--------	---	---	---	---	----	----	--

Pattern: _____

Rule: _____

Input	1	2	3	4	5		20
Output	3	4	5	6	7	13	

Pattern: _____

Rule: _____

Input	1	2	3	4	5		20
Output	2	5	8	11	14	44	

Pattern: _____

Rule: _____

Input	1	2	3	4	5		20
Output	0	3	6	9	12	18	

Pattern: _____

Rule: _____

Input	1	2	3	4	5		20
Output	4	7	10	13	16	46	

Pattern: _____

Rule: _____

Worksheet T6 L3.2

Input	1	2	3	4	12	
Output	2	4	6	8		32

Pattern: _____

Rule: _____

Input	1	2	3	4	10		30
Output	1	3	5	7		29	

Pattern: _____

Rule : _____

Input	1	2	3	4	18	
Output	4	6	8	10		50

Pattern: _____

Rule: _____

Input	1	2	3	4			19	
Output	0	2	4	6	10			40

Pattern: _____

Rule: _____

Input	1	2	3	4	5	
Output						

Rule: $\times 3$

Pattern: _____

Input	1	2	3	4	5		
Output							

Rule: $\times 3 - 2$

Pattern: _____

Input	1	2	3	4	10	
Output	6	9	12	15		78

Rule: _____

Pattern: _____

Input	1	2	3	4		10	
Output	2	5	8	11	20		53

Rule: _____

Pattern: _____

Input	1	2	3	4	5	
Output						

Pattern: _____

Rule: $x8 - 5$

Input	1	2	3	4	10	
Output	6	11	16	21		61

Pattern: _____

Rule: _____

Input	1	2	3	4	8	
Output	4	10	16	22		88

Pattern: _____

Rule: _____

Input	1	2	3	4	5		
Output							

Pattern: _____

Rule: $x4 + 3$:

Input	1	2	3	4	9		20
Output	8	17	26	35		89	

Pattern: _____

Rule: _____

Input	1	2	3	4	9		20
Output	10	17	24	31		87	

Pattern: _____

Rule: _____

Topic 6 Lesson 4

Geometric patterns

Homework

Worksheet T6 L4

RB p. 98 and 99

Pop Quiz

Calculate the rule and complete the table

Input	1	2	3	4	9		20
Output	3	8	13	18		58	

Rule: _____

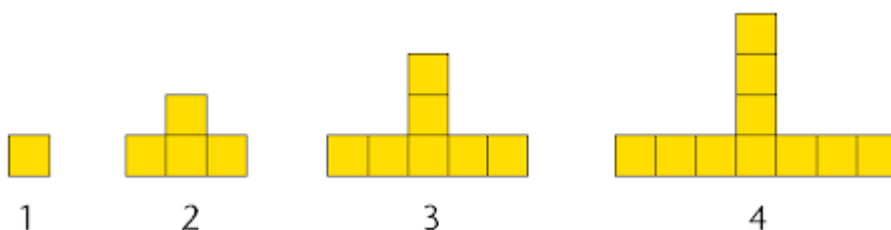
Geometric patterns are exactly the same as tables, you now just use an image/picture to get the information.

- 1 ☐ Fill in information from the image
- 2 ☐ Get the pattern (Read carefully what is asked)
- 3 ☐ Get the rule

Example

Pictures 1 is input 1 Picture 2 is input 2. Picture 3 is input 3

The total number of squares of each image is then the output.



Picture number	1	2	3	4	10
Number of squares	1	4	7	10	a

Pattern: $+3$

Rule: $x3 - 2$

Now you can complete the table

$$10 \times 3 - 2 = 28 \quad a = 28$$

Terminology: Fractions

Term	Explanation
Tenth	The first decimal place after the comma. T E , t
hundredths	The second decimal place after the comma T E , t h
thousandths	The third decimal place after the comma T E , t h d
Fraction	A whole that is divided into a certain number of equal parts . The number of parts you consider is written as the numerator (top number) and the total number of parts is written as the denominator(bottom)
Mixed number	A fraction that has an integer in front. E.g. $3\frac{3}{4}$
Proper fraction	A fraction where the numerator is smaller than the denominator e.g. $\frac{2}{7}$
Improper fraction	A fraction where the numerator is greater than the denominator, e.g. $\frac{5}{3}$
Equal denominators	When the denominators of the fractions are all the same.
Unequal denominators	When the denominators of the fractions are not all the same.
Equivalent fractions	Fractions whose denominators are different, but ultimately exactly the same size, e.g. $\frac{1}{2}$ en $\frac{2}{4}$ To get equivalent fractions, you multiply the numerator and denominator by the same number.
Simplest form	When a fraction is in its simplest form. I.e. there is no number that can be divided into the numerator and the denominator to make it smaller. The same number must be used for the numerator and the denominator to divide.

Topic 7 Lesson 1

Fractions: Theory

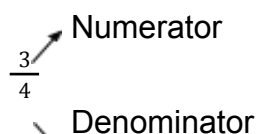
Homework

Worksheet T7 L1

RB p. 26,27 and 29

Fractions

A fraction is a portion of a whole. The parts of fractions are



Fractions can be represented in several ways:

Proper fractions: The numerator is always smaller than the denominator e.g. $\frac{2}{5}$

Improper fractions: The numerator is always greater than the denominator e.g. $\frac{8}{5}$

Mixed number: A proper fraction with an integer for e.g. $1\frac{2}{5}$

Convert Improper fraction to mixed number

$$\text{E.g. } \frac{13}{5} = \frac{5}{5} + \frac{5}{5} + \frac{3}{5} = 2\frac{3}{5}$$



$$\frac{13}{5}$$

$$13 \div 5 = 2 \text{ rem } 3 = 2\frac{3}{5}$$

Mixed number to an improper fraction

$$1\frac{3}{5} = \frac{5}{5} + \frac{3}{5} = \frac{8}{5}$$

of Times bottom plus top!! E.g.

$$\begin{array}{r} + \\ 1 \\ \times \end{array} \frac{3}{5}$$

$$5 \times 1 = 5$$

~~1~~

$$5 + 3 = 8$$

The fraction is $\frac{8}{5}$

Worksheet T7 L1

- Write the fractions that are improper fractions. $\frac{3}{5}$; $\frac{5}{3}$; $1\frac{2}{3}$; $\frac{12}{7}$; $2\frac{6}{11}$; $\frac{8}{9}$
- Write the fractions that are mixed numbers. $\frac{5}{3}$; $1\frac{1}{2}$; $\frac{2}{7}$; $\frac{11}{9}$; $2\frac{4}{5}$; $\frac{5}{4}$
- Write each mixed number as an improper fraction. Show ALL your steps of calculation. Complete in your script.

- a) $1\frac{5}{6}$ b) $2\frac{2}{3}$ c) $5\frac{5}{9}$ d) $1\frac{2}{3}$ e) $3\frac{1}{3}$ f) $2\frac{3}{4}$ g) $4\frac{2}{5}$
- h) $5\frac{2}{3}$ i) $7\frac{1}{6}$ j) $10\frac{4}{5}$ k) $8\frac{3}{4}$ l) $6\frac{9}{10}$ m) $6\frac{7}{12}$
- n) $9\frac{7}{8}$

- Write each improper fraction as a mixed number.

- a) $\frac{9}{3}$ b) $\frac{12}{4}$ c) $\frac{16}{8}$ d) $\frac{42}{6}$ e) $\frac{72}{9}$ f) $\frac{11}{3}$ g) $\frac{13}{4}$
- h) $\frac{21}{8}$ i) $\frac{47}{6}$ j) $\frac{80}{9}$ k) $\frac{60}{9}$ l) $\frac{65}{4}$ m) $\frac{95}{6}$ n) $\frac{35}{6}$

Topic 7 Lesson 2

Fractions: Equivalent fractions

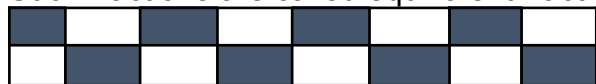
Homework

Worksheet T7 L2

RB p. 30 nr.1 ; 33 nr. 6 ; 35 nr. 9

You know that fractions that look different can have the same value.

