P.5 MATHEMATICS LESSON NOTES TERM 1 -3

LESSON NOTES OF MATHEMATICS FOR P.5 TERM ONE

Primary five mathematics topical breakdown of lesson notes

Theme	Topic	Sub topic (content)	Duration	Learning outcomes
Sets	• Set Concept	• Reviewed sets concepts ○ Definition ○ Describing, shading, listing and forming sets • Types of sets and symbols ○ Intersection and union sets ○ Equivalent sets and non-equivalent. ○ Equal and non-equal sets ○ Empty/Null sets ○ Subsets (Proper and improper) • Complement of sets • Shading sets on the venn diagram • Sets on venn diagram ○ Representing sets ○ Interpreting information from the venn diagram • Probability (chance) ○ Probability of a coin ○ Probability of a dice. ○ Probability of days of the week.		The learner is able to demonstrate the knowledge of the sets to show problems in real life situations.
Numeracy	• Whole numbers	• Forming numbers from digits (sum and difference) • Values of numbers • Sum, difference and product of value of	2weeks	The learner is able to appreciate the need to counting everyday life

		numbers. • Expanding whole numbers using o Place values o Using values o Using exponents / powers of 10 • Expanded numbers • Writing words in words • Writing words into figures • Rounding off whole numbers up to 10,000(ten thousands) • Roman numerals up to 300 (ccc)- Hindu –Arabic numerals		and work with whole numbers up to 999,999
Numeracy	• Operation on whole numbers	• addition of whole numbers up to 999,999 - with and without regrouping. • Word problem about addition • Subtraction of whole numbers with and without grouping up to 6 digits • Word problems on subtraction. • Multiplication of whole numbers of 4 digits by 2 digits. • Word problems on multiplication • Division of whole numbers up to 5 digits by 2 digits. - Without and with a remainder.	3 weeks	The learner is able to use the four basic operations to solve problems.
		• Word problems involving		

		division of whole numbers. • Combined operations. (BODMAS) • Statistics; - Mean - Mode - Median - Range • Decimal and base five (Quandary base) - Expanding in base five - Writing base five numbers in words. - Converting base five to base ten. - Changing base ten to base five. - Addition of numbers in base five. - Subtraction of numbers in base five. • Finite system - Expressing numbers in finite system. - Addition of numbers in finite using a dial and calculus. - Subtraction of numbers infinite system using a dial and calculus. • Application of finite system.		
Numeracy	• Number and sequence	• Types of numbers - Whole numbers - Counting numbers - Even numbers - Odd numbers - Triangular numbers - Prime numbers	2 weeks	The learner is able to relate and apply simple comprehension , skills involving patterns and

		- Square numbers (composite numbers) - Cube numbers - Square numbers - Finding square of numbers (neglect square roots) • Multiples of numbers • LCM of numbers by listing multiples. • GCF of numbers by listing factors. • Prime factorization of numbers - By ladder method - By use of factor tree. • Listing prime factors using - Subscript form (set notation) - Power form • Sequences - Increasing progression (addition and multiplication) - Decreasing progression. (subtraction and division)		sequences to real life situations.
Numeracy	• Fractions	• Addition • Subtraction with same and different denominators • Multiplication of fractions - Natural numbers - By proper fractions - By reciprocal • Division of fractions - By proper fractions - By natural numbers and vice versa.	1½ weeks	The learner is able to solve problems involving fractions and relating them to real life situations.

		- Ordering fractions • Interpreting and solving problems in real life situation about fraction		

TERM ONE: TOPIC ONE

Topic: sets

Sub topic: types of sets

Content: definition of terms

(a) A set is a well-defined collection of elements or members.

(b) Union of sets is a collection of elements in 2 or more sets without representing common members.

(c) Intersection of sets are common elements in 2 or more sets

Types of sets

Equal and equivalent sets e.g. {1, 2, 3,} B {2, 1, 3}

Set A = B

Set K = {a, b, c} set L = {m, n, o}

Set K equivalent to L

$K \Leftrightarrow L$

Equal and unequal sets

P = {5, 4, 6} set N = {a, b, c}

$P \neq N$

Definition of terms

Equal sets (same numbers of elements of same kind)

Equivalent sets (same number of elements of different kinds)

No equivalent sets (different number of elements of different elements)

Examples

(i) A = {a, e, I, o, u} B = {1, 2, 3, 4, 5} $A \leftrightarrow B$

(ii) C = {T, O, P} D = {P, O, T} then C = D

Ref:

Mk New edition Bk5 page one exercise 1:1

Mk Old pg 1

Lesson two

Sub topic: Joint and disjoint sets

Content: definition of terms

Joint sets have some common elements

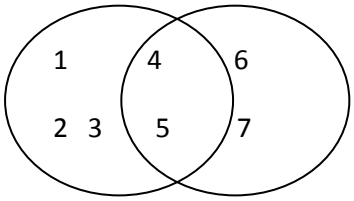
Disjoint sets have no common elements

Examples

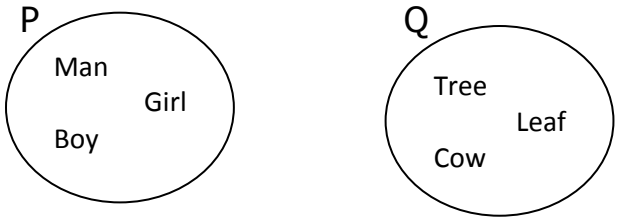
(i) Set M = {1, 2, 3, 4, 5} N = {4, 5, 6, 7,}

MnN = {4, 5}

Set M and N are joint sets



(ii) P = {man, boy, girl} Q = {tree, leaf, cow}
PnQ = { }
P and Q are disjoint sets i.e.



Empty set/Null set

Definitions of terms

Empty set is a set with no member
Symbol for empty set is { } or Ø
Example
A = {a car which can fly like a helicopter} A = Ø or { }
K = {animals which lay eggs} K = not empty set

Union and intersection of sets
Intersection of sets. The symbol used to represent intersection set is ∩
Example A = {a, b, c, e, f, g}, B = {b, d, e, f, g}
AnB = {b, e, f, g}

Note: common elements must be identified i.e. by circling, ticking or crossing them. This is the main subject competence.

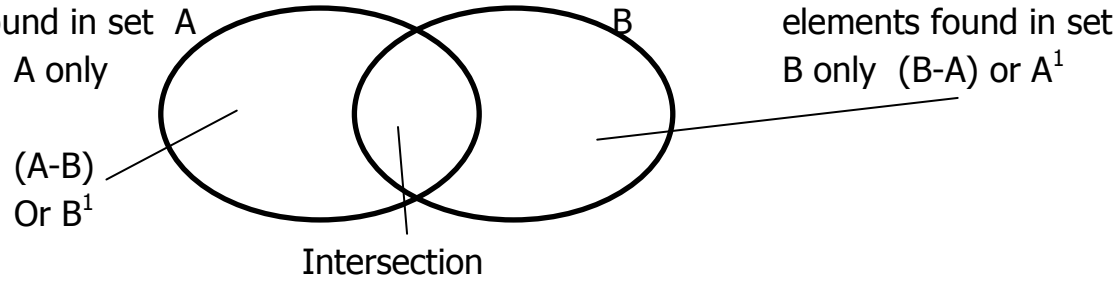
Union of sets the symbol used to represent Union set is U
Examples P = { } Q = a, b, , }
PuQ = { , a, b }

Ref:
Old mk edition bk5 page 3-4
Understanding mtcbk 5 pg 5
Remarks

Lesson three

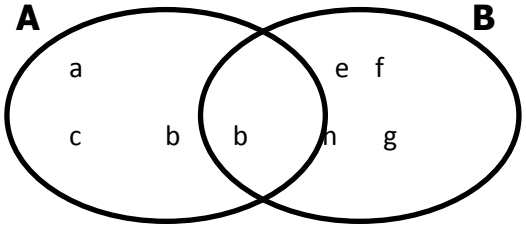
Sub topic: use of Venn diagrams to represent intersection and union sets

Content: naming parts of a Venn diagram

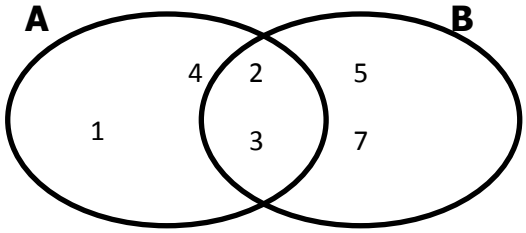


Example : Show the information below on the venn diagram

A = {a, b, c, d} B = {e, b, f, g, h} AnB = {b}



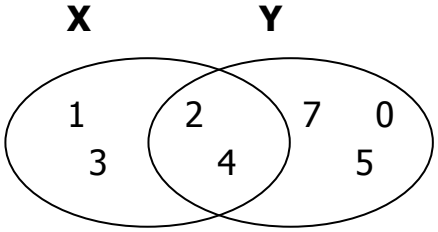
A = {1, 2, 3, 4} B = 2, 3, 5, 7}



AuB = {1, 2, 3, 4, 5, 7}

n(AuB) = 6members

2. Use thevenn diagram to answer the questions



List the members of set Y

X = {2,4,7,0,5}

Find

i) X∩Y

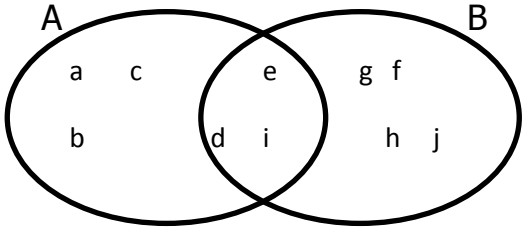
ii) (X∪Y)

iii) n(X∪Y) = 7 elements /members

ref:
Mk new edition bk5 page 5
Mk old edition bk5 page 5
Understanding mtcbk 5 pg 5-6
Remarks

Lesson 4

Sub topic: difference of sets (complements)
Content: A = {a, b, i, c, d, e} B = {e, d, g, f, i, h, j}



(i) A – B = {a, b, c} of (B)'
(ii) B – A = {g, I, f, h} or (A)'
(iii) N(A – B) = 3members
(iv) N(B – A) = 4members

Note: A – B means members in set A only but not in set B (B complement) B^1
B – A means members in set B only but not in set A (A complements) A^1
B^1 = {a, b, c}
A^1 = {g, j, h}
Ref
Mk new edition 2000 bk5 page 13-14
Mk old bkpg 14-17

Lesson 5

Sub topic: sub sets
Content: definition of terms
A sub set is small set found in a big set
Universal set is a set that contain other smaller sets
Universal set is a subset itself though not a proper subset.
Symbols used
Sub set ⊂
Not sub set ¢
Universal set Є

Examples

P = {1, 2, 3, 4, 5, 6} K = {2, 4, 6} E = {1, 3, 5} Q = {9, 10}

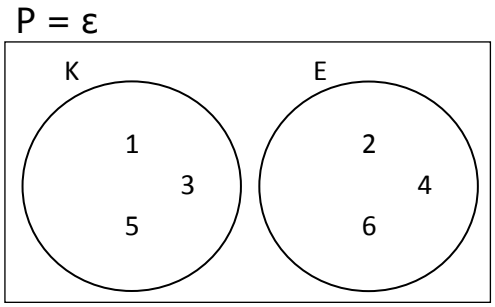
Then

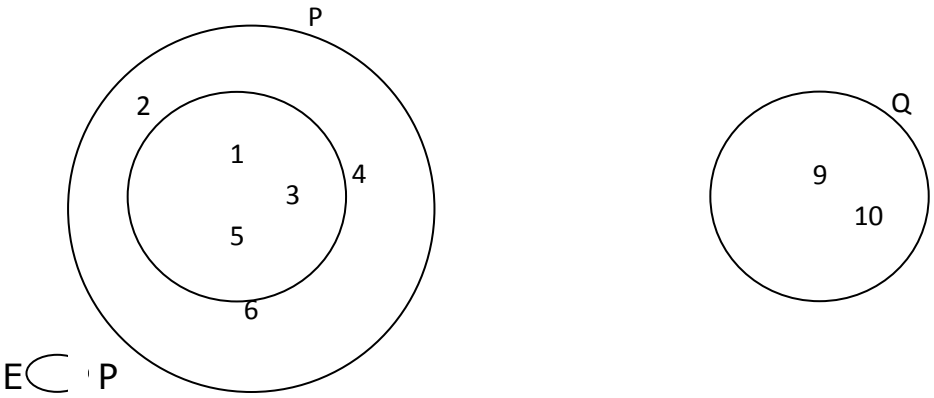
(i) ECP(E is a sub set of P)

(ii) Q¢P (Q is not a sub set of P0

(iii) P = Є(P is a universal set of K and E)

(iv) Represent the given sets on the Venn diagram





E⊂ P

Ref:

Mk old edition exercise 1m book 5 page 19

Lesson 6

Sub topic: finding the number of sub sets

(a) By listing

(b) By use of a formula

Content: examples

Set K = {a, b, c}

Sub sets of K = {a, b, c}, {a, b}, {b, c} {a, c}, {a}, {b}, {c}, { }

N(C)K = 8 sub sets

Using the formula to find the number of elements in set K

n(⊂ = 2^n where n stand for number of element is K

The curriculum recommends the use of listing method at this level.

The logical would be that at this level the children have not covered indices and prime factorization.

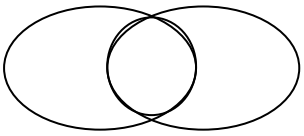
2^3
2 x 2 x 2
8 sub sets
Note:

(i) Any set is a sub set of itself
(ii) An empty set is a subset of every set

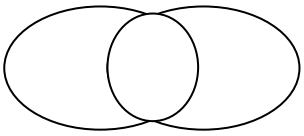
Shading and describing
Shaded regions
Examples

a) Describe the shaded parts

M N

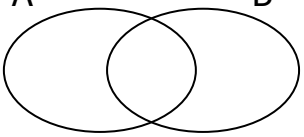


P R

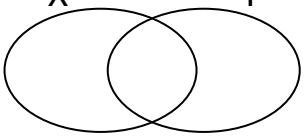


Shade

A B



X Y



(A-B) (X∩Y)'

Evaluation activity
New MK bk 5 pg 16

Lesson 8

Sub topic: probability in sets
Content: idea of probability
Probability of zero e.g. sun setting in the north
Probability of 1 e.g. sun setting in the west
Probability of ½ e.g. tossing a coin to get either head or tail
Tossing a coin
Examples: when you toss a coin, what is the probability of a head showing up
Sample space = {head, tail}
N(S) = 2
Number of events = (head)
= n(E) – 1

Probability of impossibilities occurs when the chances are mutually exclusive.

$P = \frac{n(E)}{n(S)} = \frac{1}{2}$

Toss 2 coins probability of getting two head appearing

Samples = (H.H) (H.T), (T, T), (T, H)

Number of event = n (E) two heads 1

$P = \frac{n(E)}{n(S)} = \frac{1}{4}$

Ref

Mk old edition bk5 page 22-23

Mk new edition pg 118

Remarks

Lesson 9

Sub topic: tossing a die

Content: examples

What is the chance of 2 appearing when a dice is tossed once?

Sample space = { 1, 2, 3, 4, 5, 6} n(S) = 6

No of events = {2} n(E) = 1

$P = \frac{n(E)}{n(S)} = \frac{1}{6}$

Probability of different items e.g there are 10 pencils in a tin, 3 of them are red and the rest are black, what is the probability of picking a black pencil randomly?

Ref

Mk old edition bk5 exercise 10 page 23

Remarks

Topic two

Topic: Numeration and place value

Sub topic: types of number systems

Lesson one

Content: (a) Hindu and Roman numerals

Hindu		Roman
1	⟶	I
5	⟶	V
10	⟶	X
50	⟶	L
100	⟶	C
500	⟶	D
1000	⟶	M

Example

1. Write 19 inRoman numerals
   19 = 10 + 9
   = X + IX
   = XIX
2. Practice changing 4, 9, 6, 11, 40, 60, 90, 99 etc to Roman numerals and vice vasa

Ref:

Mk New edition Bk 5 page 24

Understanding mtcpg 31

Old MK pg 50

Lesson 2

Content: change the given Roman numerals to Hindu Arabic numerals

Example

1. Write XLIX into Hindu Arabic
   XLIX = XL + IX
   XLIX = 40 + 9
   XLIX = 49
2. Practice changing iv, vi, ix, lx, xc, xcix etc to Hindu Arabic numerals and vice versa

Ref

Mk New edition Bk 5 pg 38

Understanding mtchpg 31

MK Old bk 5 pg 50

Remarks: .....

