TOPIC ONE:

TOPIC: SET CONCEPTS

LESSON 1:
SUB TOPIC: REVIEW OF SETS

CONTENT: Regions/describing points of venn diagram

EVALUATION ACTIVITY:
MK New Edition BK 7 Pg 5 and Pgs 12 – 13

LESSON 2:

SUB TOPIC: LISTING ELEMENTS

CONTENT: Given the venn diagram below:

List members of the following using the above venn diagram:
(i) Set B
(ii) Set A'
(iii) (BnA)
(iv) (AuB)
(v) A-B

EVALUATION ACTIVITY:
Mathematics Revision Hand Book Primary 5, 6, & 7 Pg 18 Exercise 1:2

LESSON 3:
SUB TOPIC: REPRESENTING SETS ON VENN DIAGRAMS

CONTENT:

Example:

If \( P = \{\text{Factors of 24}\} \)
\( Q= \{\text{Multiples of 4 less than 25}\} \)

(i) List elements of: 
\( P = \{1, 2, 3, 4, 5, 6, 8, 12, 24\} \)
\( Q = \{4, 8, 12, 16, 20, 24\} \)

(ii) Represent the above sets on a venn diagram below:

(iii) What is: 
(a) \( P \cap Q \) 
(b) \( P \cup Q \)

EVALUATION ACTIVITY:

1. Given that set  
   \( A = \{\text{Even numbers less than 15}\} \)
   \( B = \{\text{Composite numbers less than 15}\} \)
   (a) List down the members of the above sets.
   (b) Represent the above sets on a venn diagram

2. Given that \( \mathcal{E} = \{\text{whole numbers less than 15}\} \)
   Set \( P = \{4, 6, 14, 8, 0, 12, 3, 7\} \)
   Set \( Q = \{1, 3, 5, 7, 9, 11, 13\} \)
   Write down the numbers of \( P \cap Q \)
   Represent the above sets on a venn diagram

LESSON 5:

SUB TOPIC: SOLVING PROBLEMS USING VENN DIAGRAMS

CONTENT:

Given that \( n(A) = 30, n(B) = 25 \) and \( n(A \cup B) = 45 \).

(a) Draw a venn diagram to show the above information.

(b) Find \( n(AnB) \)
   Let the number in \( AnB \) be \( r \).
   \( 30 - r + r + 25 - r = 45 \)
   \( 30 + 25 + r - r = 45 \)
   \( 55 - r = 45 \)
   \( 55 - 55 = 45 - 55 \)

The diagram below shows the number of pupils who eat apples (A) and beans (B). Use it to answer questions that follow:

(i) How many pupils eat both apples and beans?
(ii) How many pupils eat beans \( n(B) = 6 + 8 = 14 \)
(iii) How many pupils eat apples?
(iv) How many pupils eat only one type of food?
(v) Find the number of pupils in the whole class.
- r = -10
- r = -10
- 1 - 1
R = 10

(ii) A only
Probability of elements in the intersection.

EVALUATION ACTIVITY:
A New MK Primary Maths ppls Bk 7 Pg 10 – 11 exercise 1:7
Remarks:
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

LESSON 6:
SUB TOPIC: SUBSETS
CONTENT:
Meaning of subsets
Symbol used on subsets
Subsets on venn diagram

Formation of subsets:
If set x = {1, 2, 3} List all the subsets of set x.
{1}, {2}, {3}, {1,2}, {1,3}, {2,3}, {1,2,3}
List all the proper subsets of R where R = \{-3<n<+1\} where n is an integer.
Solution:
R = \{-2, -1, 0\}
Proper subsets: \{\}, \{-2\}, \{-1\}, \{0\}, \{-2,-1\}, \{-2,0\}, \{-1, 0\}
Calculation of the number of subsets.
Example: Find the number of set Q where Q = \{4, 2, 9\}
Number of subsets = n² where n = number of elements in a set.
Number of subsets of set Q = 2ⁿ = 2³ = 2 x 2 x 2 = 8

EVALUATION ACTIVITY:
(a) If n(K) = 2, find number of subsets of K.
(b) Given that a set has 64 subsets. Find the number of members in that set.
(c) If M = \{d, e\} find the number of proper subsets in set m.
Remarks:
_____________________________________________________________________________
_____________________________________________________________________________

TOPICAL QUESTIONS ON SET CONCEPTS

1. Given that:
   Set P = \{1, 2, 3, 4, 5, 6, 7\}
   K = \{0, 2, 4, 8, 9, 10\}
   Find (i) PnK (ii) n(PUK)
   (iii) P - K (iv) K1 (v) (PnK)1

2. Draw a venn diagram to show that all dogs (D) are animals (A)
3. Given that Set A = \{all prime numbers less than 20\}  B = \{all factors of 16\}
4. (a) Describe the shaded regions for the following venn diagrams.