Such fractions are called equivalent fractions.



$$\frac{1}{2} = \frac{3}{6} = \frac{5}{10} = \frac{10}{20}$$

To get equivalent fractions, multiply the denominator

AND the numerator by the same number.

For example. $\frac{2}{3}$ (x2 top and bottom) = so $\frac{4}{6}$ $\frac{2}{3} = \frac{4}{6}$

Unknown numerator or denominator of an equivalent fraction:

When the numerator or denominator of an equivalent is asked, you should check what is the number that was multiplied with.

E.g. $\frac{2}{3} = \frac{?}{9}$ Both denominators are given. Now you ask, "Whitn what number was 3 multiplied to get 9?" $\times 3$

Do the same with the numerator. $2 \times 3 = 6$

$$\text{Therefor } \frac{2}{3} \overset{\times 3}{=} \frac{6}{9}$$

E.g. $\frac{4}{5} = \frac{16}{?}$ Bothe numerators are given. Now you ask: "With what number was 4 multiplied to get 16?" $\times 4$

Do the same with the denominators. $5 \times 4 = 20$

$$\text{Therefore } \frac{4}{5} \overset{\times 4}{=} \frac{16}{20}$$

BV. $\frac{?}{5} = \frac{9}{15}$ Both denominators are given. Now you ask, "Whitn what number was 15 divided to get 5?" $\div 3$

Do the same with the numerator. $9 \div 3 = 3$

$$\text{Therefor } \frac{3}{5} \overset{\div 3}{=} \frac{9}{15}$$

Worksheet T7 L2

1. Complete the equivalent fractions. Write down what has been multiplied with to get answer

$\times 5$

a) $\frac{1}{3} = \frac{5}{15}$ b) $\frac{1}{4} = \frac{\quad}{24}$ c) $\frac{1}{2} = \frac{\quad}{18}$ d) $\frac{1}{5} = \frac{\quad}{40}$ e) $\frac{1}{7} = \frac{\quad}{42}$ f)

$\frac{1}{10} = \frac{\quad}{80}$

$\times 5$
 $\times 10$

g) $\frac{2}{3} = \frac{20}{30}$ h) $\frac{3}{5} = \frac{\quad}{25}$ i) $\frac{3}{4} = \frac{\quad}{32}$ j) $\frac{9}{10} = \frac{\quad}{50}$ k) $\frac{7}{9} = \frac{\quad}{36}$ l)

$\frac{5}{6} = \frac{\quad}{72}$
 $\times 10$

2. Complete the equivalent fractions

$\times 3$

a) $\frac{1}{6} = \frac{3}{18}$ b) $\frac{2}{3} = \frac{\quad}{12}$ c) $\frac{1}{2} = \frac{\quad}{30}$ d) $\frac{2}{7} = \frac{\quad}{42}$ e) $\frac{\quad}{40} = \frac{3}{4}$ f)

$\frac{1}{70} = \frac{3}{10}$

$\times 3$

$$\text{g)} \frac{3}{5} = \frac{9}{15} \quad \text{h)} \frac{1}{8} = \frac{\quad}{25} \quad \text{i)} \frac{5}{6} = \frac{30}{\quad} \quad \text{j)} \frac{70}{\quad} = \frac{7}{9} \quad \text{k)} \frac{15}{\quad} = \frac{3}{8} \quad \text{l)} \frac{35}{\quad} = \frac{5}{12}$$

3. Complete the equivalent fractions

$$\text{a)} \frac{1}{2} = \frac{3}{6} = \frac{5}{10} = \frac{6}{12} \quad \text{b)} \frac{1}{3} = \frac{\quad}{6} = \frac{\quad}{12} = \frac{\quad}{18} \quad \text{c)} \frac{1}{4} = \frac{\quad}{8} = \frac{\quad}{12} = \frac{\quad}{16}$$

$$\frac{1}{2} = \frac{\quad}{8} = \frac{\quad}{12} = \frac{\quad}{20} \quad \frac{2}{3} = \frac{\quad}{6} = \frac{\quad}{12} = \frac{\quad}{18} \quad \frac{3}{4} = \frac{\quad}{8} = \frac{\quad}{12} = \frac{\quad}{16}$$

4. Complete by writing the equivalent fraction

$$\text{a)} \frac{2}{3} = \frac{\quad}{12} \quad \text{b)} \frac{\quad}{80} = \frac{7}{8} \quad \text{c)} \frac{45}{\quad} = \frac{1}{2} \quad \text{d)} \frac{1}{4} = \frac{\quad}{100} \quad \text{e)} \frac{7}{20} = \frac{\quad}{100}$$

$$\text{f)} \frac{\quad}{18} = \frac{5}{6} \quad \text{g)} \frac{1}{25} = \frac{\quad}{100} \quad \text{h)} \frac{3}{\quad} = \frac{1}{15} \quad \text{i)} \frac{3}{4} = \frac{\quad}{100} \quad \text{j)} \frac{15}{\quad} = \frac{3}{8} \quad \text{k)} \frac{5}{6} = \frac{60}{\quad}$$

$$\text{* l)} \frac{76}{\quad} = \frac{19}{25} \quad \text{*m)} \frac{7}{13} = \frac{\quad}{156} \quad \text{*n)} \frac{42}{250} = \frac{168}{\quad} \quad \text{o)} \frac{1}{8} = \frac{\quad}{1000}$$

$$5. \text{ a)} \frac{1x2}{3x2} = \frac{\quad}{\quad} \quad \text{b)} \frac{2x3}{3x3} = \frac{\quad}{\quad} \quad \text{c)} \frac{1x2}{4x2} = \frac{\quad}{\quad} \quad \text{d)} \frac{3x3}{4x3} = \frac{\quad}{\quad} \quad \text{e)} \frac{5x2}{6x2} = \frac{\quad}{\quad}$$

Topic 7 Lesson 3

Fracture: Compare fractions

Homework

Worksheet T7 L3

Compare and rank fractions

When comparing or ranking fractions, **the denominators must be the same.**

E.g. Compare $\frac{3}{4}$ $\frac{7}{12}$

$$\frac{3 \times 3}{4 \times 3} \frac{\quad}{\quad} \frac{7}{12} \quad \text{make both denominators 12 by multiply the numerators with 3}$$

$$\frac{9}{12} \frac{\quad}{\quad} \frac{7}{12} \quad \text{Only if the denominators are the same, I can compare.}$$

Same if you need to rank fractions. Redirect everyone's denominators to the same first.

When all the denominators are the same, you can rank them first.

E.g. $\frac{1}{3}$; $\frac{1}{6}$; $\frac{3}{12}$ (all the denominators are multiples of 12)

Make denominators the same $\frac{1 \times 4}{3 \times 4}$; $\frac{1 \times 2}{6 \times 2}$; $\frac{3}{12}$

$\frac{4}{12}$; $\frac{2}{12}$; $\frac{3}{12}$ Now we can arrange but always remember the
 3  1  2  original fracture
 $\frac{1}{6}$; $\frac{3}{12}$; $\frac{1}{3}$

NB. In 6th grade, the denominators will always be multiples of each other, so you can just look at the largest denominator and ask, what do I have to multiply by the smaller denominator to get to the big denominator.