Lesson 3

Sub topic: addition and subtraction of Roman numerals

Content:

Example

1. Add XXIV + XIX

XXV = XX + IV	XIX = X + IX	24 43 = 40 + 3
XXIV = 20 + 4	XIX = 10 + 9	43 = XL + III
XXIV = 24	XIX = 19	43 = XLIII

2. Subtract CV – LV

CV = C + V	LV = L + V	105
CV = 100 + 5	LV = 50 + 5	-55
CV =105	LV = 55	50 = L

Ref

Mk old edition bk 5 pg 53

MK new pg 38

Understanding mtcpf 32

Remarks: .....

Lesson 4

Sub topic: place value of whole numbers

Content: Writing place value and finding values

Example

H/th	T/th	Th	H	T	O
1	3	4	6	7	8
Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones

The place value of 6 is hundreds

Values of digits in whole numbers

Example

Write the value of each digit in the number 123768

1 2 3 7 6 8

Ones = 8 x 1 = 8

Tens = 6 x 10 = 60

Hundreds = 7 x 100 = 700

Thousands = 3 x 1000 = 3000

Ten thousands = 2 x 10,000 = 20000

Hundred thousands = 1 x 100,000 = 100,000

a) Find sum of the place value of 6 and value of 3 in the number 3726

b) Workout the difference between the place value and value of 8 and 2.

Ref
Old edition pg 30-32
New Mk pg 26-27
Understanding math bk 5 pg 15
Remarks: .....

Lesson 6
Sub topic: writing figures in words
Content:
Note: we use three zeros '000' to write a thousand
Examples
Write the following figures in words

(a) 62 = sixty two
(b) 108 = one hundred eight
(c) 9405 = nine thousands four hundred five

Ref
New Mk pg 28
Mk Old Edition Pg 33-34
Understanding mtcbk 5 pg 15
Remarks: .....

Lesson 6
Sub topic: writing numbers in figures
Content: writing number in figures
Examples
Write in figures

(a) Four hundred twenty five thousand three hundred seventeen

Four hundred twenty thousand = 425,000
Three hundred seventeen = + 317
425,317

Ref
Mk New edition Bk 5 page 29 and Mk old edition page 34
Understandingmtcbkl 5 pg 7

Lesson 7

Sub topic: forming numerals from digits

Content: example

Write down the numbers formed by the digits 3, 7, 5

375, 357, 537,573, 735, 753

Biggest number formed = 753

Smallest number formed = 357

Note: The biggest number is formed using descending order (big to small)

The smallest number is formed using ascending order (small to big)

Note: use examples with zero as a digit also.

Ref

Mk New editionBk5 pg 25 and Mk old edition pg 29

Understanding mtcbk 5 pg 19

Remarks:.....

Lesson 8

Sub topic: expanding whole numbers

(a) Using values

(b) Using place values

(c) Using exponents (powers)

1. Expand 7394 using values = 7000 + 300 + 90 + 4
2. Expand 3780 using place values: 3780 = (3 x 1000) + (7 x 100) + (8 x 10) + (0 x 1)

Sub topic: expanding numbers

(a) Using power of 10 (exponents)

Expand 7914 using powers of ten (10)

$7914 = (7 \times 10^3) + (9 \times 10^2) + (1 \times 10^1) + (4 \times 10^0)$

Ref

Mk old edition bk5 pg 39

New mkbk 5 pg 31

Remarks: .....

Lesson 9

Sub topic: changing form expanded form to single numbers

Content: writing expanded numbers as single numerals

Examples

Write (4 x 1000) + (5 x 100) + (7 x 10) + (3 x 1)

4000 + 500 + 70 + 3

4000

500

70

+ 3

4573

Ref

Mk new edition bk5 pg 32

Mk Old [g 39-41

Understanding mtcbkpg 33

Lesson 10

Sub topic: **ROUNDING OFF WHOLE NUMBERS**

Content:

Examples

1. Round off 53 to the tens

   53

   +00

   50

2. Round off 55 to the tens

   55

   +10

   60

Note: 0, 2, 3, 4, you add 0

5, 6, 7, 8, 9 add the value of the required place value

Ref

Mk new edition bk 5 page 39-44

Mk old 54-55

Understanding mtcpg 20-22

Remarks: .....

TOPIC THREE

Topic: OPERATION ON WHOLE NUMBERS

Lesson one

Sub topic: Addition of large numbers

Content: addition

Example

Add: 473442

+369215

842657

Masinde went to the market and bought 5books at 3500/= and 12 pens at 109000/=. How much did he spend altogether?

109000/=

+ 3500/=

112,500/=

Ref

Mk New edition Bk5 page 48 -49

MK old edition pg 58-60

Understanding mtcbk 5 pg 36-38

Lesson 2

Sub topic: subtraction of large numbers

Content: subtraction

Example

Subtract: 123643

- 14262

109,381

By how much is 367015 greater than 346729?

367015

-346729

20286

Ref

Mk New edition Bk5 page 50-57

Understanding mtcpg 40-44

Remarks

Lesson 3

Sub topic: multiplication
Content: multiplication of numbers by one digit
Example
450 x 6
 450
X 6
2700
The cost of a book is shs.750/=. Find the cost of 9 similar books at the same rate
  750/=
x 9
6750/=
Evaluation activity
Mk New edition Bk5 page 52
Mk old pg 53
Understanding mtcbk 5 pg 45-48
Remarks

Lesson 4
Sub topic: multiplication by two digit figures
Content: example
Multiply : 35
x 12
  70
+350
  420
How many pupils are in 33 classrooms if each classroom has 109 pupils?
 109
X 33
327
+3270
3597 pupils

Ref
Mk Old edition Bk5 page 64 – 67
Mk new edition bkpg 53-56
Understanding mtcbk 5 pg 46-50

Lesson 5

Sub topic: division of numbers

Content: without remainders

Example

Divide 864 by 6

$$6\overline{)864}$$

144

−6

= 144

26

- 24

24

- 24

A school has 480 pupils. Each classroom can take 40 pupils. How many classrooms are there in the school?

Divide 4824 by 12

```
        402
  12 | 4824
       -48
        002
        - 0
          24
         -24
          00
```

25 bottles hold 1725litres of water, how much does each bottle hold?

Evaluation activity

Mk Old edition Bk5 page 73 and 74 exercise 3N and 30

Remarks

Lesson 6

Subtopic : Division of numbers

Content: Division with remainder

Examples

i. Divide 12÷5

```
      02 rem 2
   ____________
5 ) 12
    10
     2
```

$12 \div 5 = 2\ ^{2}/_{5}$

ii) 126 ÷ 2

```
      031rem 2
   ____________
4 ) 126
    0
    12
    12
    --  6
     4
     2
```

$126 \div 4 = 31^{2}/_{4}$

Ref: New Mk bk 5 pg 58

Old MK bkpg 72-74

Understanding mtcbk 5 pg 57-63

Lesson 7

Sub topic: combined operation of numbers

Content: BODMAS

Example

Workout ½ of 10 + 15 ÷5

(½ of 10) + 15 ÷ 5

(½ x 10) + 15÷5

5 + (15 ÷ 5)

5 + 3 = 8

Ref

Mk New Edition bk 5 page 63

MK old edition pg 75

Lesson8

Sub topic: statistics

Content: definition of terms

(a) Mode

(b) Range

(c) Median

Example

Given 2, 3, 0, 6, 3 and 4

Find

(a) Mode

No	Frequency
0	1
2	1
3	2
4	1
6	1

Mode = 3

Modal frequency is 2

(b) Range = biggest – smallest

6 – 0 = 6

(c) Median = 0, 2, 3, 3, 4, 6

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

= **3**

Ref

New Mk pg 64-65

Old MK pg 76

Lesson 9

Sub topic: mean/ average

Content: average = $\frac{Sum\ of\ items}{No\ of\ items}$

Example

Find the average (mean) of 0, 2, and 4

Average $= \frac{0+2+4}{3}$

$= \frac{6}{3}$

$= 2$

Comparing averages and total

The average age of 12pupils is 9years. What is their total age?

Average age of 12 is 9

Total age = (12 x 9) years

Total age = 108years

Ref

Mk Old edition bk5 page 76-79

New MK bk 5 pg 64-65

Remarks

Lesson 10

Sub topic: comparing numbers using symbols

Content: use >, < , =

375 _____752

5 + 6 _____6 + 5

¼ _____ $^{2}/_{8}$

Ref

Teacher's collection

New Mk pg 66

Remarks

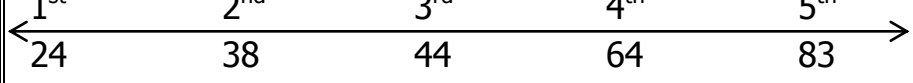
Lesson 11

Sub topic: ordering the numbers on a number line

Content: ascending and descending order

Example

Given 24, 38, 64, 83 and 44 use a number line to arrange the numbers in ascending order



Ref

Mk new edition bk5 page 67

Remarks:

Lesson 12

Sub topic: bases

Content: grouping items in base five and ten

Example

In base tenIIIIIII means 7 ones

In base five IIIIIII means IIIII and II

= 1 group of fives 2ones

= 12_{five}

Ref

Mk old Edition bk 5 page 81

New MK pg 69

Remarks:

Lesson 13

Sub topic: place values of non decimals bases (2, 5, 8)/ reading bases in words

Content:

Example

423_{five} = 4 2 3

Ones = 1

Fives = 5

Five fives (twenty fives) = 25

Reading bases in words

Ref

New MK pg 71

Old Mk 84

Remarks

Lesson 14

Sub topic: expanding in base five

Content: example

Expand 13_{five}

13

Ones

Fives

= (1 x fives) + (3 x ones) = (1 x 5^1) + (3 x 5^0)

Ref
Old Mk pg 85
New MK pg 71
Remarks

Lesson 15
Sub topic: changing to base ten/ decimal base
Content: example
Change 14_{five} to base ten
14_{five} = (1 x fives) + (4 x ones)
= (1 x 5^1) + (4 x 5^0)= 5 + 4 = 9_{ten}
Ref
Old MK pg 85
New Mk pg 71
Remarks

Lesson 16
Sub topic: converting base ten to non-decimal bases
Content: example
Change 56_{ten} to base five

	÷	No	Rem
	5	56	1
	5	11	1
		2	

= 56_{ten} = 211_{five}
Ref
OlfMkpg 86
New MK pg 73
Remarks

Lesson 17
Sub topic: addition of numbers in bases (2, 4, and 5)
Content: example
Add 3_{five} + 4_{five}

3_{five} 7÷ 5 = 2 rem1
$+4_{five}$
12_{five}

Ref
Old MK pg 87

New Mk pg 73
Remarks

Lesson 18
Sub topic: subtraction in bases
Content: example
Subtract $123_{five} - 24_{five}$
123_{five}
-24_{five}
44_{five}
Ref:
Teacher's collection
Remarks

Lesson 19
Sub topic: multiplication of bases
Content: example
Multiply: $421_{five} \times 3$

421_{five}	**SDW/side work**
$\times 3_{five}$	$6 \div 5 = 1$ rem 1
2313_{five}	$13 \div 5 = 2$ rem 3

Note: emphasize should be put on side work.
Ref
Old MK pg 88
New MK pg 74
Remarks:

Lesson 20
Sub topic: finite system
Content: counting in finite five and seven
Example
1(finite5) = 6, 11, 16, 21, ...
3 (finite 5) = 8, 13, 18, 23, ...
Table of finite 5 and 7
Ref:
Old Mk pg 89-91

Lesson 21
Sub topic: addition in finite system (2, 5, 7)
Content: example
2 + 3 = ___ (finite 5)
5 ÷ 5 = 1 rem 0 (finite 5)
= 0 (finite 5)
Dial method in addition of finite
Ref:
Old MK pg 92-94
Remarks

Lesson 22
Sub topic: subtraction in finite system (2, 5, 7)
Content: example
Subtract 3 – 4 = ____(finite 5)
(3 + 5) – 4 = ____(finite 5)
8 – 4 = 4(finite 5)
Dial method 3 – 4 = ___(finite 5)
Ref
Teacher's collection

Topic: NUMBER FACTS AND SEQUENCE
Lesson 1
Sub topic: divisibility tests of 2 and 3
Content: any number which ends with an even, digit i.e. 0, 2, 4, 6, 8 is divisible by 2
A number is divisible by 3 if the sum of its digits is divisible by 3
Example
144 = 1 + 4 + 4 = 9
144 is divisible by 3
Ref
Old Mk pg 68-69
Remarks

Lesson 2

Sub topic: divisibility test of 4, 5 and 10

Content: any number ending with 00 or when the last two digits are divisible by 4 is divisible by 4

Example

320, 100, 1540

Any number ending with 0 or 5 is divisible by 5

Example

220,540,725

A number ending with 0 is divisible by 10 e.g. 100, 120, 20

Activity

Teacher's collection

Old MK pg 70

Lesson 3

Sub topic: multiples of numbers

Content: definition of terms

(a) A multiple is a product of two numbers

Example

1. M_5 = {5, 10, 15, 20, 25, ...}
2. M_4 = {4, 8, 12, 16, ...}

Ref

Old Mk pg 99

New MK pg 79

Remarks

Lesson 4

Sub topic: **Lowest Common Multiples**(LCM/ LCD)

Content: listing method

Ladder method

Example

Find LCM of 4 and 6

M_4 = {4, 8, (12), 16, 20, (24), 28, 32, (36), ...}

M_6 = {6, (12), 18, (24), 30, (36), ...}

Common multiples = {12, 24, 36, ……}

LCM = 12

Note: Common members must be identified.

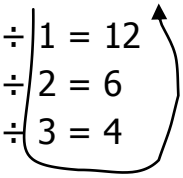
Ladder method

÷	4	6
2	2	3
2	1	3
3	1	1

2 x 2 x 3
4 x 3 = 12
Ref
New Mk pg 80
Old MK pg 100
Remarks

Lesson 5
Sub topic: **Factors of Numbers**
Content: definition
A factor is a number which is multiplied by another number to get a multiple
Example

Multiplication		division	
F_{12}	1 x 12 = 12	12 ÷	1 = 12
	2 x 6 = 12	12 ÷	2 = 6
	3 x 4 = 12	12 ÷	3 = 4



F_{12} = {1, 2, 3, 4, 6, 12} F_{12} = {1, 2, 3, 4, 6, 12}

Ref
New Mk pg 82
Old Mk pg 102

Lesson six
Sub topic: **Greatest Common Factor (GCF/HCF/HCD)**
Content: GCF and HCF refers to the biggest common factor / divisor
Example: Find the GCF of 12 and 18

F_{12}	F_{18}
1 x 12 = 12	1 x 18 = 18
2 x 6 = 12	2 x 9 = 18
3 x 4 = 12	3 x 6 = 18

Identify the common factors
F_{12} = { 1, 2, 3, 4, 6, 12}
F_{18} = {1, 2, 3, 6, 9, 18}
CF = {1, 2, 3, 6}
GCF = 6

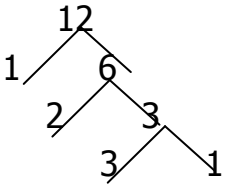
Ref
New Mk pg 82
Old Mk pg 102
Remarks

Lesson seven
Sub topic: **Prime and Composite numbers**
Content: definition
Prime number is a number with only two different factors i.e. 1 and a number itself
Composite number is a number with more than two different factors
Examples
13 = 1 x 13
F_{13} = {1, 13}
13 is a prime number

4 = 1 x 4
4 = 2 x 2
F_4 = {1, 2, 4}
4 is a composite number

Activity
New MK pg 83
Remarks

Lesson eight
Sub topic: prime factorization
Content: we use any prime numbers when prime factorizing
Example
Prime factorize



Ladder method

÷	12
2	6
2	3
3	1

In multiplication form 12 = 2 x 2 x 2 x 3
In set notation form 12 = 2_1, 2_2, 3_1.
Note: in set notation form we write small numbers (subscripts) below prime factors when listing them to show the number of times a prime factor has appeared.