Worksheet T7 L3

1. Compare the following fractions by filling in the correct comparison sign

a) $\frac{2}{3} = \frac{\quad}{12}$ b) $\frac{\quad}{80} = \frac{7}{8}$ c) $\frac{45}{\quad} = \frac{1}{2}$ d) $\frac{1}{4} = \frac{\quad}{100}$ e) $\frac{7}{20} = \frac{\quad}{100}$

f) $\frac{\quad}{18} = \frac{5}{6}$ g) $\frac{1}{25} = \frac{\quad}{100}$ h) $\frac{3}{\quad} = \frac{1}{15}$ i) $\frac{3}{4} = \frac{\quad}{100}$ j) $\frac{15}{\quad} = \frac{3}{8}$ k) $\frac{5}{6} = \frac{60}{\quad}$

* l) $\frac{76}{\quad} = \frac{19}{25}$ *m) $\frac{7}{13} = \frac{\quad}{156}$ *n) $\frac{42}{250} = \frac{168}{\quad}$ o) $\frac{1}{8} = \frac{\quad}{1000}$

6. a) $\frac{1 \times 2}{3 \times 2} = \frac{\quad}{\quad}$ b) $\frac{2 \times 3}{3 \times 3} = \frac{\quad}{\quad}$ c) $\frac{1 \times 2}{4 \times 2} = \frac{\quad}{\quad}$ d) $\frac{3 \times 3}{4 \times 3} = \frac{\quad}{\quad}$ e) $\frac{5 \times 2}{6 \times 2} = \frac{\quad}{\quad}$

2. Compare the following fractions by first making denominators the same and then the comparison sign.

a) $\frac{1}{2} \square \frac{4}{8}$ b) $\frac{11}{12} \square \frac{3}{4}$ c) $\frac{4}{5} \square \frac{7}{10}$ d) $\frac{1}{3} \square \frac{7}{18}$ e) $\frac{10}{30} \square \frac{5}{10}$

f) $\frac{1}{8} \square \frac{8}{56}$ g) $\frac{17}{24} \square \frac{7}{12}$ h) $\frac{5}{11} \square \frac{10}{33}$ i) $\frac{3}{8} \square \frac{30}{80}$ j) $\frac{5}{9} \square \frac{19}{36}$

3. Arrange the fractions in ascending order

a) $\frac{1}{2}$; $\frac{1}{3}$; $\frac{5}{6}$; $\frac{2}{3}$

b) $\frac{7}{10}$; $\frac{2}{5}$; $\frac{3}{4}$; $\frac{13}{20}$

4. Arrange the fractions in descending order

a) $\frac{1}{2}$; $\frac{3}{4}$; $\frac{11}{12}$; $\frac{2}{3}$

b) $\frac{7}{12}$; $\frac{1}{6}$; $\frac{3}{4}$; $\frac{15}{24}$; $\frac{7}{8}$

Topic 7 Lesson 4

Simplification of fraction

Homework

Worksheet T7 L4

To simplify fractions means to write the fraction in its smallest possible form

To simplify fractions, you must divide the numerator and the denominator by the same number.

E.g. $\frac{12}{15} \div \frac{3}{3} = \frac{4}{5}$ $\frac{16}{20} \div \frac{2}{2} = \frac{8}{10} \div \frac{2}{2} = \frac{4}{5}$ Always keep going until only 1 is left to divide with

When you have an improper fraction (numerator is greater than the denominator) Start by getting the integers and then simplifying.

E.g. $\frac{18}{4} = 4 \frac{2}{4} \div \frac{2}{2} = 4 \frac{1}{2}$

Worksheet T7 L4

1. Write the following fractions in their simplest form.

a) $\frac{2}{4}$

b) $\frac{3}{6}$

c) $\frac{2}{6}$

d) $\frac{2}{8}$

e) $\frac{3}{9}$

f) $\frac{6}{8}$

g) $\frac{3}{12}$

h) $\frac{6}{9}$

i) $\frac{4}{12}$

j) $\frac{8}{12}$

k) $\frac{5}{10}$

l) $\frac{12}{15}$

m) $\frac{5}{15}$

n) $\frac{12}{18}$

o) $\frac{6}{12}$

p) $\frac{9}{12}$

q) $\frac{10}{25}$

r) $\frac{18}{24}$

2. Simplify the following improper fractions

a) $\frac{22}{10}$

b) $\frac{21}{9}$

c) $\frac{22}{4}$

d) $\frac{26}{6}$

e) $\frac{39}{12}$

f) $3 \frac{9}{12}$

g) $2 \frac{16}{24}$

Topic 7 Lesson 5

Review fractions

Homework

Worksheet T7 L5

Worksheet T7 L5

1. Write each improper fraction as a mixed number

a) $\frac{9}{4}$ b) $\frac{17}{5}$ c) $\frac{19}{7}$ d) $\frac{40}{6}$ e) $\frac{72}{9}$ f) $\frac{19}{3}$ g) $\frac{14}{4}$

2. Complete by writing the equivalent fraction.

a) $\frac{1}{2} = \frac{\quad}{6}$ b) $\frac{1}{3} = \frac{\quad}{6}$ c) $\frac{1}{2} = \frac{\quad}{8}$ d) $\frac{1}{5} = \frac{\quad}{10}$ e) $\frac{1}{4} = \frac{\quad}{12}$ f) $\frac{1}{3} = \frac{\quad}{12}$ g) $\frac{2}{3} = \frac{\quad}{9}$

h) $\frac{3}{5} = \frac{\quad}{10}$ i) $\frac{2}{3} = \frac{8}{\quad}$ j) $\frac{5}{6} = \frac{10}{\quad}$ k) $\frac{3}{4} = \frac{\quad}{8}$ l) $\frac{3}{4} = \frac{9}{\quad}$

3. Compare the fractions and fill in the correct comparison sign.

a) $\frac{3}{8}$ $\frac{30}{80}$ b) $\frac{17}{42}$ $\frac{3}{7}$ c) $\frac{12}{15}$ $\frac{3}{4}$ d) $\frac{5}{11}$ $\frac{10}{33}$ e) $\frac{1}{3}$ $\frac{8}{18}$

4. Arrange the fractions in descending order

a) $\frac{7}{12}$; $\frac{3}{6}$; $\frac{3}{4}$; $\frac{1}{3}$ b) $\frac{7}{10}$; $\frac{4}{5}$; $\frac{13}{20}$; $\frac{3}{4}$ c) $\frac{1}{3}$; $\frac{7}{9}$; $\frac{5}{6}$; $\frac{11}{18}$

5. Simplify the following fractions in their simplest form

a) $\frac{5}{15}$ b) $\frac{12}{20}$ c) $\frac{18}{21}$ d) $\frac{12}{5}$ e) $3\frac{3}{12}$ f) $\frac{20}{100}$ g) $\frac{25}{100}$

Topic 7 Lesson 6

Fraction part of an integer

Homework

Worksheet T7 L6

RB p. 40 nr. 1 p. 41 (d)

Fractional part of each other

When we write one quantity as a fraction of another quantity, we always write the answer in the simplest form.

For example. What is fraction part in 4m of 8m?

Answer: $\frac{4m}{8m} = \frac{1}{2}$

What is fraction part in R15 of R20

Answer: $\frac{R15}{R20} = \frac{3}{4}$

Fraction part of an integer

For example. $\frac{3}{5}$ of 20

$$\frac{3}{5} \text{ of } 20$$

1. Fractions stays a fraction
2. "of" becomes a "x"
3. Put the integer on 1
4. Multiply straight
5. Simplify

$$= \frac{3}{5} \times \frac{20}{1}$$

$$= \frac{60}{5}$$

$$= 12$$

E.g. $\frac{5}{7}$ of 42

$$= \frac{5}{7} \times \frac{42}{1}$$

$$= \frac{210}{7}$$

$$= 30$$

Worksheet T7 L6

1. What is the fraction part?

- | | | | |
|-----------------------|------------------------|----------------------|----------------|
| a) 3km of 6km | b) 5kg of 25kg | c) 8min of 12min | d) 10s of 60s |
| e) R36 of R72 | f) 25liter of 100liter | g) 6months of 1 year | h) 30s of 1min |
| i) 9 months of 1 year | j) 45min of 1 hour | k) 250g of 1kg | l) 100g of 1kg |

2. What is the fractional part of the integer?

- | | | | | |
|------------------------|-------------------------|------------------------|-------------------------|-------------------------|
| a) $\frac{1}{3}$ of 18 | b) $\frac{1}{5}$ of 30 | c) $\frac{1}{7}$ of 42 | d) $\frac{1}{6}$ of 48 | e) $\frac{2}{3}$ of 18 |
| f) $\frac{4}{5}$ of 30 | g) $\frac{2}{7}$ of 42 | h) $\frac{5}{6}$ of 48 | i) $\frac{1}{8}$ of 72 | j) $\frac{1}{9}$ of 450 |
| k) $\frac{1}{4}$ of 72 | l) $\frac{1}{3}$ of 135 | m) $\frac{3}{8}$ of 72 | n) $\frac{7}{9}$ of 450 | o) $\frac{3}{4}$ of 72 |

3. $\frac{1}{4}$ of 528 at a concert is children, $\frac{1}{3}$ is men and the rest are woman.

- a) How many kids are at the concert.
- b) How many men are at the concert.

- c) How many women are at the concert.
4. Sizwe spends $\frac{1}{2}$ of his R60 pocket money on air time and $\frac{1}{3}$ of the rest of his money on a Coke
- Calculate the amount spent on airtime
 - How much money is left?
 - Calculate the amount spent on the Coke.
 - What fraction of his pocket money remains?
5. John spends $\frac{1}{4}$ of his R200 on take-aways and $\frac{1}{5}$ of the rest of his money on an Uber ride
- How much money does it cost?
 - What fraction of his money did he spend?

Topic 7 Lesson 7

Addition of fraction

Homework

Worksheet T7 L7

RB p. 37 nr. 4(a-c)

When you add fractions, the denominators **MUST** be the same. Here are some steps you need to follow to help you with everything you need to remember.

Step 1 ☐ First plus the integers (if there are any)

Step 2 ☐ Make the denominators of the fractions the same

Step 3 ☐ What I do at the top, I do at the bottom

Step 4 ☐ Do your calculation

Step 5 ☐ Simplify if you can

Example 1

$$3\frac{2}{5} + 2\frac{2}{5} \quad (\text{add the integers. } 3+5)$$

$$= 5\frac{2}{5} + \frac{2}{5} \quad (\text{denominators are the same, same})$$

add numerators)

$$= 5\frac{4}{5} \quad (\text{Fraction cannot simplify})$$

Example 2 ☐ different denominators

$$3\frac{3}{4} + 2\frac{7}{8} \quad (\text{add the integers... } 3 + 2 = 5)$$

$$= 5\frac{3}{4 \times 2} + \frac{7}{8} \quad (\text{make denominators the same})$$

$$= 5\frac{3 \times 2}{8} + \frac{7}{8} \quad (\text{What I do at the bottom, I do at the top})$$

$$= 5\frac{6}{8} + \frac{7}{8} \quad (\text{now add numerators})$$

$$= 5\frac{13}{8} \quad (\text{Simplify } \frac{13}{8} = \frac{8}{8} + \frac{5}{8})$$

$$= 5 + 1\frac{5}{8} \quad (5 + 1 = 6)$$

$$= 6\frac{5}{8} \quad (\text{Cannot simplify further})$$

Worksheet T7 L7

Calculate the following

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a) $3\frac{3}{7} + 2\frac{2}{7}$ b) $1\frac{1}{4} + 2\frac{3}{4}$ c) $1\frac{2}{5} + 2\frac{4}{5}$ d) $1\frac{1}{6} + 1\frac{5}{6}$ e) $2\frac{5}{9} + 2\frac{8}{9}$

f) $3\frac{9}{11} + 4\frac{10}{11}$ g) $\frac{1}{4} + \frac{1}{8}$ h) $\frac{1}{10} + \frac{1}{5}$ i) $\frac{1}{4} + \frac{1}{12}$ j) $\frac{1}{5} + \frac{7}{10}$

k) $\frac{2}{3} + \frac{1}{6}$ l) $\frac{3}{4} + \frac{1}{2}$ m) $\frac{5}{12} + \frac{2}{3}$

Topic 7 Lesson 8

Minus of fraction

Homework

Worksheet T7 L8

RB p. 37 Nr. 4(d and e)

When you minus fractions, the denominators MUST be the same. Here are some steps you need to.

Step 1 □ Minus first the integers (if there are any)

Step 2 □ Make the denominators of the fractions the same

Step 3 □ Do your calculation

Step 4 □ Simplify if you can

Step 5: □ Make sure you haven't forgotten the integer that should stand in front.

He has to be at every step.

Example

★ *minus with breakup of integer*

$$3\frac{7}{8} - 1\frac{3}{4} \quad (\text{minus integers first})$$

$$= 2\frac{7}{8} - \frac{3}{4} \quad (\text{make denominators the same})$$

$$= 2\frac{7}{8} - \frac{3 \times 2}{8} \quad (\text{what you do at bottom do on top})$$

$$= 2\frac{7}{8} - \frac{6}{8} \quad (\text{minus the numerators})$$

$$= 2\frac{1}{8} \quad (\text{can't simplify})$$

★ *convert to improper fracture*

$$3\frac{7}{8} - 1\frac{3}{4} \quad (\text{Make fractions improper})$$

$$= \frac{31}{8} - \frac{7}{4} \quad (\text{make denominators the same})$$

$$= \frac{31}{8} - \frac{7 \times 2}{8} \quad (\text{what you do on bottom do on top})$$

$$= \frac{31}{8} - \frac{14}{8} \quad (\text{minus the numerators})$$

$$= \frac{17}{8} \quad (\text{Simplify})$$

$$= 2\frac{1}{8}$$

Worksheet T7 L8

a) $3\frac{5}{6} - 2\frac{1}{3}$ b) $9\frac{3}{4} - 5\frac{5}{8}$ c) $6\frac{8}{9} - 6\frac{1}{3}$ d) $8\frac{11}{12} - 5\frac{3}{4}$ e) $\frac{1}{3} - \frac{1}{9}$

f) $\frac{1}{4} - \frac{1}{16}$ g) $\frac{2}{3} - \frac{1}{6}$ h) $\frac{2}{3} - \frac{4}{9}$ i) $2\frac{1}{4} - 1\frac{2}{8}$ j) $3\frac{5}{7} - 2\frac{11}{21}$