In powers form $12 = 2^3 \times 3^1$

Ref

New MK pg 84-85

Old MK pg 103-105

Remarks

Lesson nine

Sub topic: find GCF using prime factorization method

Find the GCF of 12 and 18 using prime factor and LCM

÷	12	18
2	6	9
3	2	3

2 x 3 = 6

GCF = 6

÷	12	18
2√	6	9
2	3	9
3√	1	3
3	1	1

Note: identify the common factors

LCM = product of union of factors

LCM = 2 x 2 x 3 x 3

LCM = 4 x 9

LCM = 36

Ref

New MK pg 86-87

Old MK pg 106-107

Lesson ten

Application of LCM

Content: examples

Find the least number of pens which can be shared among 3 or 4 pupils and the remainder is 1

2	3	4
2	3	2
3	3	1
	1	1

= (2 x 2 x 3) + 1

= (4 x 3) + 1

= 12 + 1

= 13pens

Ref:

Teacher's collection

Lesson eleven

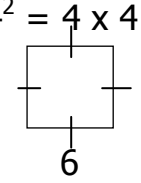
Sub topic: square numbers

Content: example

Find the square of 4

Find the area of the square

$4^2 = 4 \times 4 = 16$



A = 6 x 6

= 36sq units

Ref

New MK pg 88

Old Mk pg 108

Remarks

Lesson twelve

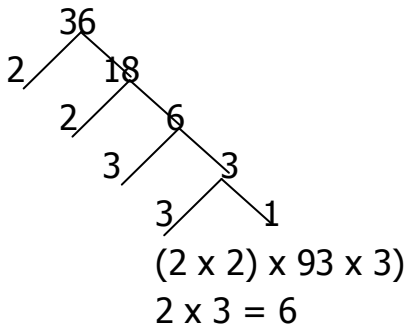
Sub topic: square roots

Content: definition of terms

A square root is a number that is multiplied by itself to get a square number

Example

Find the square root of 36



(2 x 2) x 93 x 3)

2 x 3 = 6

	÷	36
2	2	18
	2	9
3	3	3
	3	1

(2 x 2√) x (3√ x 3)

2 x 3 = 6

Ref

New Mk pg 89

Old Mk pg 108-109

Remarks

Lesson thirteen

Sub topic: application of square roots

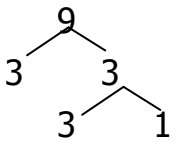
Content: example

If $X^2 = 9$ Find X

$\sqrt{X^2} = \sqrt{9}$

$\sqrt{XXX} = \sqrt{3 \times 3}$

X = 3



The area of a square is $16cm^2$. Find the length of one side of the square

S x S = Area

$S^2 = 16cm^2$

$\sqrt{S \times S}\sqrt{(2 \times 2) \times (2 \times 2)}$

S = 2 x 2

S = 4cm

2	16	
2	8	
2	4	
2	2	
	1	

Lesson 14

Sub topic: set of numbers

Content:

Triangular numbers form triangular patterns when properly arranged

Square numbers are got by multiplying a number by itself

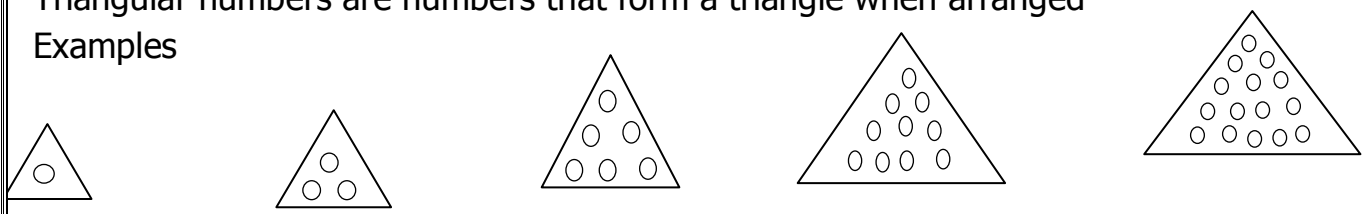
Even numbers are numbers exactly divisible by 2 e.g. 0, 2, 4, 6, 8, ...

Odd numbers are numbers not exactly divisible by 2 e.g. 1, 3, 5, 7, 9.....

Natural (counting numbers) are numbers used in counting e.g. 1, 2, 3, 4, 5, ...

Triangular numbers are numbers that form a triangle when arranged

Examples



1 3 6 10 15

Square numbers

e.g. ● = 1 x 1


= 4 = 2 x 2

= 9 = 3 x 3

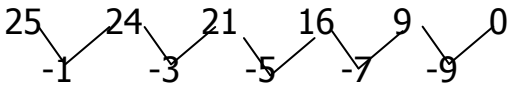
Lesson 15

Sub topic: number patterns

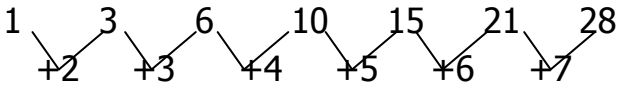
Content: example

Fill in the missing numbers

(a) 25, 24, 21, 16, ___, ___

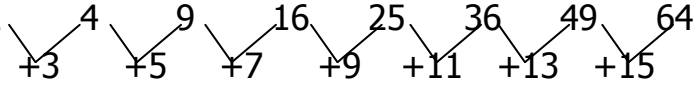


(b) 1, 3, 6, 10, 15, ___



2.Example: find the sum of the missing numbers

1, 4, 9, ___, 25, 36, ___, 64



Sum = 16 + 49 = 65

Ref

Old MK pg 113-114

New Mk pg 91-92

Remarks

Lesson 16

Sub topic: completing puzzles

Content: magic square

Example

Complete the magic square below

8	a	B
d	5	C
4	e	2

Magic sum = 8 + 5 + 2 = 15

$d = 15 - (8 + 4) = 15 - 12 = 3$

$c = 15 - (3 + 5) = 15 - 8 = 7$

$b = 15 - (2 + 7) = 15 - 9 = 6$

$e = 15(1 + 5) = 15 - 6 = 9$

Ref

Understanding mtcpg 89-91

Remarks

Topic: Fractions

Lesson one

Sub topic: types of fractions

Content:

(a) Proper fractions (numerator is less than the denominator ½)
(b) Improper fractions (denominator is less than the numerator $^4/_3$)
(c) Mixed fraction (vulgar fractions) includes a whole number and a proper fraction)
(d) Decimal fractions (numbers with a point)
(e) Expressing improper fraction as mixed fraction
(f) Expressing mixed fraction as improper fraction

Example

Express $\frac{9}{5}$as a mixed number

$= 5\sqrt{9}$

$\underline{= -5}$

4

$= 1rem4$

$$= 1\frac{4}{5}$$

Express $1\frac{4}{5}$ as a mixed number

$$= \frac{(WxD) + N}{D}$$

$$= \frac{(1x5) + 4}{5}$$

$$= \frac{5 + 4}{5} = \frac{9}{5}$$

Ref

Old Mk pg 116-117

New Mk pgpg 115-116

Remarks:

Lesson two

Sub topic: equivalent fractions

Content: examples

½ ,$^2/_{4,}$ $^3/_6$, $^4/_8$

Ref:

New MK pg 117
Old MK pg 120
Remarks

Lesson three
Sub topic: reducing fractions
Content: example
Reduce $\frac{12}{24}$ to its lowest terms
GCF = 12
$\frac{12 \div 12}{24 \div 12} = \frac{1}{2}$

	N	D
2	12	24
2	6	12
3	3	6
	1	**2**

$\frac{12}{24} = \frac{1}{2}$
Use only common factors /divisor

Ref
New Mk pg 118
Old Mk pg 121
Remarks:.....

Lesson four
Sub topic: ordering fractions
Content: using ascending and descending order
Examples : arrange $\frac{1}{3}, \frac{1}{2}, \frac{1}{4}$ in ascending order
LCM = 12
$\frac{1}{3} \times 12 = 4$ $\frac{1}{2} \times 12 = 6$ $\frac{1}{4} \times 12 = 3$
In ascending order ¼ ,$^1/_3$, ½
In descending order ½ ,$^1/_3$, ¼

Ref
New MK pg 119
Old Mk pg 125
Remark:.....

Lesson five

Sub topic: comparing fraction using symbols

Content: >, <, or =

Examples which is greater $^{1}/_{3}$ or ¼

LCM of 3 and 4 = 12

$\frac{1}{3} \times 12 = 4$ $\frac{1}{4} \times 12 = 3$

= 4(greater) = 3 (less)

Ref

New MK pg 120

Old Mk pg 126

Remarks:.....

Lesson six

Sub topic: Addition of fractions

Content: different denominations

Examples: Add $\frac{5}{6} + \frac{8}{9} = \frac{\left(\frac{5}{6} \times 36\right) + \left(\frac{8}{9} \times 36\right)}{36} = \frac{30+24}{36} = \frac{54}{36} = \frac{3}{2} = 1\frac{1}{2}$

Ref

New Mk pg 121

Old MK pg 127

Remarks:.....

Lesson seven

Sub topic: Addition of whole numbers and fractions

Content: Examples: $5 + \frac{3}{4} = \frac{5}{1} + \frac{3}{4}$

LCD = 4

$\frac{\frac{5}{1} \times 4 + \frac{3}{4} \times 4}{4} = \frac{20+3}{4} = \frac{23}{4} = 4\sqrt{\begin{array}{r} 5 \\ \overline{23} \\ -20 \\ \hline 3 \end{array}}$

= 5 ¾

5 rem 3

Ref:

New Mk pg 122

Old MK pg 128

Remarks

Lesson eight

Sub topic: Addition of mixed numbers

Content: examples

½ + 3 ¼

3 + (½ + ¼)

$3 + \left(\frac{2+1}{4}\right) = 3 + \frac{3}{4} = 3\frac{3}{4}$

Ref

New MK pg 123

OlfMk p 129-131

Remarks:.....

Lesson 9

Sub topic: Word problems involving addition of fractions

Content: example

John filled ½ of a tank in the morning and $^2/_5$ in the afternoon. What fraction of the tank was filled with water?

$\frac{1}{2} + \frac{2}{5} = \frac{5+4}{10} = \frac{9}{10}$of the tank

Ref

New MK pg125

Old MK pg 131-132

Remarks

Lesson 10

Sub topic: Subtraction of fractions

Content: different denominators

Examples: Subtract $\frac{1}{2} - \frac{1}{3}$LCM is 6

$\frac{3-2}{6} = \frac{1}{6}$

Ref

New MK pg 126-127

Old MK pg 133

Remarks:.....

Lesson 11

Sub topic: Subtraction of fraction from whole numbers

Content: Examples

Subtract 5 – ¾

$$\frac{5}{1}-\frac{3}{4}=\frac{20-3}{4}=\frac{17}{4}=4\frac{1}{4}$$

Ref:

New Mk pg 126

Old MK pg 117-118

Remarks:.....

Lesson 12

Sub topic: Subtraction of mixed fractions

Content: Examples

$$4\frac{1}{2}-1\frac{1}{3}=\frac{9}{2}-\frac{4}{3}=\frac{\frac{9}{4}\times 6-\frac{4}{3}\times 6}{6}=\frac{27-8}{6}=\frac{19}{6}=3\frac{1}{6}$$

Ref

New MK pg 126

Old MK pg 133

Lesson 13

Sub topic: Word problems in subtraction of fractions

Content: examples

A baby was given $^{5}/_{6}$litres of milk and drunk only $^{7}/_{12}$litres. How much milk remained?

$$\frac{5}{6}-\frac{7}{12}=\frac{\frac{5}{6}\times 12-\frac{7}{12}\times 12}{12}=\frac{10-7}{12}=\frac{3}{12}remained$$

Ref

New Mk pg 127

Old MK pg 134

Remarks:.....

Lesson 14

Sub topic: Combined addition and subtraction

Content: example

Workout:

$$\frac{5}{6}-\frac{5}{9}+\frac{7}{18}=\frac{5}{6}+\frac{7}{18}-\frac{5}{9}=\frac{15+7-10}{18}=\frac{22-10}{18}=\frac{12\div 6}{18\div 6}=\frac{2}{3}$$

Ref

New Mk pg 128

Old Mk pg 135 – 136

Remarks

Lesson 15

Sub topic: Multiplication of whole and fractions

Content: using repeated addition (number line)

Using factor

Example multiply 4 x ½ = 2

$^{4}/_{1}$ x ½

2x 1

1 x 2 = 2



Ref

New Mk pg 129

Old Mk pg 137

Understanding mtcpg 119

Lesson 16

Sub topic: Multiplication of fractions by a whole

Using "of"

Example simplify: ½ of 16

½ x 16 = 8

Ref

Understanding mtcpg 119-120

New MK pg 129-130

Old Mk pg 137-138

Remarks:.....

Lesson 18

Sub topic: multiplication of unit fraction
Content: example
½ x ¾
1 x 3 = 3
2 x 4 8
Application of fractions
What is ¼ of 1hour?
1hr = 60min
1hr =1 x 60min
4 4
= 15 min.
Ref
New MK pg 131
Old MK pg 138

Lesson 18
Sub topic: multiplication of mixed fraction by mixed fraction
Examples
1 ½ x 1 ¼ $\frac{3}{2} \times \frac{5}{4} = \frac{3\ x\ 5}{2\ x\ 4} = \frac{15}{8} = 1\frac{7}{8}$
Ref
Old Mk pg 138
Remarks

Lesson 19
Sub topic: division of fractions
Content: reciprocals of whole numbers
Example
Find the reciprocal of
(a) 2 Let the reciprocal be k
2 x k = 1
$\frac{2k}{2} = \frac{1}{2} = \frac{1}{2}$
(b) ¼ Let the reciprocal be y
$\frac{1}{4} \times y = 1$
$\frac{y}{4} \times 4 \times = 1 \times 4$
$y = 4$

(c) $1\frac{1}{3} = \frac{4}{3}$Let the reciprocal be x

$$\frac{4}{3} \times x = 1$$

$$3 \times \frac{4x}{3} = 1 \times 3$$

$$\frac{4x}{4} = \frac{3}{4}$$

$$x = \frac{3}{4}$$

Note: reciprocal is used instead of upside down

Ref

New Mk pg 131

Old MK pg 141

Remarks:

Lesson 20

Sub topic: Division of wholes by fraction

Content: examples

Workout using reciprocal

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

Using the LCM

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

Ref

New Mk pg 135

Old Mk pg 142

Remark:.....

Lesson 21

Subtopic: Word problems

Content: examples

(a) How many ¼ loaves of bread can be got from 3 loaves of bread?

$= 3loaves \div \frac{1}{4} loaves$

$\frac{3}{1} \div \frac{1}{4} = \frac{3}{1} \times \frac{4}{1} = \frac{12}{1} = 12quarterloaves$

(b) Using LCM and LCM = 4

$3 \div \frac{1}{4} = \frac{3}{1} \times 4 \div \frac{1}{4} \times 4 = 12 \div 1 = 12quarter\ loaves$

Ref

New MK pg 136

Old MK pg 144

Remark.....

Lesson 32

Sub topic: Division of fractions by whole numbers and vice versa

Content: example

(a) Divide $\frac{1}{3} \div 4$

$\frac{1}{3} \div \frac{4}{1} = \frac{1}{3} \times \frac{1}{4} = \frac{1 \times 1}{12} = \frac{1}{12}$

(b) Divide $4 \div \frac{1}{3}$

$\frac{4}{1} \div \frac{1}{3} = \frac{4}{1} \times \frac{3}{1} = \frac{4 \times 3}{1 \times 1} = 12$

Ref

New Mk pg 137-139

Note: give examples on division of mixed fraction and whole number and vice versa

Remarks

Lesson 23

Sub topic: division of a fraction by fraction

Content: example

Divide $\frac{2}{3} \div \frac{1}{5} = \frac{2}{3} \times \frac{5}{1} = \frac{10}{3} = 1\frac{1}{3}$

Old MK pg 144

Teacher's collection

Remarks

Lesson 24

Sub topic: Division of mixed numbers

Content: example

Workout:

$$2\frac{1}{3} \div 3\frac{1}{2} = \frac{7}{3} \div \frac{7}{2} = \frac{7}{3} \times \frac{2}{7} = \frac{14}{21} = \frac{2}{3}$$

Ref

Teacher's collection (see bk6)

TERM II

Topical breakdown

Theme	Topic	Sub-topic	Duration	Learning outcome
Numeracy	Fractions	• Converting fractions into decimals and vice versa • Place values of decimals upto hundredths • Finding values of digits in decimals. • Reading and writing decimals in figures and vice versa. • Ordering decimals using a number line / LCM. • Addition and subtraction of decimal numbers • Word problems involving addition and subtraction of decimals.	2 week	The learner is able to solve problems involving decimals related to real life situations.
Geometry	Lines, angles, and geometrical figures	• Construction of; - Parallel lines - Perpendicular lines • Angles - Drawing angles - Measuring angles - Constructing angles (90, 60, 120 only) • Constructing simple shapes using pencils, ruler and a pair of compasses. - Square, rectangle, and equilateral triangle • Lines of folding symmetry - Rectangles - Square - Kites and other shapes • Circles • Construction of hexagons only in a circle	2 weeks	The learner is able to recognize and construct various geometric figures and relate them to other fields such as architectural drawings.
Integration	Data	• Draw graphs, (bar, picto and	2weeks	The learner is

of graphs and data handling	handling	line graphs) • Recognize scales on; - On bar graphs - Picto graphs - Line graphs • Interpreting information on graphs • Working out the average of the data.		able to interpret and solve problems related to graphs
	Time	• Telling time on the 12 hour clock only. • Converting hours to minutes and vice versa. • Finding duration in the same time zone. • Finding time, distance and speed. • Solving word problems involving time, distance and speed. • Operation on time (addition and subtraction) - Hours and minutes - Weeks and days	2weeks	The learner is able to apply the knowledge of time in real life situations.