Topic 7 Lesson 9

Minus of fraction with breakup

Homework

Worksheet T7 L9

Example

★ *minus with breakup of integer*

$$3\frac{1}{8} - 1\frac{3}{4} \quad (\text{minus integers first})$$

$$= 2\frac{1}{8} - \frac{3}{4 \times 2} \quad (\text{make denominators the same})$$

$$= 2\frac{1}{8} - \frac{3 \times 2}{8} \quad (\text{what you do at bottom do on top})$$

$$= 2\frac{1}{8} - \frac{6}{8} \quad (\text{numerators can't minus})$$

Break up the integer

$$= 1\frac{8}{8} + \frac{1}{8} - \frac{6}{8}$$

$$= 1\frac{9}{8} - \frac{6}{8} \quad (\text{now numerators can minus})$$

$$= 1\frac{3}{8} \quad (\text{can't simplify})$$

★ *convert to improper fracture*

$$3\frac{1}{8} - 1\frac{3}{4} \quad (\text{Make fractions improper})$$

$$= \frac{25}{8} - \frac{7}{4 \times 2} \quad (\text{make denominators the same})$$

$$= \frac{25}{8} - \frac{7 \times 2}{8} \quad (\text{what you do at bottom do on top})$$

$$= \frac{25}{8} - \frac{14}{8} \quad (\text{minus die numerators})$$

$$= \frac{11}{8} \quad (\text{Simplify})$$

$$= 1\frac{3}{8}$$

Worksheet T7 L9

Calculate

a) $5\frac{1}{6} - 2\frac{1}{3}$ b) $9\frac{1}{4} - 5\frac{5}{8}$ c) $6\frac{2}{9} - 2\frac{1}{3}$ d) $8\frac{5}{12} - 5\frac{3}{4}$ e) $\frac{1}{3} - \frac{1}{9}$

f) $2\frac{1}{16} - 1\frac{1}{4}$ g) $3\frac{2}{3} - 2\frac{5}{6}$ h) $8\frac{2}{3} - 5\frac{7}{9}$ i) $2\frac{1}{4} - 1\frac{2}{8}$

j) $3\frac{3}{7} - 2\frac{11}{21}$

Topic 7 Lesson 10

Plus and minus with fraction

Homework

Worksheet T7 10

Worksheet T7 L10

Calculate

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

$$3\frac{1}{3} - 2\frac{1}{5}$$

$$2\frac{1}{2} + 1\frac{3}{8}$$

$$2\frac{4}{5} + 2\frac{2}{5} - 3\frac{3}{5}$$

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

$$1\frac{3}{4} + 1\frac{5}{6}$$

$$5\frac{11}{12} - 1\frac{2}{3}$$

$$2\frac{2}{3} + 2\frac{1}{6}$$

$$5\frac{9}{12} - 1\frac{7}{12} - 3\frac{1}{12}$$

$$(3\frac{3}{6} + 4\frac{2}{6}) - 2\frac{5}{6}$$

$$8\frac{2}{9} - (2\frac{1}{9} - 1\frac{8}{9})$$

Topic 7 Lesson 11

Word problems with fraction

Homework

Worksheet T7 11

When it comes to word problems with fractions, you need to be alert.

There is plus, minus, fractions of integers, equivalents and then you have to make sure all your answers are in their simplest form.

Important: Know your terminology for plus and minus

- : Get rid of unnecessary information.
- : Make sure you're writing mathematically correct (if you write = it should be =).
- : If they ask for units, your answer must also have a unit.
- : Remember your answer sentence.

Worksheet T7 L11

1. Sarah spends $\frac{3}{10}$ of her money on chips and $\frac{1}{10}$ of her money on sweets. What fractions part of her money is left.
2. Sizwe pours $1\frac{1}{3}l$ water from a $5l$ bottle. Calculate how much water is left in the bottle.
3. Giselle runs $5\frac{8}{10}$ km on Friday and $8\frac{3}{10}$ km on Saturday
 - a) Determine the difference between the two distances
 - b) How far does she have to run on Sunday to complete a total of 20km run during the week?
4. Paul swims $\frac{1}{2}$ km on Monday and $\frac{3}{4}$ km on Tuesday.
 - a) How far did he swim in total?
 - b) How much further did he swim on Tuesday as on Monday?

5. Sarah spends $\frac{1}{4}$ of her money on chips and $\frac{1}{8}$ of her money on sweets. What fraction part of her money is left?
6. Julius buys a 1kg bag of flour. HE uses $\frac{1}{2}$ kg flour on Friday and $\frac{1}{3}$ kg flour on Saturday.
- How much flour did he use in total?
 - How much flour is left in the bag?
 - How much flour did he use more on Friday than on Saturday?
7. A farmer has 35 hens, 13 sheep and 2 cows. What fraction of the animals are hens
8. Gabi does homework for 4 hours. She rests every hour for 15 minutes
- What fraction of every hour does she rest?
 - What fraction of each hour does she do homework?
9. Junior works for 9 months of the year. What fraction of the year does he not work?

Terminology: Decimal fractions

Decimal fractions	Fractions written with a decimal comma. Refers to common fractions with 10, 100 and 1 000 as denominators.
Decimal values	It is the position of a number behind the decimal comma. The numbers to the right of the decimal point are the decimal values
Notation	The way symbols, letters, or numbers are written in mathematics.
Value	What the value of the number is. How much this is worth.

Topic 8 Lesson 1

Reading and Writing Decimal Fractions

Homework

Worksheet T8 L1

RB p. 149 nr. 5(a-f) ; p. 154 nr. 1-5 (a-c) (look at the examples)

Reading and Writing Decimal Numbers

The number that precedes the decimal point, you read as you have always read. When you get to the comma, you say comma and read the digits that are after the comma one by one.

E.g. 745,35 we will read: Seven hundred and forty-five comma three five

28,03 we will read: Twenty-eight comma zero three

Place value and number value

Place values are the place where a number stand (his house's name)

The numbers before the decimal point are read as always

The first place value after the comma is tenths ($\frac{1}{10}$) and is indicated by a lowercase letter (t)

The second place value after the comma is hundredths ($\frac{1}{100}$) and is indicated by a lowercase letter (h)

There is no such thing as one because anything on 1 is an integer $\frac{5}{1} = 5$

So, with the decimals, the place values you need to know for grade 6 look like this:

HM TM M HTh TTh Th HTU , t h

E.g. $845,32 = 8H + 4T + 5U + 3t + 2h$

When asking for a certain number's place value, you always write the number and its place

E.g. The place value of the 5 in 4.53 is 5t

The place value of the 2 in 354.42 is 2h

The place value of the 9 in 3,129.67 is 9E

Number value is the number with its zeros after it (how much the number is worth)

When asking for a certain number's number value, you always write the number with zeros at the back of the places where the other number would be.

For Decimals, you must also write the zeros from the Units to the decimal number. **A comma should never stand alone**

E.g. The number value of the 5 in 4,53 is 0,50

The number value of the 2 in 354,42 is 0,02

The number value of the 9 in 3 243 679 is 0,009

C. Expanded notation

Expanded notation of numbers can be written in two ways. Place value notation or number value notation. Remember this is a stretched number with (+) signs between in

E.g. Give the extended notation of:

$45\,603,23 = 40\,000 + 5,000 + 600 + 3 + 0,20 + 0,03$

or $4TTH + 5Th + 6H + 3U + 2t + 3h$

or $40\,000 + 5\,000 + 600 + 3 + \frac{2}{10} + \frac{3}{100}$

$1,03 = 1 + 0,03$

or $1E + 3h$ or $1 + \frac{3}{100}$

Worksheet T8 L1

1. Draw and complete the table

2. Write and then underline the tenths in each digit

	Nam of the place value
1st decimal Place	
2nd decimal place	

3rd decimal place	
-------------------	--

a) 1,25 b) 85,7 c) 0,39 d) 82,452

3. write and then underline the units in each digit

a) 94,3 b) 6,38 c) 1389 d) 875,03

4. write and underline the hundredths in each digit

a) 9,237 b) 0,38 c) 15,72 d) 0,05 e) 7,035

5. Write the number with a

a) 3 in the tenths-column:	53,72	50,302	50,032
b) 3 in the tenths column:	84,15	14,815	48,15
c) 6 in the hundredth's column:	80,86	600,8	48,68
d) 2 in the thousandth's column:	47,1532	2547,02	84,872 2438,2

6. Write down the place value of each underlined digit.

a) 15,927 b) 245,76 c) 98,632 d) 85,281 e) 6864,5 f) 6,864

g) 645,68 h) 7236 i) 0,733

7. Write the following number

- a) Five hundred and three comma three
- b) One hundred and three comma three
- c) Six hundred and ninety comma two nine nine
- d) Nine thousand two hundred and seventy comma one two
- e) Three thousand fifty-four comma four zero six

8. Write the following numbers in words

a) 25,49 b) 980,6 c) 5,002 d) 83,702

9. Write in decimal notation

- a) 3 units + 5 tenths + 9 hundredths b) 8E + 3h c) 2 units + 1 tenth + 6 hundredths
- d) 5E + 7h e) 5 units + 7 tenths + 5 hundredths
- f) 4t + 6h = g) 3 units + 5 tenths + 8 hundredths
- h) 5t + 9h =

Topic 2 8 Lesson 2

Count in decimals

Homework

Worksheet T8 L2

RB p. 148 nr. 1(a-d) ; p. 156 nr. 2

Count in decimals

When counted in integers, the number grows to the left. At first the numbers were just below the Units (U) but when you got to nine, the number grew to below the Tens (T).

^{U, U, TU TU}
E.g. 8, 9, 10, 11

Same when you got to ninety-nine, then your number grew to the hundreds

^{TU TU HTU}
E.g. 98, 99, 101.

The same rule applies to Decimal numbers 0.1 ; 0.2 ; 0.3 ; 0.4 ; 0.5 ; 0.6 ; 0.7 ; 0.8 ; 0.9 ; 1.0

The number continues to grow toward the left. The place values after the comma remain the same. Here are more examples

...1,6 ; 1,7 ; 1,8 ; 1,9 ; 2,0 ...0,06 ; 0,07 ; 0,08 ; 0,09 ; 0,10 ... 3,76 ; 3,77 ; 3,78 ;

...0,96 ; 0,97 ; 0,98 ; 0,99 ; 1,00 ...9,6 ; 9,7 ; 9,8 ; 9,9 ; 10,0

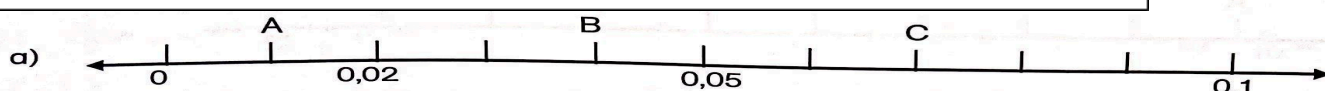
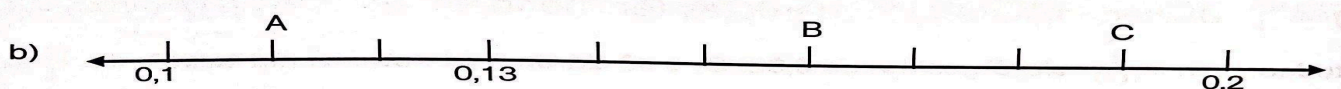
When you count back, it then looks like this.

...2,3 ; 2,2 ; 2,1 ; 2,0 ; 1,9 ; 1,8 ...0,11 ; 0,10 ; 0,09 ; 0,08 ...3,82 ; 3,81 ; 3,80 ; 3,79 ; 3,78

...1,02 ; 1,01 ; 1,00 ; 0,99 ; 0,98 ...10,2 ; 10,1 ; 10,0 ; 9,9 ; 9,8

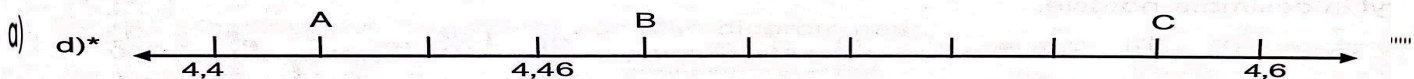
Worksheet T8 L2

What decimal number is represented by A, B and C



A B C

Copy and complete the missing numbers in each line



c) 0,2 ; 0,4 ; 0,6 ; ; ; 1,2 d) 1,3 ; 1,5 ; 1,7 ; ; ; e) 2,85 ; 2,65 ; ; ; ; 1,85 f) 1,2 ; 1,25 ; 1,3 ; ; ;

e) 0,5 ; 1 ; ; ; 2,5 ; f) 2 ; 1,8 ; ; ; 1,2 ; ; e) 8,35 ; 8,25 ; 8,15 ; ; ; f) 4,89 ; 4,93 ; 4,97 ; ; ;

g) 1,1 ; 1,5 ; 1,9 ; ; ; h) 3,2 ; 2,9 ; ; ; 2 ; 1,7 ; *g) 1,96 ; 1,99 ; 2,02 ; ; ; 2,11 *h) 3,94 ; 3,96 ; 3,98 ; ; ;

Topic 8 Lesson 3

Rounding of with decimals

Homework

Worksheet T8 L3

Rounding of Decimal Numbers

Same as with integers, the number is rounded to the nearest t, h, and d

E.g. If you were to round of to the nearest tenths. The number then ends up below the tenths. You look at the numbers next to the tenths, the hundredths

2,36 becomes 2,4 and 3,42 becomes 3,4

The same goes for rounding of to the nearest hundredths.

1,354 becomes 1,35 and 5,365 becomes 5,37

The same goes for rounding of to the nearest thousandths.

7,3265 becomes 7,327 and 0.3097 becomes 0,310

Worksheet T8 L3

1. Round each of the following numbers to the nearest tenth.

- a) 0,73 b) 0,16 c) 5,27 d) 10,328

2. Round each of the following numbers to the nearest hundredth.

- a) 0, 375 b) 0,819 c) 13,061 d) 0,1984

3. Round 1784,89452 down to nearest

- a) Integer b) tenths c) thousandths d) thousand e) 2 decimal places

Topic 8 Lesson 4

Compare and rank decimals

Homework

Worksheet T8 L4

RB p. 151 nr. 3 and 4; p. 157 nr. 4, 5, 6

Compare and rank decimal numbers

When I compare decimal numbers in grade 6 THE NUMBER OF DECIMAL PLACES MUST BE THE SAME!!

I make the decimal places the same by just adding zeros at the back of the number.

EG. 0.4 = 0.40 .

E.g. 25,07 25,7 First, make number of decimal places the same.

h h

25, 07 < 25,70 now you can see 25 and 7 hundredths is less than 25 and 70 hundredths

E.g. 4,4 4,47 First, make the decimal places the same.

h h

4,40 < 4,47 4 Now you can see 4 and 40 hundredths is less than 4 and 47 hundredths

If there isn't a comma after a number, the comma is always at the back.

E.g. 15 and 15,9 make the decimal same

$15,0$ and $15,9$ Now you can see $15,9$ is more than $15,0$

B. Arranging decimal numbers works the same way.

Before you rank, first make the number of decimal places the same by putting zeros at the back.

Descending order = Large to small

Ascending order = Small to large.

E.g. Arrange the numbers in descending order

1. Write with same number of decimal places
2. Now it's clear to see how to arrange.

$25,57$; $25,5$; $25,05$; 25 ; $25,53$
 $25,57$; $25,50$; $25,05$; $25,00$; $25,53$
 1 3 4 5 2

$25,57$; $25,53$; $25,50$; $25,05$; $25,00$

Worksheet T8 L4

1. Copy and Compare by using $>$; $<$; $=$ to make the statement true

$0,5$ $0,4$

$0,6$ 6

$1,8$ $1\frac{8}{10}$

$2,5$ $20,5$

$2,1$ $1,2$

$500,3$ $50,3$

$\frac{5}{10}$ $0,6$

178 $170,8$

$\frac{31}{10}$ $3,1$

$5\frac{7}{10}$ 57

$0,9$ $0,8$

325 $32,5$

Plas $>$, $<$ of $=$ tussen

elke paar getalle om

korrekte bewerings te maak.

k.