TOPIC: FRACTIONS

Lesson 1

Sub topic: decimals

Content: place values in figures and words

Examples: what is the place value of each digit in 0.75?

0.75 = 0 . 7 5 6

Thousandths $\left(\frac{1}{1000}\right)$

Hundredths $\left(\frac{1}{100}\right)$

Tenths $\left(\frac{1}{10}\right)$

Ones (1)

REF

Mk New edition Bk5 page 67

Lesson 2

Sub topic: values of digits in decimals

Content: find the value of each digit in 67.253

67.253

Thousandths $\left(\frac{1}{1000}\right) = 3 \times \frac{1}{1000} = 0.003$

Hundredths $\left(\frac{1}{100}\right) = 5 \times \frac{1}{100} = 0.05$

Tenths $\left(\frac{1}{10}\right) = 2 \times \frac{1}{10} = \frac{2}{10} = 0.2$

Ones (1) = (7 x 1) = 7

Tens (10) = (6 x 10) = 60

Ref

Mk New Edition Bk5 page 68

Old Mk Bk5 page 46

Remarks:.....

Lesson 3

Sub topic: writing decimal fractions in words

Content:

Examples

(a) Write 0.75 in words

$0.75 = \frac{75}{100}$

Seventy five hundredths

(b) Write 23.137 in words

23 and $\frac{137}{1000}$

Twenty three and one hundred thirty seven thousandths

Ref

Old MK pg 46

New MK pg69

Remarks

Lesson 4

Sub topic: writing decimal fraction in figures

Content: Write sixty three and twenty five hundredths in figures

36 and $\frac{25}{100}$

63+ 0.25

63.00

+0.25

63.25

Activity

New Mk Bk5 page 70

Old mk Bk5 page 47

Remarks

Lesson 5

Sub topic: Expanding decimals

Content: using values

i) Using values

Examples

Expand 6.25

6.25 = 6 + 0.2 + 0.05

$= 6 + \frac{2}{10} + \frac{5}{100}$

ii) Using powers
$6.25 = (6 \times 1) + (2 \times 10^{-1}) + (5 \times 10^{-2})$
Ref
Old MK pg 48-49
New MK pg 36
Remarks:

Lesson 6
Sub topic: Rounding off decimals
Content: round off
0.625 to the nearest tenth
0.625
+ .0
0.6
Round off to the nearest hundredths
10.269
+ 10
10. 27

Ref
Old Mk Maths Bk5 pg 56
Remarks

Lesson 7
Sub topic: decimal fractions
Content: Expressing common fractions as decimals
Example (i) $\frac{1}{1} = 1$ (ii) $\frac{1}{10} = 0.1$ (iii) $\frac{1}{100} = 0.01$
Note: Zero before a decimal point is used to keep the place for the whole number
Ref
Exercise 6:29 and also exercise 5z page 145/ 146 old edition bk5
Remarks

Lesson 8
Sub topic: expressing mixed fractions as decimals
Content: examples

$3\frac{1}{10} = \frac{(3 \times 10) + 1}{10} = \frac{31}{10} = 3.1$

Ref

Exercise 6:30 page 142 New Mk Bk5

Exercise 5z page 147 Old Mk Bk5

Remarks

Lesson 9

Sub topic: converting decimals to common fractions

Content: examples

Convert 0.5 to a common fraction

$0.5 = \frac{5}{10} = \frac{5 \div 12}{10 \div 12} = \frac{1}{2}$

Ref

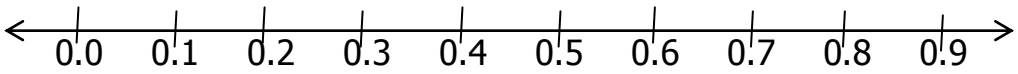
Exercise 6:31 page 143 New Mk Bk5

Lesson 10

Sub topic: comparing decimals using symbols

Content: using symbols >, < and =

Compare 0.3_____0.5



0.3 > 0.5

Ref

Exercise 3:32 page 145 New Mk Bk5

Exercise from teacher's collection

Remarks

Lesson 11

Sub topic: Ordering decimals

Content: example

Arrange 0.1, 1.1, 0.11 from smallest to greatest and vice versa

$0.1 = \frac{1}{10}, 0.11 = \frac{11}{100}, 1.1 = \frac{11}{10}$ $the\ LCM = 100$

$\frac{1}{10} \times 100 = 10, \quad \frac{11}{100} \times 100 = 11, \quad \frac{11}{10} \times 100 = 110$

0.1, 0.11, 1.1 ascending order

1.1, 0.11, 0.1 descending order

Ref
Exercise 6:33 page 145-146 New Mk Bk5
Exercise 5z page 149 Old Mk Bk5
Remarks

Lesson 12
Sub topic: addition of decimal fractions
Content: example
Add: 0.45 + 13.2 + 5.2
  0.45
  13.2
+5.2
18.85
Ref
Exercise 6:34
New Mk pg 77
Remarks

Lesson 13
Sub topic: subtraction of decimal fractions
Content: example
Subtract 13.69 from 97.4
97.4 – 13.69
97.40
-13.69
 83.71

Ref
Exercise 6:34
New Mk Bk5pg 79
Remarks
Lesson 14
Sub topic: Addition and subtraction of decimals
Content: example
13.75 – 27 + 91.25
BODMAS
13.75 + 91.25 – 27
13.75

+91.25
105.00
-27.00
78.00
Activity
New MK pg81 / old Mk pg 150

Lesson 15
Sub topic: multiplication of decimals by 10, 100 and 1000
Content: examples
6.25 x 10 6.25 x 100
$\frac{625}{100} \times 10 = \frac{625}{10} = 62.5$ $\frac{625}{100} \times 100 = 625$

Ref
Exercise 5z page 151 Old Mk Bk5
Remarks

Lesson 16
Sub topic: multiplication of decimals by decimals
Example: multiply 0.06 x 0.6=$\frac{6}{100} \times \frac{6}{10} = \frac{36}{1000} = 0.036$
Ref
Exercise 5z page 152 Old Mk Bk5
Remarks

Lesson 17
Sub topic: application of decimals in multiplication
Example: One rope measures 4.75metres. How long in metres will 2.5 ropes be if they are joined together?
1 rope measures 4.75m. 2.5ropes measures?
4.75m x 2.5 = $\frac{475}{100} \times \frac{25}{10} = \frac{11875m}{1000} = 11.875m$
475
+25
2375
+9500
11875
Ref
Exercise 5z page 153 to 154 old edition bk5

Remarks

Lesson 18

Sub topic: Division of decimals

Content: examples

Divide: 0.12 ÷0.6 = $\frac{12}{100} \div \frac{6}{10} = \frac{12}{100} \times \frac{12}{6} = \frac{2}{10} = 0.2$

Division of decimals by whole number and vice versa

$0.12 \div 6 = \frac{12}{100} \div \frac{6}{1} = \frac{12}{100} \times \frac{1}{6} = 0.02$

$6 \div 0.12 = \frac{6}{1} \div \frac{12}{100} = \frac{6}{1} \times \frac{100}{12} = \frac{100}{2} = 50$

Ref:

Old Mk pg 155

Lesson 19

Sub topic: Application of division of decimals

A tailor uses 1.8m to make a pair of shorts. How many pairs of shorts will he make from 12.6m?

Let the number of pairs be y

$1.8 \times y = 12.6m$

$\frac{18 \times y}{10} = \frac{126m}{10} = \frac{18y}{10} \times 10 = \frac{126}{10} \times 10 = \frac{18y}{18} = \frac{126}{18} = 7\ pairs\ of\ shorts$

Ref :

Exercise 5z page 156 Old Edition Mk Bk5

GEOMETRY

Lesson one

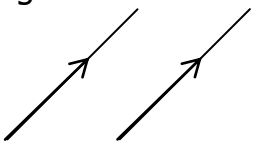
Sub topic: parallel lines

Content: definition

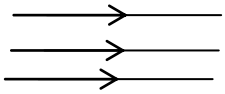
These are lines that are equal distance apart and don't meet when extended in both directions

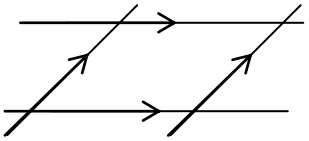
Drawing parallel lines

Using a ruler



Using ruler and set squares





Ref

Old MK pg 228

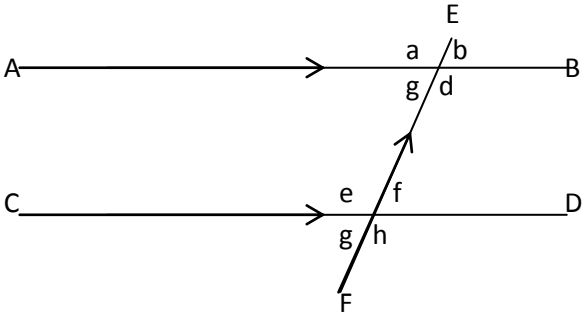
New Mk pg94

Remarks: .....

Lesson two

Sub topic: intersecting and transversal lines

Content: naming points of intersection lines EF and GH are transversal lines



Ref

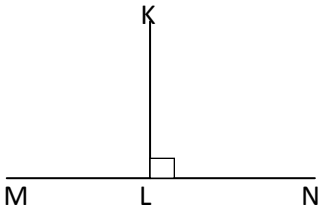
New MK pg95

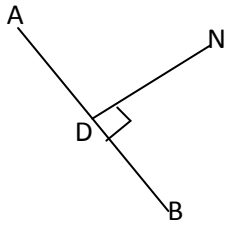
Old Mk pg 231

Remarks:

Lesson three

Sub topic: perpendicular lines
Content: definition of perpendicular lines
Naming perpendicular lines from given figures
Drawing or construction of bar lines using pairs of compasses and ruler with pencil only.





KL and ND are perpendicular lines to MN and AB respectively.
Ref
New Mk pg95-96

Lesson four
Sub topic: polygons
Content: naming polygons
Types of triangles

- Equivalent triangles
- Isosceles triangle
- Right angled triangle

Types of quadrilaterals

- Rectangle
- Square
- Trapezium
- Rhombus
- Kite

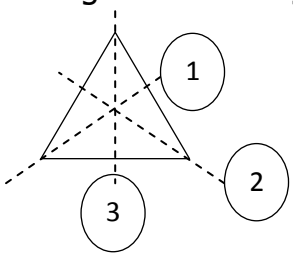
Other regular polygons up to 12 sided polygons
Drawing polygons using ruler and pencils (sketches)

Types of polygons

Name	No of sides
Pentagon	5
Hexagon	6
Septagon / heptagon	7
Octagon	8
Nonagon	9
Decagon	10
Nuodecagon	11
Duodecagon	12

Ref:
Old mkbk 5 page 202 exercise 8d
Remarks: .....

Lesson five
Subtopic: lines of symmetry
Content: defining
Lines of symmetry divide figure into two equal or congruent parts
Drawing and counting the lines of symmetry of i.e. triangles, quadrilaterals e.g.



Nb: child draw and labels

Ref
Old MK pg 231
New mk math bk 5 page 184-185
Remarks: .....

Lesson six
Sub topic: construction of circles
Content: parts of a circle of different radii and diameter
Drawing circles of radius 3cm

Sub topic: constructing and equilateral triangle in a circle
Content: pupils will use a pair of compasses and a pencil to construct circles equilateral triangles and inscribe

Ref
New Mk pg 186-187
Old Mk pg 250

Lesson seven
Sub topic: Constructing an equilateral triangle without a circle
Example:
Construct an equilateral triangle of side 4cm

Lesson eight
Sub topic: constructing a regular hexagon
Content: pupil will use a pair of compasses and a pencil to construct a regular hexagon in a circle.
Ref
Old Mk pg 251
New MK pg 188

Lesson nine
Sub topic: constructing square in a circlewith and without a circle
Content: pupils will construct squares using different radii

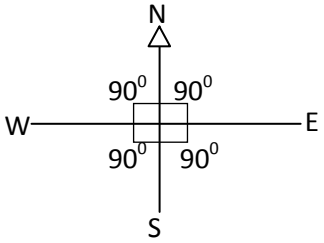
Ref
Old MK mtc book 5 pg 252

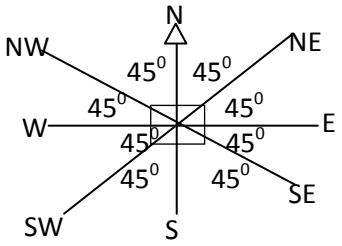
Lesson ten
Subtopic constructing a rectangle
Content: construction of a rectangle using a pair of compasses
Ref:
Trs' collection

Lesson 11
Sub topic: angles and rotation
Content: definition
Angles is the amount of turning, rotation or opening
Rotation (clockwise or anticlockwise turn through 360^0)
Turn clockwise / anticlockwise more through a given angle
Pupils will find the angles that make up turns, half a turn, and a quarter of a turn.
Revolution (a complete turn throughout 360^0)

Ref
New MK pg 180-190
Old Mk pg 245-246
Remarks: .....

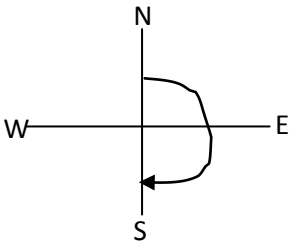
Lesson 12
Sub topic: angles on a compass
Content: pupils will find the different angles between the compass directions
Pupils draw a compass direction

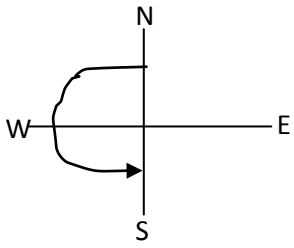




Ref
New MK pg 191
Old MK pg 247

Lesson 13
Sub topic: the clockwise and anticlockwise turns
Content: pupils will find the angles made when one turn clockwise and anticlockwise from the given direction



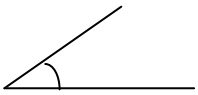


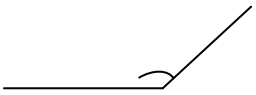
Clockwise turn anticlockwise turn
Examples: Through what angle does Sara turn from North to North East direction in a clockwise direction. Ref
New MK pg 192

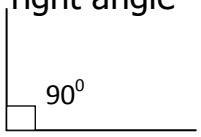
Lesson 14
Sub topic: types of angles
Content: pupils will be guided to name the different types of angles and give examples of such angles

Acute angle, right angle, obtuse angle, straight angle, reflex angle

Acute angle obtuse angles right angle reflex angle



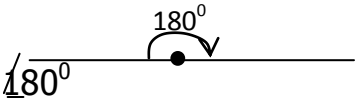






$0^0 < A < 90^0$ $90^0 < c < 180^0$ 90^0 $180^0 d 360^0$

Straight angles



Example

Name the types of angles written below

a) 45^0 b) 200^0

Acute angle reflex angle

Ref

New Mk bk 5 pg97

Remarks:

Lesson 15

Sub topic: measuring angles using a protractor

Content: pupils will measure different angles using outer scale and inner scale on a protractor with the guidance of the teacher.

Ref

New Mk pg 195

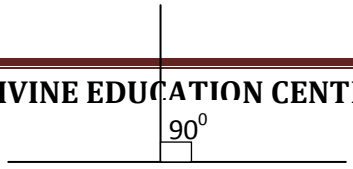
Old MK pg 237

Remarks: .....

Lesson 16

Sub topic: constructing angles using pair of compasses.