$0,4$ $0,04$

$0,25$ $0,52$

$1,07$ $1\frac{7}{100}$

$2\frac{3}{100}$ $2,3$

Omkring die volgende

getalle: 10

115 $1,05$ $10,5$

$15,00$ $105,0$

a) Omkring die twee

getalle wat gelyk is

b) Watter getal is

grootste?

Plas $>$, $<$ of $=$

tussen elke paar getalle om korrekte bewerings

te maak.

$0,5$ $0,50$

$0,09$ $0,9$

$6,00$ 6

$1,50$ $1,5$

$0,8$ $0,08$

$0,20$ $0,2$

$3,50$ $3,5$

$4,09$ $4,9$

$1,03$ $1,3$

$6,40$ $6,4$

$70,9$ $7,09$

$30,5$ 305

2. Consider the following numbers: $10,5$; 115 ; $1,05$; $10,50$; $15,00$; $105,0$

- a) Circle the two numbers that are equal.

b) Which number is the biggest? _____

Topic 8 Lesson 5

Multiply and divide with decimals

Homework

Worksheet T8 L5

RB p. 158 nr. 1, 3, 5

Times and divide with decimals.

In degree 6 we multiply and divide our decimal number just by 10, 100 and 1 000

Multiply: When I multiply, my number gets **bigger** and my number shifts to the left but so that you can remember it more easily, we do so.

When I times, my number gets biggerRRRRRRRRRoter so my comma moves RRRRRRRight
How many places? As many place as there are zeros in the number you multiply by .

10 = 1 zero, 1 place ; 100 = 2 zeros, 2 places ; 1 000 = 3 zeros so 3 places.

Divide: When I divide, my **number gets smaller** and my number moves to the right but so that you can remember it more easily, we do so.

When I divide, my number gets smaLLLLer so my comma moves LLLLLeft.

How many places? As many place as there are zeros in the number you divide by .

10 = 1 zero, 1 place ; 100 = 2 zeros, 2 places ; 1 000 = 3 zeros so 3 places.

4,4 x 10 has 1 zero so 1 place

4,4 x 10 = 44,0

3,15 ÷ 100 Divide my number gets smaLLLLer, so my comma moves LLLLLeft.

100 has 2 zeros so 2 places.

3,15 ÷ 100 = 0,0315

Worksheet T8 L5

1. Calculated by writing only the answer.

- | | | | | |
|-----------------|----------------|-----------------|---------------|---------------|
| a) 0,9 x 10 | b) 0,07 x 10 | c) 1,8 x 10 | d) 0,65 x 10 | e) 1,99 x 10 |
| f) 0,4 x 100 | g) 0,03 x 100 | h) 0,5 x 100 | i) 18 x 10 0 | j) 3,85 x 100 |
| k) 0,006 x 1000 | l) 0,05 x 1000 | m) 7,005 x 1000 | n) 4,1 x 1000 | |

2. Calculated by writing only the answer

- a) $2,7 \div 10$ b) $0,12 \div 10$ c) $0,46 \div 10$ d) $12 \div 10$ e) $1,7 \div 10$
 f) $25,6 \div 100$ g) $254 \div 100$ h) $31,5 \div 100$ i) $0,03 \div 100$ j) $0,2 \div 100$
 k) $10,36 \div 1000$ l) $4,8 \div 1000$ m) $62,04 \div 1000$ n) $35 \div 1000$

3. Calculated by even writing the answer

- a) $0,07 \times 100$ b) $1,9 \div 10$ c) $120,5 \times 10$ d) $798,8 \div 100$ e) $8,8 \div 10$
 f) $0,8 \times 100$ g) $0,32 \div 10$ h) $12,05 \div 10$ i) $0,095 \times 1000$ j) $8,4 \div 100$
 k) $2,79 \times 10$ l) $87,6 \times 100$ m) $2,09 \times 10$ n) $0,04 \div 100$ o) $2,5 \times 1000$

Topic 8 Lesson 6

Plus and minus with decimals

Homework

Worksheet T8 L6

When we plus and minus with decimal fractions, it is exactly the same method as regular column method addition

For plus and minus, the place values must be underneath one other and the commas must be underneath each other.

If it happens that the numbers do not have the same number of decimal places, make it the same by putting zeros at the back.

Example

$$2,75 + 0,4$$

$$\begin{array}{r} \text{E t h} \\ 2,75 \\ +0,40 \\ \hline 3,15 \end{array}$$

$$\begin{array}{r} \text{E t h} \\ 2,75 - 1,4 \\ -1,40 \\ \hline 1,35 \end{array}$$

Always remember!!!! No matter what sums you do, order of operation always applies!!

Worksheet T8 L6

1. Calculate

- a) $0,6 + 0,2$ b) $0,2 + 0,8$ c) $1 - 0,4$ d) $1,3 + 0,7$ e) $0,8 - 0,3$ f) $0,5 + 0,5$
 g) $1 - 0,7$ h) $2,5 + 1,5$ i) $1,2 + 0,7$ j) $0,8 + 0,3$ k) $1,2 - 0,3$ l) $2,2 - 1,5$
 m) $1,4 + 1,3$ n) $0,7 + 0,9$ o) $2,1 - 0,4$ p) $3 - 2,8$

2. Calculate

- a) $0,12 + 0,03$ b) $0,75 + 0,25$ c) $1 - 0,75$ d) $0,99 + 0,01$ e) $0,06 + 0,22$
 f) $0,54 + 0,46$ g) $1 - 0,85$ h) $2 - 0,03$ i) $0,25 - 0,17$ j) $0,96 + 0,08$

k) $1,01 - 0,02$ l) $2,25 + 0,75$ m) $1,32 + 0,04$ n) $3,98 + 0,02$ o) $3 - 0,05$

Topic 8 Lesson 7

Convert decimal fractions to common fractions

Homework

Worksheet T8 L7

RB p. 150 nr. 1 and 2

Converting decimal fraction to a regular fraction is very easy

The LAST decimal place value of the number tells you what is the denominator.

The decimal number is then your numerator

Numbers before the decimal point are integers.

$$\text{tenths} = \frac{\quad}{10} \quad \text{hundredths} = \frac{\quad}{100}$$

$$\text{Bv. } 0,3 = \frac{3 - \text{the decimal number}}{10 - \text{last place value}} \quad 0,17 = \frac{17 - \text{decimal number}}{100 - \text{last place value}} \quad 2,45 = 2 \frac{45 - \text{decimal number}}{100 - \text{last place value}}$$

Now it's important to check if you can simplify the fraction.

$$\text{E.g } 0,4 = \frac{4}{10} \quad \text{Divide with 2 so } 0,4 = \frac{4}{10} = \frac{2}{5}$$

$$\text{E.g } 0,25 = \frac{25}{100} \quad \text{Divide with 5 so } 0,25 = \frac{25}{100} = \frac{5}{20} = \frac{1}{4}$$

Worksheet T8 L7

Convert the decimal fractions to common fractions and simplify where possible

- | | | | | | |
|----------|-----------|---------|---------|---------------|----------------------|
| a) 0,7 | b) 0,3 | c) 0,9 | d) 1,7 | e) 2,3 f) 4,5 | g) 0,17 |
| h) 0,33 | i) 0,79 | j) 1,23 | k) 2,07 | l) 0,613 | m) 0,123 o) 0,087 |
| p) 4,559 | q) 80,002 | r) 0,2 | s) 0,45 | t) 2,75 | u) 10,25 v) 0,05 |
| w) 0,95 | x) 1,4 | y) 1,34 | z) 0,14 | | |

Topic 8 Lesson 8

Convert common fraction to a decimal fraction

Homework

Worksheet T8 L8

RB p. 140 nr. 1 ; p. 141 nr. 2 ; p. 142 nr. 1

When you convert from a common fraction to a decimal fraction, You always have to make sure that the denominator is a 10 or a 100 because those are the decimal place values.

Eg. Convert $\frac{2}{5}$ to a decimal fractions.

Now you have to look what can I multiply the denominator with to get 10 or 100. $\frac{\quad}{5 \times 2} = \frac{\quad}{10}$

But what I do at the bottom, I must do on top. So it looks like so $\frac{2 \times 2}{5 \times 2} = \frac{4}{10}$

Now the fraction can be written as a decimal $\frac{4}{10} = 0,4$ ^{tiendes}

More examples:

$$\frac{12}{20} = \frac{12 \times 5}{20 \times 5} = \frac{60}{100} = 0,60 \text{ or } 0,6 \quad \frac{22}{25} = \frac{22 \times 4}{25 \times 4} = \frac{88}{100} = 0,88$$

$$\frac{3}{50} = \frac{3 \times 2}{50 \times 2} = \frac{6}{100} = 0,06$$

Worksheet T8 L8

Convert the common fractions to decimal fractions

- a) $\frac{3}{10}$ b) $\frac{7}{10}$ c) $1\frac{5}{10}$ d) $2\frac{1}{10}$ e) $75\frac{7}{10}$ f) $\frac{35}{100}$ g) $\frac{67}{100}$
- h) $2\frac{75}{100}$ i) $\frac{1}{100}$ j) $1\frac{8}{100}$ k) $\frac{2}{5}$ l) $\frac{3}{4}$ m) $\frac{13}{20}$ n) $\frac{7}{25}$
- o) $\frac{1}{20}$ p) $2\frac{1}{4}$ q) $3\frac{3}{50}$ r) $\frac{11}{50}$ s) $\frac{112}{100}$ t) $\frac{132}{100}$ u) $\frac{7}{5}$

Topic 8 Lesson 9

Fraction part of decimal

Homework

Worksheet T8 L9

Fraction of an integer.

Now I can get sums like this.

E.g. 0,6 of 20 To do an "of" sum, you need a fraction. That's why you simply convert the decimal fraction to a common fraction.

$0,6 = \frac{6}{10}$ then I do my sums like so:

1. Fraction stays a fraction
 2. "of" becomes a "x"
 3. Put the integer on 1
- $$0,6 \text{ van } 20 = \frac{6}{10} \text{ van } \frac{20}{1}$$

4. Times straight $= \frac{120}{10}$
 5. Simplify $= 12$

Worksheet T8 L9

Calculate the following

- a) 0,5 of 100 b) 0,40 of R400 c) 0,22 of 20kg d) 0,8 of R20
 e) 0,7 of 50 f) 0,7 of 20 g) 0,25 of 20 h) 0,6 of 40
 i) 0,3 of 30 j) 0,35 of 200 k) 0,45 of 20 l) 0,45 of 300

Topic 8 Lesson 10

Word problems with decimals

Homework

Worksheet T8 L10

1. A rope of 4,5m length is cut into 10 equal pieces. Calculate, in meters, the length of each piece of rope.
2. There are 100 sachets of sugar, each weighing 6,5g. Calculate the mass of all the bags of Sugar.
3. You pay with a R50 banknote for the purchase of items that cost R15,50 and R29,75. How much change do you need to get back?
4. Jane must run 125km in 10 days. How far does she have to run every day if she has to cover the same distance every day.
5. Sipho's mass of 45,78kg is 5,9kg more than that of his sister. What is his sister's mass?
6. You have R18,50 and two of your friends have R12,42 and R15,03 respectively. How much more do you need to hire a taxi for a ride that costs R50?
7. You want to buy a bike for R150 from a friend and you have already saved R95. If you work at the local shop and earn R16,50 per hour, will you earn enough extra money in three hours?
8. You buy two shirts for R35,20 each, as well as a cap. How much did the cap cost if you paid with a R100 note and got R2,44 change.
9. Your mom mixes fruit juice for a party. The container can hold 20 Liters. She pours 10,4 Liters of soda water 3,63 Liters of lime juice, and 2,4 Liters of pineapple juice into the container. How much more orange juice can she add?

Topic 9 Lesson 1

Convert percentages to common fractions.

Homework

Worksheet T9 L1

Pop Quiz

Complete the table to give a total of 100%

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	1	2	3	4	5	6	7	8	9	10
Boys	50%		40%		20%		35%		58%	
Girls		45%		70%		16%		66%		52%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Percentages % always refers to **100**

Percentage is always the number on a 100 e.g. $87\% = \frac{87}{100}$

Convert from fraction to percentage

When you want to convert a fraction to percentages, you first have to make the denominator 10, 100, or 1000

$$\text{E.g. } \frac{3}{4} \xrightarrow{\times 25} = \frac{75}{100} = 0,75 = 75\%$$

When it is three digits, the first number is just the integer before the fraction e.g.

$$436\% = \frac{436}{100} = 4\frac{36}{100}$$

Worksheet T9 L1

1. Convert the following percentages to fractions and simplify

a) 29% b) 34% c) 30% d) 90% e) 45% f) 82%

g) 100% h) 50% i) 81% j) 16%

2. Write the following fractions as percentages. Remember to first write each fraction with a denominator of 100.

a) $\frac{3}{10}$ b) $\frac{9}{10}$ c) $\frac{14}{100}$ d) $\frac{7}{10}$ e) $\frac{77}{100}$ f) $\frac{66}{100}$

g) $\frac{9}{20}$ i) $\frac{1}{25}$ j) $\frac{1}{4}$ k) $\frac{3}{4}$ l) $\frac{5}{5}$

Topic 9 Lesson 2

Convert between percentages and decimal fractions

Homework

Worksheet T9 L2

Convert Decimals to Percentage

When converting from Decimals to percentage, convert first to fraction and then the percentage. The fraction's denominator should always be 100.

$$\text{E.g. } 0,65 = \frac{65}{100} = 65\%$$

If there is only one decimal place, put a zero at the back e.g. $0,7 = 0,70 = \frac{70}{100} = 70\%$

Worksheet T9 L2

1. Convert the following percentages to decimals.

a) 45% b) 75% c) 25% d) 72% e) 99%

- b) 80% g) 30% h) 50% i) 3% j) 10%

2. Convert the following decimal places to percentages.

- a) 0,3 b) 0,95 c) 0,82 d) 0,7 e) 0,9
f) 0,4 g) 0,01 h) 0,07 i) 0,05 j) 0,55

Topic 9 Lesson 3

Percentage of an integer

Homework

Worksheet T9 L3

RB p. 44 nr. 1

Worksheet T9 L3

1. Calculate

- a) 10% of 240 b) 20% of 250 c) 25% of 24 d) 50% of 670
e) 40% of 40 f) 30% of 240 g) 70% of 9 090 h) 1% of 7 000

2. Calculate 50% of:

- a) 680g b) 2 468km c) R14 d) 750ml

Calculate 20% of:

- a) 245g b) 45km c) R555 d) 2 085ml

Calculate 75% of:

- a) 444kg b) R1 000 c) 4 040km d) 728ml

3. In a class with 36 learners, 25% say that tennis is their favourite sport. How many learners like tennis?

4. A survey was conducted among 420 hotel guests.

- a) The finding was that 20% of guests were not happy with the standard of the hotel not. How many guests were not happy?
b) The same survey showed that 40% of guests thought that the staff was unhelpful. How many guests were dissatisfied with the staff?
c) However, the quality of the meals was praised by 70% of the guests. How many guests were Not satisfied with the food?