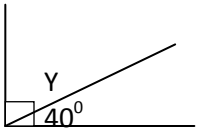
Content: pupils will different angles using paid of compasses, pencil e.g. construct angles of 90^0, 120^0 , 60^0



Ref:
New mk math bk 5 pg98
Old MK pg 237

Lesson 17
Sub topic: supplementary angles and complementary angles
Example: what is the supplement of 45^0
Let the supple m
$M + 45^0 = 180^0$
$M + 45^0 - 45^0 = 180^0 - 45^0$
$M + 0 = 135^0$
$M = 135^0$

Complementary angles
Examples: find the complement of 40^0



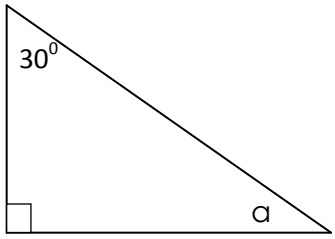
Let the comp < be Y
$Y + 40 = 90$
$Y + 40 - 40 = 90 - 40$
$Y + 0 = 50$
$Y = 50^0$

Ref
New MK pg102
Old Mk pg 240
Remarks: .....

Lesson 18
Sub topic: application of complementary and supplementary angles
Content: find complement of 30^0
Let the complement be N
$N + 30^0 = 90^0$
$N + 30^0 - 30^0 = 90^0 - 30^0$
$N + 0 = 60^0$
$N = 60^0$
The complement of x is 50^0. Find the value of x
$X + 50^0 = 90^0$

$X + 50^0 - 50^0 = 90^0 - 50^0$
$X + 0 = 40^0$
$X = 40^0$
The supplement of an angle is 72^0. What is the angle
let the angle be x
$X + 72^0 = 180^0$
$X + 72^0 - 72^0 = 180^0 - 72^0$
$X + 0 = 108^0$
$X = 108^0$
Ref
New Mk pg100
Remarks:

Lesson 19
Sub topic: finding angles marked with letters on a triangle
Content: examples find the value of a

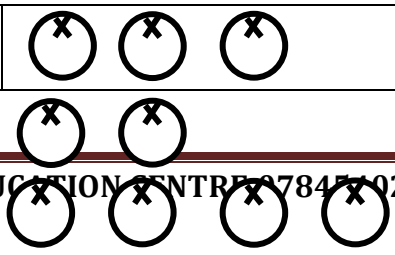


$a + 30^0 + 90^0 = 180^0$
$a + 120^0 = 180^0$
$a + 120^0 - 120^0 = 180^0 - 120^0$
$a + 0 = 60^0$
$a = 60^0$

Ref
New mkmathsbk 5 pg 240

Topic: DATA HANDLING
Lesion one
Sub topic: pictograph interpretation
Content: Pupils will study the given pictograph and workout numbers about the graphs

Musa	



Mark	
Jack	

Key represents 20 oranges

(i) How many oranges did Musa get?
1 picture represents 20 oranges
3 pictures represent 20 x 3 = 60 oranges

(ii) How many more oranges did Jack get than Mark?
Jackgot 4 x 20 = 80 oranges
80 oranges – 40 oranges = 40 oranges
Jack got 40 more oranges than Mark

Ref
New Mk: Maths book 5 pg113-114
Curriculum pg 97-98

Lesson 2:
Sub topic: drawing pictographs
Content: drawing pictographs using the given information and scale
Example
If represents 10 balls. Draw similar pictures to represent 30 balls

Ref
New MK bk 5 pg 115

Lesson 3:
Sub topic: reading and interpretation of tables
Content: pupils will read and interpret given information then answer questions that follow
Example: Draw the table)

(i) How many eggs were collected on Tuesday?
10 eggs

(ii) How many eggs were collected in a week?

40 + 10 + 25 + 17 + 53 = 78 + 67 = 145 eggs

(iii) Find the average number of collected eggs.

$$\frac{Total}{No\ of\ eggs} = \frac{145}{5} = 29eggs$$

(iv) Range

Range = highest – lowest

Range = 53 – 10 = 43 eggs

(v) Median

10 17 25 40 53

25

Ref

New Mk MathsBk 5 pg115

Remarks: .....

Lesson 5

Sub topic: bar graphs – interpretation

Content: pupils will study given bar graphs and answer the questions that follow

Evaluation activity

New mkmathsbk 5 page 116

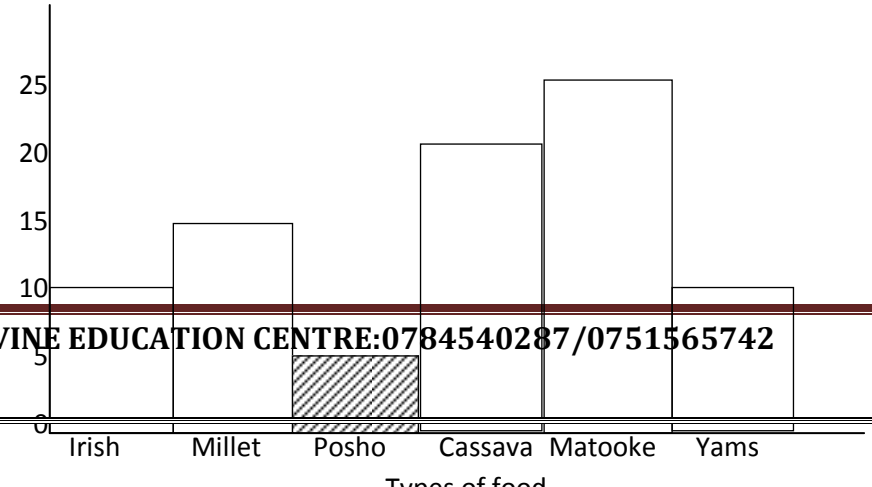
Curriculum pg 97-98

Lesson 6:

Sub topic: drawing bar graphs from tables

Content: pupils will use given tables and scale to draw bar graphs and answer questions that follow

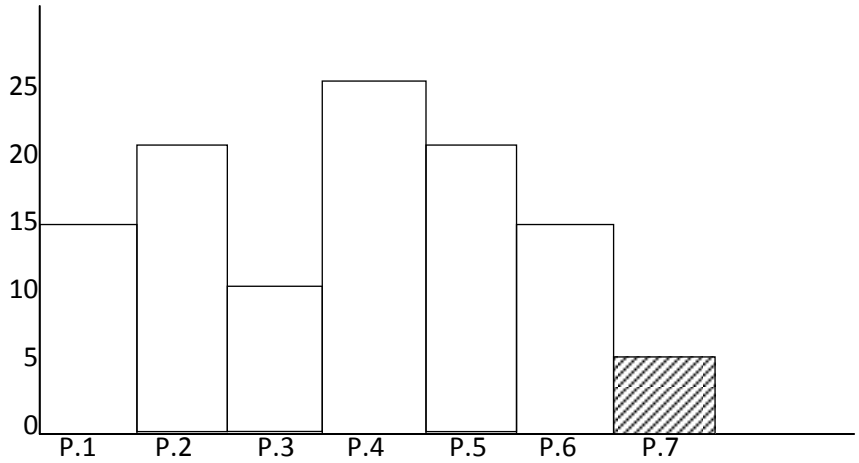
Number of pupils	10	15	5	20	25	10
Types of food	Irish	Millet	Posho	Cassava	Matooke	Yams



Ref
New MK mathsbk 5 pg116-120
Remarks: .....

Lesson 7
Sub topic: recording information from a bar graph to a table
Content: pupils will study given bar graphs and record given information on a table

Class	P.1	P.2	P.3	P.4	P.5	P.6	P.7
Number of pupils	15	20	10	25	20	15	5



Ref
New Mk MathsBk 5 Pg 116-120
Teacher guides pupils through example on page 230 and evaluate them
Remarks:

Lesson 8
Sub topic: bar line graphs (interpretation)
Content: pupils will study given bar line graphs and answer the questions that follow
Evaluation activity
New Mk Bk 5 Pg124-127
Remarks: .....

Lesson 9
Sub topic: drawing bar line graphs

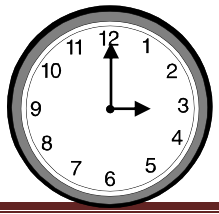
Content: pupils will study given tables and use information to draw bar line graphs
Evaluation activity
Teacher's guidance (do as in bar graph) as in lesson 6 and 7
New Mk Mathsbk 5pg 121-123 exercise 8:16
Remarks

TOPIC: TIME

Lesson 1

Sub topic: telling time using am and pm (12hour clock system)
Content:
Example
What is the time in

(a) The morning 3.00am
(b) The afternoon 3.00pm



Ref
New MK maths bk5 pg129-133
Curriculum pg 98-99
Remarks:.....

Lesson 2
Sub topic: Addition and subtraction of time
Content:
Examples

Add hrs	min	side work	
6	25	25	65 = 1.05
+2	40	40	60
9	05	65	

Subtract	hr	min		
	34	10	60 + 10 =	70
	- 22	55		- 55
	11	15		15

11hours and 15mins

Ref
Tr's collection
Understanding mtcpg 228-229

Lesson 3
Sub topic: finding duration of time
Content
Mugole started walking from home at 7.15am and reached town at 9:15am. How long did it take him?

Reached	9	15am
Started	-7	15am
He took	2	00

Namata started crying at 7.15am and stopped at 8.00am. How long did it take her?

8	00am	60

-7 15am -15
:45 45 She took 45 minutes

Ref
New mkmaths bk5 pg136
Old mkmaths bk5 pg 219
Remarks:.....

Lesson 4
Sub topic: finding distance
Content:
Example
Find the distance a driver covers in 2hours at a speed of 90km/hr
Distance = speed x time
Distance = 90km/hr x 2hrs
Distance = 180km

Ref
New MK maths bk5 pg138-139
Remarks:.....

Lesson 5
Sub topic: finding time
Content: time = distance
Speed

Example
Calculate the time taken by a car travelling at 60km/hr to cover a distance of 480km

$$T = \frac{D}{S} = \frac{480km}{\frac{60km}{hr}} = 8hrs$$

Ref
New MK maths bk5 pg140
Remarks:.....

Lesson 6
Sub topic: finding speed

Content

Example

What is the average speed of a cyclist travelling a distance of 150km in 3hours?

$S = \frac{D}{T} = \frac{150km}{3hrs} = 50km/hr$

Ref

New MK maths bk5 pg141

Remarks:

Topical breakdown

Theme	Topic	Sub-topic	Duration	Learning outcome
Measurements	Money	• Recognition of money • Simple rates • Buying and selling (shopping bill) • Table • Listing • Find profits and losses • Cost price and selling price	1 ½	The learner is able to solve practical problems related to utilization of Ugandan currency in everyday life.
	Length, Mass, Capacity	• Conversion of length into cm/ km to ma and vice versa. • Calculating perimeter and area of figures i.e. squares, triangles and rectangles only. • Perimeter of a square, triangle and rectangle • Conversion of mass; kg to grams and vice versa. • Solving mathematical problems involving mass. (addition and subtraction) • Conversion of units in capacity. • Solving problems in measurement of capacity. • Addition and subtraction of capacity.	2 ½ weeks	The learner is able to recognize and use standard instruments and units for measuring length, mass and capacity.
Numeracy	Integers	• Drawing numberlines and identifying positive and negative integers • Arranging integers • Comparing integers using symbols ≤,≥ • Addition and subtraction of integers • Mathematical statements and interpreting numberlines. • Solving word problems involving integers.	2 weeks	The learner is able to solve mathematical problems and puzzles using the knowledge of integers.
	Algebra	• Forming algebraic expressions • Collecting like terms • Substitution • Solving equations by (subtracting , adding) • Word problems involving addition and subtraction. • Solving by dividing • Solving by multiplying • Word problems involving division and multiplication • Solving equations involving mixed equations. • Solving equations involving square roots	2 weeks	The learner is able to solve mathematical problems and puzzles using the knowledge of algebra.

		• Application of algebra in (perimeter, area and volume)		

TOPIC: MONEY

Lesson 1

Sub topic: money
Content: denominations
Types of money
Coins, e.g. 50, 100, 200, 500
Notes e.g. 1000, 2000, 5000, 10000, 20000, 50000

Examples
Peter had 3notes of 1000/= each. How much money did he have?
1 note = 1000/=
3 notes = (3 x 1000)/=
3notes = 3000/=

NB: do also calculations on a number of coins and notes of different denominations
REF
Teacher's collections

Lesson 2

Sub topic: buying and selling
Content: using price list
Example
1 book costs 200/= what is the cost of 5 similar books?
1book = 200/=
5books = (5 x 200)/=
5books = 1000/=

Ref
New MK mathsbk 5 pg143
Old Mk pp 222

Lesson 3

Sub topic: buying and selling
Content: more simple rates
Examples
Find the cost of 12 similar books
5books cost 1000/=
1bk costs $\frac{1000}{5}$
1bk = 200/=
12bks costs (200 x 12)
12bks costs 2400/=

Ref
New MK pg 239

Old MK pg 222

Lesson 4

Sub topic: shopping bills and change

Content:

Examples

Kiyaga had 10,000/= he bought 2kg of sugar at shs.1600 per kg, 3bars of sopa at 1000/= each bar, ½ kg of salt at 400/= @ kg

(a) How much did he spend altogether?

(b) How much did he spend altogether?

(c) What was his balance

10,000
- 6400
3600/=

Item	Method	Amount
2kg of sugar at 1600/= @	2 x 1600/=	3200/=
3bars of soap at 1000/=@	3 x 1000/=	3000/=
½ kg of salt at 400/=@	½ x 400/=	200/=
Total		6400/=

Ref

New mkmaths bk5 pg145-146

Old MK pg 223

Lesson 5

Sub topic: completing bill tables

Content:

Examples

A father gave the shopping list below to his children

Item	**Quantity**	**Unit cost**	**Total**
Blue band	½ kg	Shs. 4600 each kg	Shs.2300
Bread	.....loaves	Shs. 800 each loaf	Shs.2400
Tea leaves	¼ kg	Shs.....@kg	Shs.1500
Sugar	4kg	Shs.1800 @ kg	Shs.....
		Total	Shs.....

Complete the shopping bill

Show all the calculations and fill in later and add

Bread
800/= can buy 1 loaf
1/= buys 1/800 x 2400/=
2400/= buy 3 loaves

tea leaves
¼ kg cost 1500/=
1kg costs 1500 ÷ ¼
1kg cost 1500 x 4
= 6000/=

sugar
1kg cost 1800/=
4kg = 1800/=
x 4
7200/=

Ref
New mkmathsbk 5 pg145-146
Old MK pg 224
Remarks: .....

Lesson 6
Sub topic: transport fare
Content:
Example
A taxi driver charges shs5000 for a trip from Kampala to Jinja per person
How much will 7 people pay for the trip?
1person pays shs.5000/=
7 people pay = 5000 x 7
= 35000/=

Ref
New MK pg 243
Old Mk pg 225-226

Lesson 7
Content: profit and loss
Examples
Andrew bought a goat at 20,000/= and sold it at shs.25000/=. What profit did he make?
Profit = selling price – cost price
Profit = 25000 – 20000
Profit = 5000/=
Matovu bought a goat at 30,000/= and sold it at shs20000/= how much was his loss?
Loss = buying price – selling price
Loss = 30000 – 20000
Loss = 10000/=

Ref
New mkmaths bk5 pg147-149
Curriculum pg 100

Lesson 8
Sub topic: finding cost price using profit and selling price
Content:
Examples
Nambi sold a radio set at 50000/= she made a profit of 10000/=. What was his cost price?
Selling price = 50000/=
Profit = 10000

Cost price = selling price – profit
Cost price = 50000 – 10000
Cost price = 40000/=

Ref
New MK mathsbk 5 pg152

Lesson 9
Sub topic: finding cost price using loss
Content:
Examples
Oketch sold a goat at 15,000 and made a loss of 3000. How much did he buy the goat?
Selling price = 15000
Loss = 3000
Buying price = selling price + loss
Buying price = 15000 + 3000
Buying price = 18000/=
Ref
New mkmathsbk 5 pg151
Remarks:.....

Lesson 10
Sub topic: finding selling using profit and cost price
Content
Examples
A trader bought a shirt at 7500/= and sold it making a profit of shs.3500. what was his selling price?
Buying price shs.7500
Profit = 3500
Selling price = buying price + profit
Selling = 7500 + 3500
Selling price = 11000/=
Ref
New MK maths bk5 pg150-152
Remarks: .....

Lesson 11
Sub topic: finding selling price using loss
Content:
Examples
A pupil bought a ball at 15000/= and sold it at a loss of 3000/=. What was the selling price of the ball?
Buying price = 15000/=
Loss = 3000/=
Selling price = buying price – loss
Selling price = 15000 – 3000
Selling price = 12000/=

Ref
New MK mathsbk 5 pg150-152
Remarks:.....

Theme : MEASUREMENT

Topic: Length, Mass, Capacity

Sub topic: length (distance from one point to another



$\overline{AB} = 3cm$

Content
Estimate in cm and mm
Pupils will measure objects / lines in centimetres and milimetres and record the answers (group activity)

Ref
New MK mathsbk 5 151 and 152
Old MK pg 198
Remarks:

Lesson 2

Subtopic: conversion of metric units
Content: expressing cm to mm and vice versa
Examples
How many mm are 8cm
1cm = 10mm
8cm = (8 x 10)mm
8cm = 80mm
Convert 120mm to cm
10mm = 1cm

$1mm = \left(\frac{1}{10}\right)cm$

$120mm = \left(\frac{1}{10}x120\right)cm$

$120mm = 12cm$

Ref
New MK mathsbkpg 157
Remarks: .....

Lesson 3

Sub topic: conversion of metres to cm and vice versa
Content
Examples 1
Change 5m to cm

5m = 100cm
5m = (5 x 100)cm
5m = 500cm

Example 2: Express 1.5m to cm
1m = 100cm
$1.5m = \left(\frac{15}{10}x100\right)cm$
$1.5m = 150cm$

Example 3:
Change 200cm to m
100cm = 1m
1 cm=(1) m
100

$200cm\ \left(\frac{1}{100}x200\right)m$

200cm = 2m

Ref
New MK mathsbk 5 pg 157
Old Mk pp 198
Remarks:

Lesson 4
Sub topic: Addition of m and cm
Content
Examples
Add

a)	m	cm
	8	45
+	1	55

b)	M	cm
	2	73
+	3	13

Ref:
Understanding MTC bk 5 pg 144-145
Trs' collection

Lesson 5
Subtopic: Subtraction of m and cm
Content :
Examples: subtract

a)	M	cm
	4	93
-	2	22

b)	M	cm
	9	45
-	3	65

Ref:
Understanding mtcbk 5 pg 142-146

Lesson 6
Sub topic: expressing km to m
Content
Example
Express 2km as metres
1km = 1000m
2km = (2 x 1000)m
2km = 2000m

Change 15km to m
1km = 1000m
15km = (15 x 1000)m
15km = 15000m

Convert 0.5km to m
1km = 1000m
$0.5km = \left(\frac{5}{10} x 1000\right) m$
= 5 x 100m
= 500m

Ref
New mkmathsbk 5 pg158 / Old Mk pp 199

Lesson 7
Sub topic: converting metres to km
Content:
Examples
Change 5000m to km
1000m = 1km

$1m = \frac{1}{10} km$

$5000m = \frac{1}{1000} kmx5000$

$5000m = 5km$

Change 16500m to km

$1m = \frac{1}{1000} km$

$16500m = \left(\frac{1}{1000} x16500\right) km$

$16500m = \left(\frac{165}{10}\right) km$

$16500m = 16.5km$

Ref
New mkmathsbk 5 pg 156
Old MK pp 199
Remarks:

Lesson 8
Sub topic: comparing units of measures
Content: using>, < or =
Examples
60mm____20cm
1cm = 10mm
20cm = (20 x 10)mm
20cm = 200mm
60mm < 200mm
60mm < 20cm

Do comparison examples with m and cm and vice vasa, km and m and vice vasa

Ref
New Mk MathsBk 5 Pg 156

Lesson 9
Sub topic: perimeter
Content: finding perimeter of polygons
Regular figures are polygons with all sides equal
Perimeter is the distance around the figure

Example

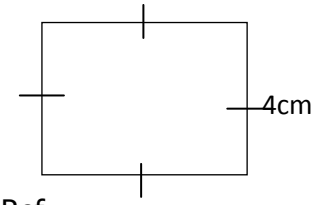
Find the perimeter of the equilateral triangle below



P = s + s + s
P = 5 + 5 + 5
P = 15cm

Do examples of squares, pentagon, octagons, heptagons etc

Square



P = s + s + s + s
P = 4 + 4 + 4 + 4
P = 8cm + 8cm
P = 16cm

Ref

New Mk mathsbk 5 pg159-161

Old edition Mk pp 203-204

Curriculum pg 101-102

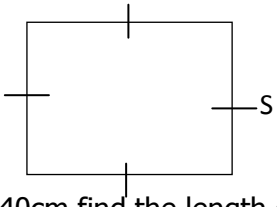
Lesson 10:

Sub topic: finding sides using perimeter

Content:

The perimeter of a square is 12cm. what is the length of each side?

A square has 4sides



$\frac{4s}{4} = \frac{12}{4} cm$

$s = 3cm$

Each side = 3cm

The perimeter of a square is 40cm find the length of each side

A square has four sides

P = s + s + s + s

P = 4s

$\frac{40cm}{4} = \frac{4s}{4}$

$10cm = s$

S = 10cm

The perimeter of a regular pentagon is 20cm. how long is one of its sides?

A pentagon has 5 sides

P = s + s + s + s + s

$\frac{20cm}{5} = \frac{5s}{5}$

4cm = s

One side = 4cm

Ref

Old MK pp 205-206

New MK pp 284

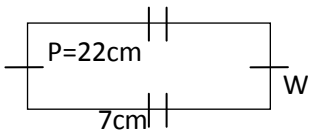
Lesson 11

Sub topic: finding one side of a rectangle using perimeter

Content:

Examples

The perimeter of a rectangle is 22cm and its length is 7cm find its width.

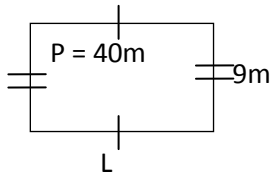


P= 2(L + W) 22 – 14 = 14 – 14 + 2W

22=2(7 + W) 8 = 0 + 2W

22 = 14+2w $\frac{8}{2} = \frac{2W}{2} = 4cm$

The perimeter of a rectangle is 40m if its width is 9m find its length



P = L + W + L + W 40 – 18 = 2L + 18 - 18

40 = L + 9 + L + 9 22 = 2L + 0

40 = L + L + 9 + 9 $\frac{22}{2} = \frac{2L}{2} = 11m$

40 = 2L + 18

Ref

New MK pg 284

Old Mk pg 205-206

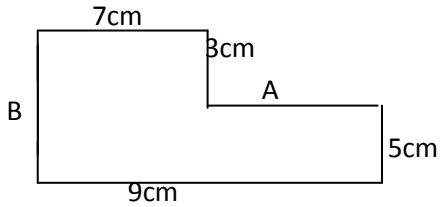
Remarks: .....

Lesson 12

Sub topic: perimeter of irregular shapes

Content:

Examples



Find the missing sides

Side A

A = (9 – 7)cm

A = 2cm

Side B

B = 5cm + 3cm

B = 8cm

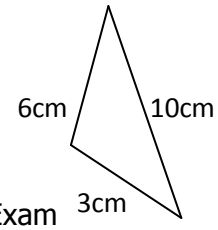
Find the perimeter of the figure

P = S + S + S +S + S + S

P = 7cm + 3cm + 2cm + 5cm + 9cm + 8cm

P = 34cm

Find the perimeter of the scalene triangle below



P = S + S + S

P = 6cm + 3cm + 10cm

P = 19cm

Exam

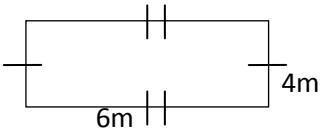
Consider

Trapezium

Pentagons
Hexagons

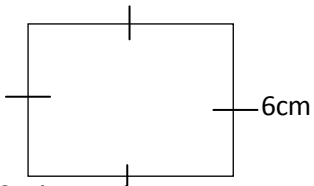
Ref
Teacher's collections and refer to Bk 4

Lesson 13
Sub topic: area of a rectangle
Content
Example
Find the area of the rectangle below
A = L x W
A = 6m x 4m
A = 24m^2.



The area of a rectangle is 40dm^2 and its width is 8dm. find the length
L x W = 40dm^2
8 x L = 40dm^2
$\frac{8xL}{8} = \frac{40dm^2}{8} = 5dm^2$
Ref
Exercise 11:7 pg162-163 Mk new edition / Exercise 8h pg 208 old edition

Lesson 14
Sub topic: area of a square
Find the area of a square



A = S x S
A = 6 x 6
A = 36cm^2.
The area of a square is 36cm^2 find its sides
S x S = A
S^2 = A
$\sqrt{S^2} = \sqrt{36cm^2} = 6cm$

Ref
New Mk mathsBk 5 pg 160 7.9 and pg 281 exercise 12.17
Old MK pg 207

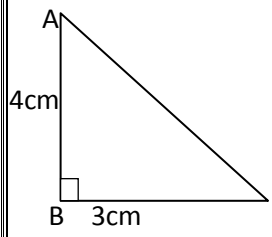
Lesson 15

Sub topic: area of a triangle

Content:

Examples

Find the area of the triangles below

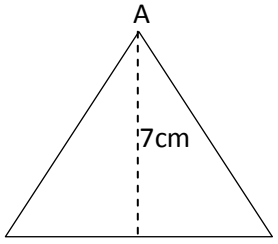


$A = \frac{1}{2}\ x\ b\ x\ h$

$A = \frac{1}{2}\ x\ 3cm\ x\ 4cm$

$A = 3cm\ x\ 2cm$

$A = 6cm^2$

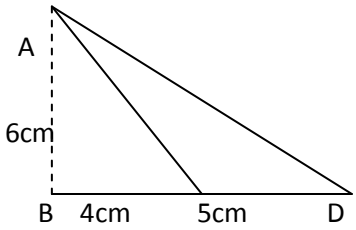


$A = \frac{1}{2}\ x\ b\ x\ h$

$A = \frac{1}{2}\ x\ 10cm\ x\ 7cm$

$A = 5cm\ x\ 7cm$

$A = 35cm^2$



$A = \frac{1}{2}x\ b\ x\ h$

$A = \frac{1}{2}\ x\ 9cmx6cm$

$A = 9cm\ x\ 3cm$

$A = 27cm^2$

Ref

New MK maths bk5 pg164

Old mk bk5 page 209-210

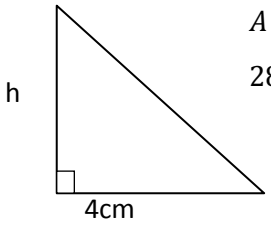
Lesson 16

Sub topic: word problems involving area of triangles

Content:

Examples

The base of a triangle is 4cm and its area is 28cm^2. Find its height



$A = \frac{1}{2}xbxh$

$28cm = \frac{1}{2}x4cmxh$

$\frac{28}{2} = \frac{2h}{2} = 14$

Re

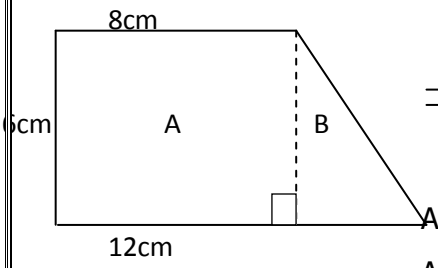
New mk math bk5 pg 163

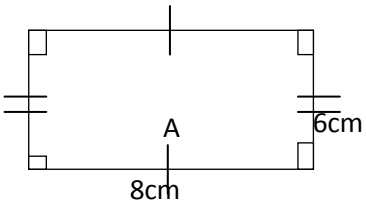
Lesson 17

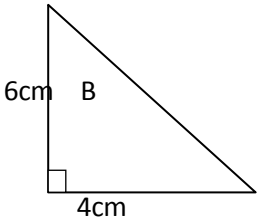
Sub topic: area of combined figures

Content:

Find the area of the figures below







A = L x W

A = 8cm x 6cm

A = 48cm^2

Total area = 48cm^2 + 12cm^2

Total area = 60cm^2

$A = \frac{1}{2} xbxh$

$A = \frac{1}{2} x4x3$

$A = 4cmx3cm$

$A = 12cm^2$

Ref

New mkmaths bk5 pg 164-165

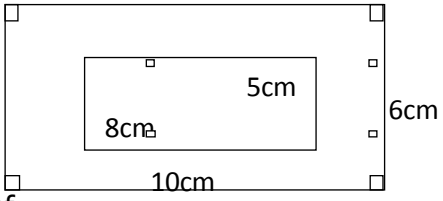
Old Mk pp 210-211

Lesson 18

Sub topic: area of shaded and unshaded regions

Content

Examples



Area of big rectangle – area of small rectangle

= (L x W) – (L x W)

= (10x 6)cm^2 – (8 x 5)cm^2

= 60cm^2 – 40cm^2

=20cm^2

Ref

Old mkmaths bk5 pg 212 to 213 exercise 8k

New MK pp 166-167

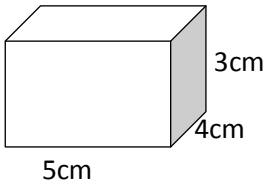
Lesson 19

Sub topic: volume

Content: definition (volume) amount of space inside a container, cubes and cuboids

Examples

Find the volume of the cuboid



Volume

V = L x W x H

V = (5 x 4 x 3)cm^3

V = 60cm^3

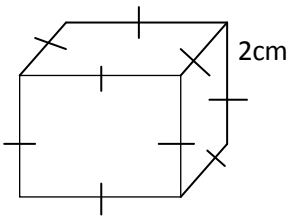
shaded area

A = L x W

A= (4 x 3)cm^2

A = 12cm^2

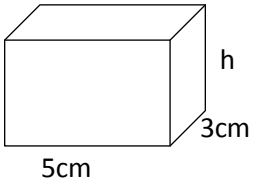
Find the volume of the cube below



$V = S \times S \times S$
$V = 2 \times 2 \times 2$
$V = 8cm^3$

Ref
New MK pp 168-171
Trs' collection

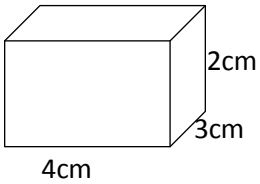
Lesson 20
Sub topic: application of volume
Content:
Examples
Find the missing side of the cuboid given the volume = $50cm^3$.



$V = L \times W \times h$
$60cm^3 = 5cm \times 3cm \times h$
$\frac{60cm^3}{15} = \frac{15cm^2h}{15cm^2}$
$4cm = h$

Ref
New mk bk5 pg 287 exercise 12.22

Lesson 21
Sub topic: total surface area
Content:
Example
A cuboid has faces



$TSA = 2(L \times W) + 2(L \times h) + 2(h \times W)$
$TSA = 2(4 \times 3) + 2(4 \times 2) + 2(2 \times 3)$
$TSA = 2 \times 12cm^2 + 2 \times 8cm^2 + 2 \times 6cm^2$
$TSA = 24cm^2 + 16cm^2 + 12cm^2$
$TSA = 52cm^2$

Ref
Teacher's collection

Lesson 22
Sub topic: capacity
Content: measuring in litres and millilitres
$1L = 1000cm^3$ or 1000Ml
Examples
Express 5litres of water as
(a) Cubic centimetres (b) as millilitres

1L = $1000cm^3$
5L = $(5 \times 1000)cm^3$
5L = $5000cm^3$

1L = 1000ML
5L = (5 x 1000)ML
5L = 5000ML

Ref
New mkbk 5 page 168 exercise 11:12

Lesson 23
Sub topic: comparing metric units
Content: comparing length to weight to capacity
Example

Place value	Kilo	Hector	Deca	Basic	Deci	Centi	Milli
Meaning	1000m	100m	10m	Metre gram litre	$^1/_{10}$of m	$^1/_{100}$ x m	$^1/_{1000}$ x m

Change 3000ML to Litres
1000ML = 1L
$3000ML = \frac{3000}{1000}L$
3000ML = 3Litres

change 3litres to ML
1L = 1000ML
3L = (3 x 1000)ML
3L = 3000ML

Ref
New mk math bk5 pg 263 exercise 11.25
New mk math bk 5 page 263 exercise 11:24

MASS
Lesson 24
Sub topic: expressing grams to kilograms vice versa
Content:
Examples
Change 4000gm to kg
1000g = 1kg
$4000g = \left(\frac{4000}{1000}\right)kg$
4000g = 4kg

Example 2
Change 3kg to g
1kg = 1000g
3kg = (3x1000)g
3kg = 3000g
Ref
New mkmaths bk5 pg 262 exercise 11.23

Lesson 25

Subtopic: Addition of kg and g

Content

Example 1

a)	kg	g
	5	456
+	2	204

b)	kg	g
	4	596
+	2	405

Ref:

New Mk pp 263

Tr's collection

Subtopic: Subtraction of kg and g

Example

a)	kg	g
	8	765
+	3	273

b)	kg	g
	9	576
+	3	623

Ref:

Tr's collection

Theme: INTEGERS

Lesson 1

Sub topic: Definition

Content:

Integers are numbers represented using a numberline.

(a) Integers – positive and negative numbers including a zero on a numberline.

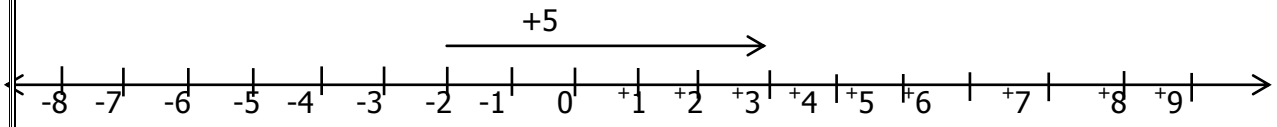
(b) Identifying positive integers

Positive integers have an arrowhead pointing to the right.

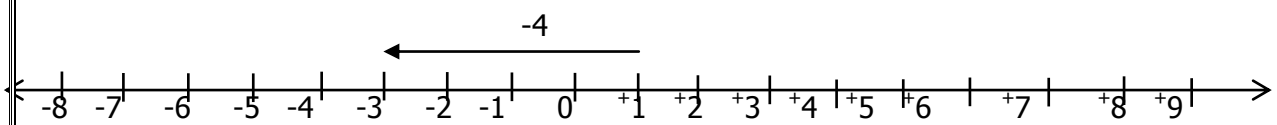
Negative integers have an arrowhead pointing to the left.

Examples

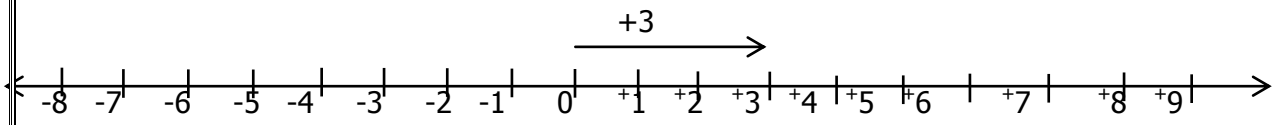
i)



ii)



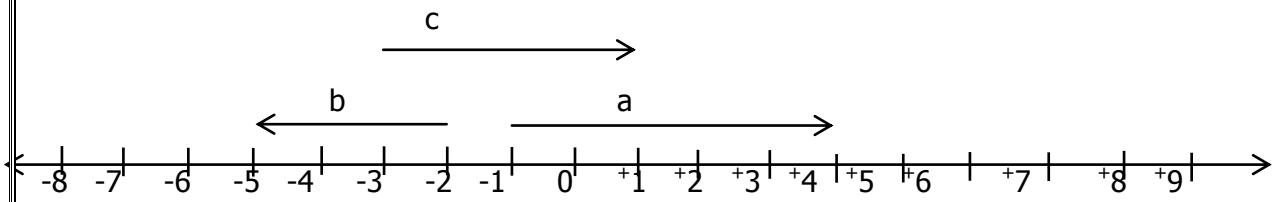
Example: show +3 on a number line



Ref
Exercise 5: New MK mtc bk5 pg 83-84

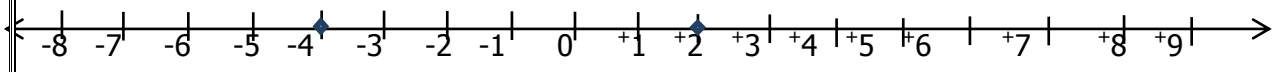
Lesson 2
Subtopic: Expressions using integers
Content
(a) A boy who got no marks in a test is represented by = 0.
(b) A profit of shs 300 - +300
(c) 3 metres below the ground = -3m
Ref
Exercise: Class discussion 3 page 96 New MK bk5
Exercise: Class discussion 2 page 158 old MK bk5
Teachers' collection

Lesson 3
Subtopic: Writing integers represented on a number line
Content:



a = +5 b = -3 c = +4
Ref
New Mk bk5 pg 85

Lesson 4
Subtopic: Comparing integers
Content: comparing integers
Examples: i) Which is smaller -4 or +2?



The one on the left side is always smaller.
∴-4 is smaller than +2

ii) Use >, <, = to complete

+3 > -3

Ref

Exercise 6:2 pg86 New MK mtc bk5

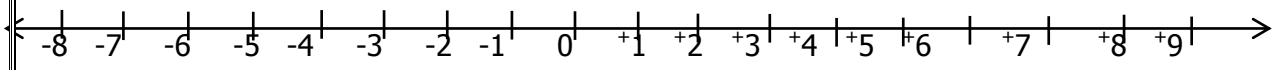
Exercise 6e pg 169 old Mtc bk5

Lesson 5

Subtopic: ordering integers

Content: In ascending and descending order

Examples: Arrange -3, +1, -2, 0 and 3 in ascending/ descending orders



{-3, -2, 0, +1, +3}: ascending order

{+3, +1, 0, -2, -3}: descending order

Ref:

Exercise 6:4pg85-86

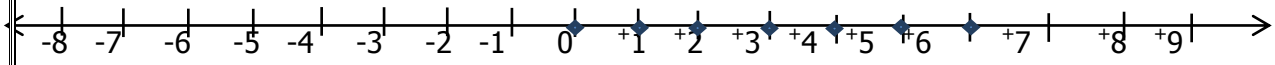
Exercise 6e pg 169 old mtc bk5

Lesson 6

Subtopic: solution sets

Content: Using >, <, ≥,≤

Y ≥ 0 (means Y are integers greater than or equal to 0)



Y = {0 +1, +2, +3, +4, +5, +6, ……..}

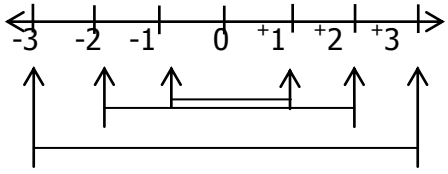
Ref

Exercise 5:3 pg99 New Mtc bk5

Lesson 7

Subtopic: Inverse of integers

Content: Pairs of inverse

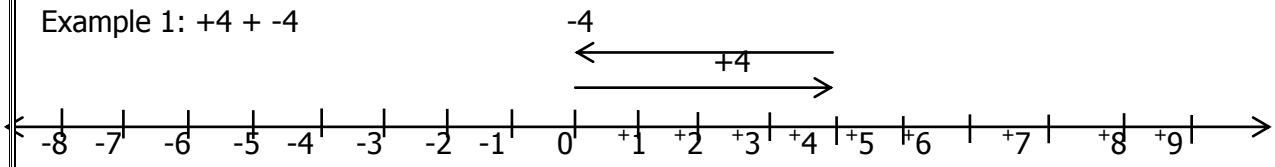


The inverse of -1 is +1

The inverse of +1 is -1

Additive inverse

Example 1: +4 + -4



Note: The additive inverse is a number which gives 0 when added to a number.

Example 2: Calculations

What is the additive inverse of +4:

Let the inverse be x

$x + 4 = 0$

$x + 4 - 4 = 0 - 4$

$x + 0 = -4$

$x = -4$

Ref

Exercise 5:4 and 5:5 pages 100 – 102 New MK mtc bk5

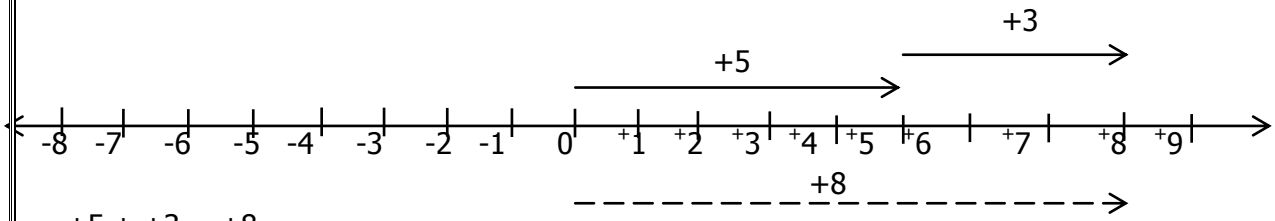
Teachers' collection: Use calculations to find the inverses of 1, -3, 2, +5, 3, -6, 4, x

Lesson 8 (a)

Subtopic: Addition of integers

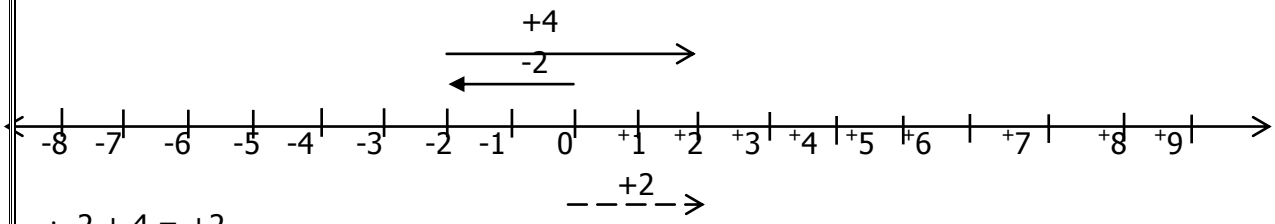
Content: Using a numberline

Example: Add +5 + +3



$\therefore +5 + +3 = +8$

Example 2



$\therefore -2 + 4 = +2$

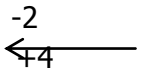
Ref

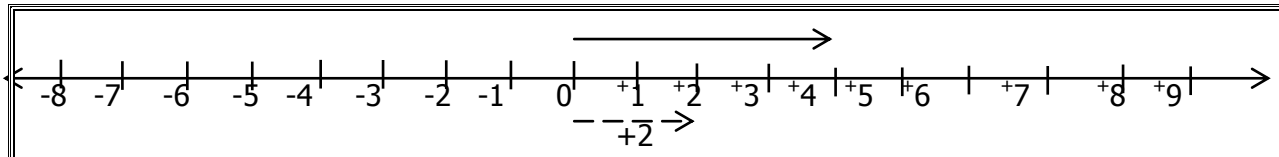
Exercise 5:6 and 5:7 and 5:8 pg 102 – 104 New MK mtc bk5

Exercise pg 96 OxfordpriMtc bk5 pg96

Lesson 8 (b) Addition of +ve and –ve integers on a number line.

Example: Add +4 + -2





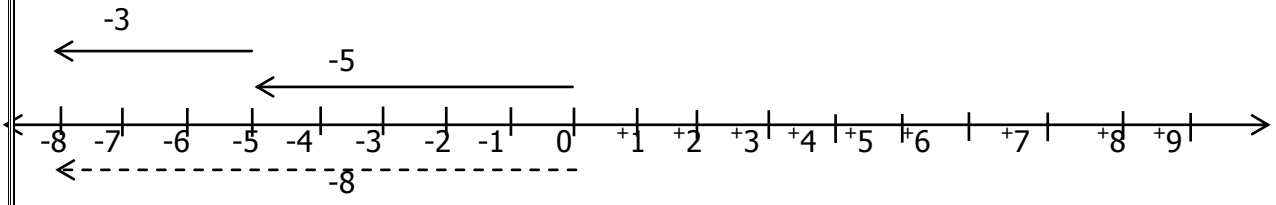
∴+4 + -2 = +2

Exercise 5:7 New Mk edition pg104

NB: Addition of –ve and +ve integers on a numberline

Lesson 8 (c)

Example: -5 + -3



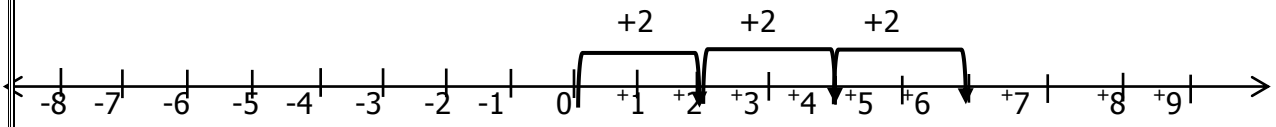
∴-5 + -3 = 8

Ref

New Mk (New edition) pg 104

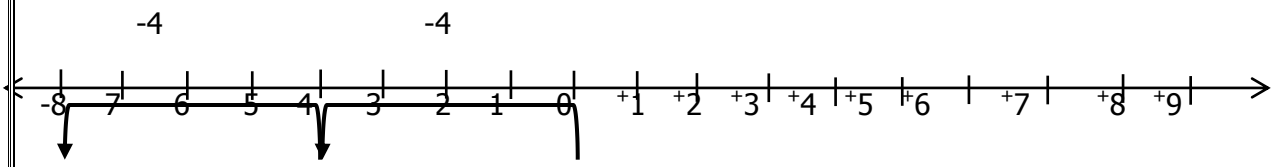
Lesson 8 (d) Multiplication of integers (repeated addition)

Example 3 x +2



∴3 x +2 = +6

2 x -4



∴ 2 x -4 = -8

Ref

Exercise 8 pg102 Oxford primary Mtc bk5

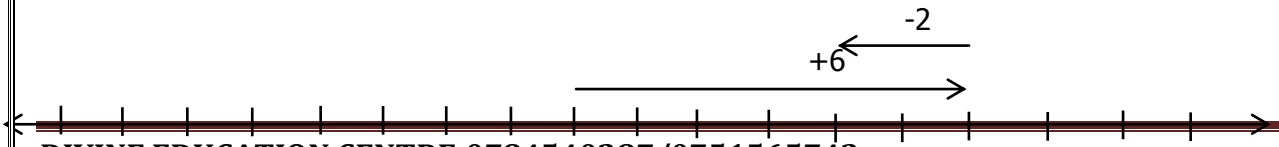
Trs' collection

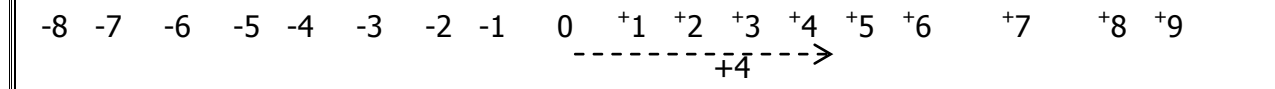
Subtraction of integers on a numberline

Lesson 9a: Positive and positive

Example: Subtract +6 - +2

= +6 – 2





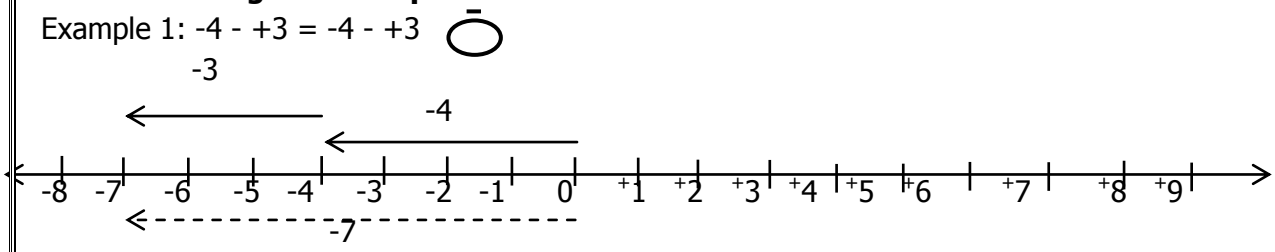
+6 - +2 = +4

Ref

Exercise 5:15 pg 105-108

Lesson 9b: Negative and positive

Example 1: -4 - +3 = -4 - +3



-4 - +3 = -7

Ref

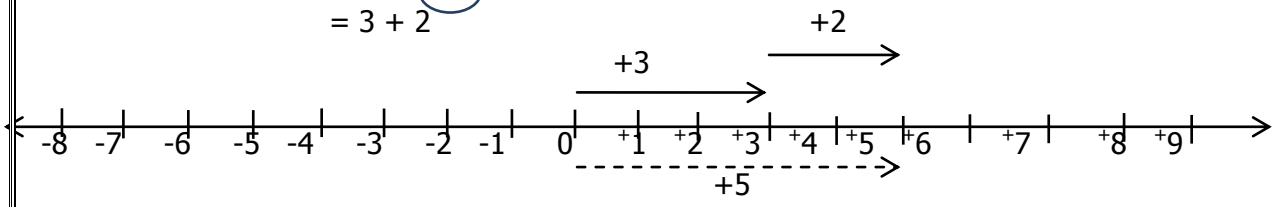
Exercise 5:9 and 5:10 pgs105 and 106 new Mtc bk5

Lesson 10a: More subtraction of integers

Content: Positive and negative

Example +3 - - 2 = +3 - - 2

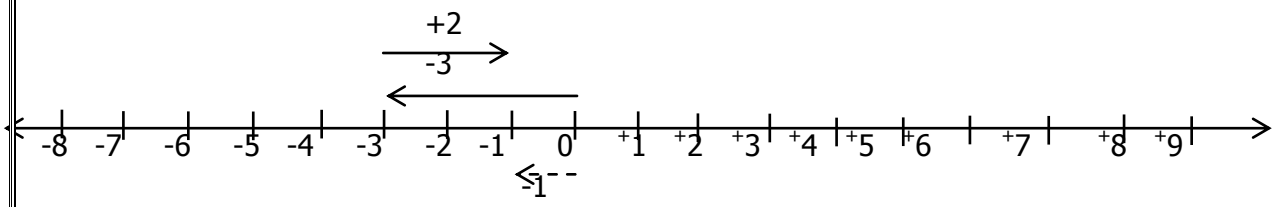
= 3 + 2



Lesson 10b: Negative and negative

Example: Subtract -3 - - 2 = -3 - - 2

= -3 + 2



∴-3 - - 2 = -1

Ref

Exercise 5:11 and 5:12 pg 107 – 108 New Mk bk5

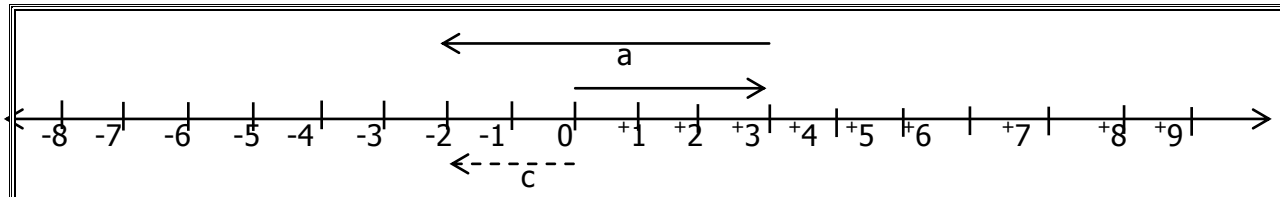
Lesson 11

Subtopic: Forming mathematical statements

Numberlines

Content: Write the mathematical statement shown on the numberline

b



a = +3, b = -5 and c -2
Statement: +3 + -5 = -2
Nb: Teach also situation when arrow starts from a –ve side and crosses zero to positive and vice versa
Ref
Exercise 5:13 pg109-110 New MK bk5
Exercise 6c pg106 old edition bk5

Lesson 12a
Subtopic: Addition of integers without using a numberline
Content: Addition
Note:
i) (+) + (+) = (+)
ii) (-) + (-) = (-)
iii) (-) + (+) = (-) if –ve figure is greater
iv) (-) + (+) = (+) if +ve figure is greater
Example
Simplify: +7 + -3
= +7 -3
= +4
(b) -3 + -4 = -3 + -4
= -7
(d) -7 + + 3
= -7 + 3
= -4
(e) +3 + +4
+3 + 4
= +7
Ref: 5:15 pg111 New Mk bk5

Lesson 12b
Subtopic: Subtraction of integers without using a numberline
Content note
i) (+) - (+) = (-) if the 2nd figure is greater
ii) (+) - (+) = (+) if the 2nd figure is greater
iii) (-) - (-) = (+) if the 2nd figure is greater
iv) (-) - (+) = (-)
Examples
a) i) +3 - +7 = 3 – 7 = -4 ii) +7 - +3 = 7 – 3 = +4
b) i) -3 - -7 = -3 + 7 = +4 ii) -7 - -3 = -7 + 3 = -4
c) i) -3 - +7 = -3 – 7 = -10 ii) -7 - +3 = -7 – 3 = -10
d) i) +7 - -3 = +7 +3 = +10 ii) +3 - -7 = +3 +7 = +10

Ref: Exercise 5:15 pg112 new MK bk5

ALGEBRA

Lesson 1

Sub topic: forming algebraic expressions

Content

Example

1. 4 boys visited my home and later other 2 boys. Later 5 of them left. Form an algebraic equation and simplify it
   2 boys + 4 boys – 5 boys
   2b + 4b – 5b
   6b – 5b
   = b
2. A number multiplied by 3 gives 15 let the number be represented by x
   3x = 15

Ref

New MK pp 267-270

Lesson 2

Sub topic: simplifying algebraic expressions

Content

Examples

Write in short

q+ 7q + 4q = 12q 4b + 3b – t = 7b-t 10x – 3x + x

10x + x – 3x

11x – 3x = 8x

Ref: New MK pp 268

Lesson 3

Sub topic: collecting like terms and simplifying

Content:

Example : collect like terms and simplify

4b – 3b + 3t + t 7y – 8m + y + 10m – 6

4b – 3b + 3t + t 7y + y + 10m – 8m – 6

B + 4t 8y + 2m – 6

Ref

New mkbk 5 pg 269 exercise 12.4

Old Mk pp 174-175

Remarks: .....

Lesson 4

Sub topic: substitution

Example

If a = 1, b = 3 , c = 5

Find the value of 5c + 4b – 8a

(5 x 5) + (4 x 3) – (8 – 1)
25 + 12 – 8
37 – 8
29

find the value of $\frac{2b}{a+c} = \frac{2xb}{a+c} = \frac{2x3}{1+5} = \frac{6}{6} = 1$

abc = a x b x c
abc = 1 x 3 x 5
abc = 3 x 5
abc = 15

Ref
Exercise 12.6 pg 271 new mk bk5 new edition
MK old edition bk5 pp 177

Lesson 5

Sub topic: solving equations by subtracting
Content
Example

(i) Find the value of a

16 + a = 20
16 – 16 + a = 20 – 6
0 + a = 4
a= 4

(ii) There are 50 pupils in a class 30 are boys. How many girls are there?

Let the number of girls be g
Boys + girls = 50
30 + g = 50
30 – 30 + g = 50 – 30
0 + g = 20
G = 20

Ref
New Mk Bk 5 Pg273 exercise 12.8
Old MK pp 179

Lesson 7

Sub topic: solving equations by adding
Content
Example

(1) Solve n – 5 = 3

N – 5 + 5 = 3 + 5
N – 0 = 8
N = 8

(2) A boy used 3 of his exercise books and remained with 4 books

How many books did he have at first?
B – 3 = 4
B – 3 + 3 = 4 + 3
B – 0 = 7
B = 7
He had 7 books

Ref
New mk bk5 pg 275 exercise 12.10
Old MK pp 180
Remarks: .....

Lesson 8
Sub topic: solving equations by dividing
Content
Example

(1) Solve 5a = 20

$\frac{5a}{5} = \frac{20}{5} = 4$

(2) The length of a rectangle is 9cm. the width is Ycm. If its area is $72cm^2$ find its width.

L x W = area

9cm x y = $72cm^2 \frac{9cmY}{9cm} = \frac{72cm^2}{9cm}$

Y = 8cm

Ref
New Mk Bk5 Pg276 exercise 12.11, 12.12
Old Mk pp 181
Remarks: .....

Lesson 10
Sub topic: more equations involving dividing
Content

Solve x + x + x = 24

3x = 24

$\frac{3x}{3} = \frac{24}{3}$

X = 8

solve 2p + 5p = 14

7p = 14

$\frac{7p}{7} = \frac{14}{7}$

p = 2

Ref
New mk bk5 pg 277 exercise 12.13
Old MK pp 182-183
Remarks: .....

Lesson 11
Sub topic: solving equations involving mixed operations

Content
Example
Solve

(a) $4a + 2a + 5 = 23$

$6a + 5 - 5 = 23 - 5$

$6a + 0 = 18$

$\frac{6a}{6} = \frac{18}{6}$

$a = 3$

(b) $2x + 5 = 17$

$2x + 0 = 17 - 5$

$2x + 0 = 12$

$\frac{2x}{2} = \frac{12}{2}$

$x = 6$

Ref
Newmk bk5 pg 278 exercise 12.14

Lesson 12

Sub topic: equations involving squares
Content: Applying square roots
Example
Solve $b^2 = 4$

$\sqrt{b^2} = \sqrt{4}$

$\sqrt{bxb} = \sqrt{2x2}$

B = 2

Ref
New mkbk 5 pg 280 exercise 12.16
Old MK pp 187
Remarks: .....

Lesson 13:

Sub topic: equations with fractions
Content:
Example

(1) What number when divided by 4 gives 3?

Let the number be x

$\frac{x}{3} = 4$

$\frac{x}{3} = 4x3$

X = 4 x 3

X = 12

(2) A man divided his money among his three children and each got 450/=. How much money did he give out?

Let the amount of money be represented by m

$\frac{m}{3} = 450 \neq$

$3x\frac{m}{3} = 450x3$

$m = 1350 \neq$

Ref
New MK pp 282-283

Lesson 16

Sub topic: equations involving two fractions
Content:
Example (involving use of LCM)
Find the value of the unknown

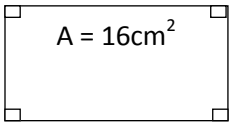
$\frac{3}{5} = \frac{a}{10} \quad LCM = 10$
$\frac{3}{5}x10 = \frac{a}{10}x10$
$3x2 = a$
$a = 6$

$\frac{8}{n} = \frac{1}{2} \quad LCM = 2n$
$\frac{8}{n}x2n = \frac{1}{2}x2n$
$8x2 = n$
$n = 16$

Ref
Exercise 7q pg 185 old mk edition bk5
Remarks: .....

Lesson 17

Sub topic: application of square roots in algebra
Content
Example (Word problems)
The area of a square is 16cm^2. Find its side



$sxs = 16cm^2$
$s^2 = 16cm^2$
$\sqrt{s^2} = \sqrt{16cm}$
$s = \sqrt{2x2x2x2}$
$s = 2x2cm$
$s = 4cm$

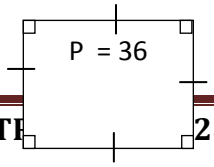
2	16
2	8
2	4
2	2
	1

Ref
Exercise 12.17 pg 281 new edition mkbk 5
Exercise 7x pg 191 old edition mk bk65
Remarks: .....

Lesson 18

Sub topic: application of algebra (perimeter)
Content
Find the unknown side of a figure when perimeter is given

Example
The perimeter of a square is 36cm find its side in cm
Let side be s
s + s + s + s = 36cm
4s = 36cm

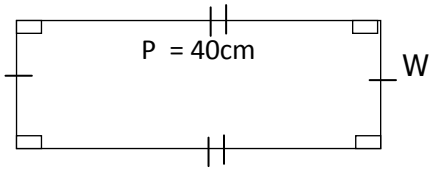


$\frac{4s}{4} = \frac{36}{4}$

$s = 9cm$

The perimeter of a rectangle is 4cm. if its length is 15cm. calculate its width

Let the width be represented by w



2(L x W) = P

2(15cm + W) = 40cm

(2 x 15cm) + (2 + W) = 40cm

30cm + 2W = 40

30 – 30 + 2W = 40 - 30cm

0 + 2W = 10cm

2W = 10cm

2 2

W = 5

Ref

Exercise 12.20 page 284 / 285 New Edition Mk Bk 5

Exercise 7z (ii) page 195 old edition mk bk5

Lesson 19

Sub topic: finding unknown side when given area (rectangle)

Content: rectangle

A long the length

3x = 15cm (opposite sides of rectangle are equal)

3x = 15cm

3 3

X = 5cm

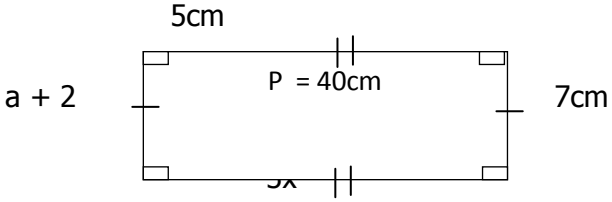
Along the width

A + 2 = 7cm (2 opposite sides of a rectangle are equal)

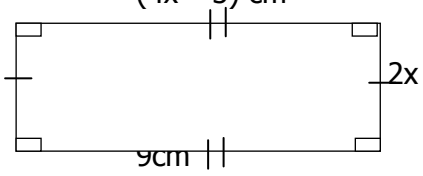
A + 2 – 2 = 7 – 5

A + 0 = 5

A = 5cm



Find (i) x (ii) length



Ref

Teacher's collections

Lesson 20

Sub topic: finding unknown sides when given area

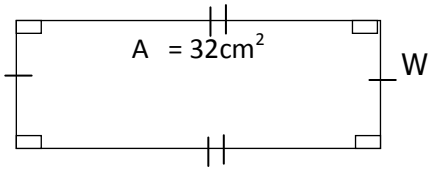
Content

Example

The area of a rectangle is $32cm^2$ its length is 8cm. what is its width?
Let the width be represented by w
L x w = area
8cm x w = $32cm^2$

$\frac{8cmW}{8cm} = \frac{32cm}{8cm}$

W = 4cm

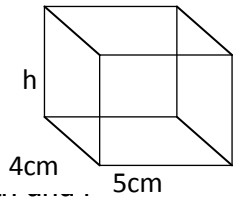


Ref
Exercise 12.21 pg 286 new edition mk bk5

Lesson 21
Sub topic: finding unknown sides of cuboids when given volume
Content: example
The volume of a box is $60cm^3$. Its length is 5cm and width is 4cm. find its height
Let h be height
L x W x h = volume
5cm x 4cm x h = $60cm^3$

$\frac{20cm^2h}{20cm^2} = \frac{60cm^3}{20cm^2}$

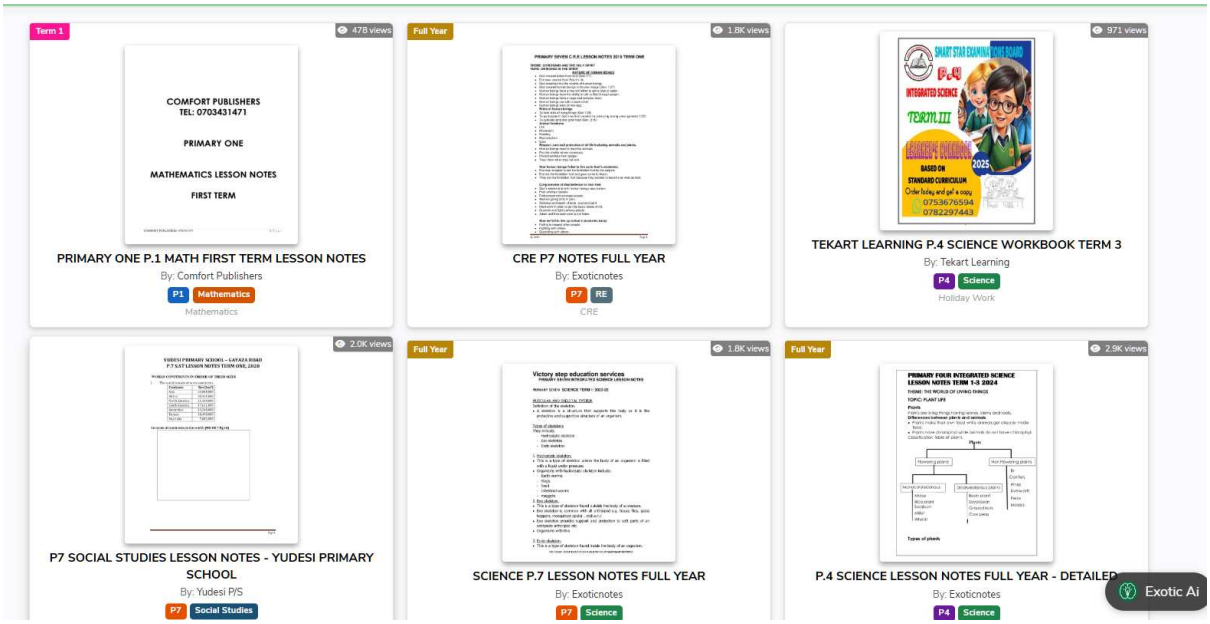
H = 3cm



NB: do the same for unknown wid[illegible]
Ref
Exercise 12.22 pg 287 new edition MK bk 5
Exercise 7z (iii) pg 196 old edition MK bk 5

END OF P.5 WORK

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