(b) Given that a set has 32 subsets. How many elements has it?
5. In a class of 30 pupils, 10 pupils like History (H) 14 like Geography (G) and 12 do not like either of the subjects.
   (i) Draw a venn diagram to represent this information.
   (ii) How many pupils like both subjects?
   (iii) How many pupils like History?
   (iv) How many pupils like one subject?
6. Seventy children were taken to a clinic for immunization, 45 children were immunized against Measles (M)
   X children were immunized against Polio (P)
   6 children were immunized against measles and Polio.
   1 child was not immunized at all.
   (a) Represent the information in the venn diagram
   (b) Find the number of children who were immunized against Polio only.
7. In a class of 40 pupils, 25 like English (E), 13 like Science (S) Y pupils like both English and Science and 8 do not like any of the 2 subjects.
4

(a) Complete the venn diagram.

\[ \xi = 40 \]

(b) Find the value of \( y \).

(c) What is the probability of picking a pupil who likes only one subject?

8. In a class of 20 pupils where two languages are spoken, 14 speak Luganda (L), 15 speak Kiswahili (K).
   (a) Draw a venn diagram and show the information given.
   (b) Find the number of pupils who speak both Luganda and Kiswahili.
   (c) Find the number of pupils who speak only one language.

9. Use the venn diagram below.

\[ n(P) = 7 \]
\[ n(B) = 11 \]
\[ n+2 \]
\[ n(\xi) = \_ \_ \_ \_ \]

(a) Find the value of

(i) \( h \)

(ii) Universal set

(iii) \( n(PnB) \)

10. In a class of 60 pupils, all enjoy eating beans, 33 enjoy eating meat (M), 35 enjoy eating fish (F), if \( P \) pupils enjoy all the three while 2 enjoy eating beans only.
   (a) Represent the information on a venn diagram.
   (b) Find the value of \( P \).
   (c) How many pupils enjoy only fish?

14. Given that Set \( X = \{a, d, c, d\} \) Find the number of:
   (i) Sub sets
   (ii) Proper subsets

TOPIC TWO: WHOLE NUMBERS

TOPIC: FORMING NUMERALS USING GIVEN DIGITS

CONTENT:
Using digits to form smallest and largest numbers.
Finding the sum of/difference between the smallest and largest numbers formed from the given digits.

Examples:

- Write down all 3-digit numerals that can be formed using the digits: 4, 6, 7
  Solution: (i) 476 (ii) 764 (iii) 467 (iv) 647, etc
- Find the difference between the smallest and highest numerals formed.
  Solution: Smallest = 467
  Largest/biggest numeral – 764
  Difference = 764
  - 467
  \[ 297 \]

EVALUATION ACTIVITY:
Exercise 2:1
Mathematics Revision Hand book for P.5, P.6 and P.7 Pg 40
A New Mk Book 5 Pg

Remarks:

LESSON 2: PLACE VALUES OF DIGITS IN NUMERALS

CONTENT: The place value chart
- Definition of place value.

<table>
<thead>
<tr>
<th>Million</th>
<th>Thousands</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>T</td>
<td>O</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

- Identify the place value of each digit in the number above both in word and in figure.
Values:
- Meaning of value
- Finding values of digits in a given numeral.
- Operations on values of digits.

Example: Find the value of 6 in the number

2602

2 6 0 2
LESSON 3:
SUB TOPIC: READING AND WRITING VALUE IN WORDS TO (100 MILLION)

CONTENT: Writing in words
Examples:
(i) Write 20,480 in words.

<table>
<thead>
<tr>
<th>Thousand</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>480</td>
</tr>
</tbody>
</table>

Twenty thousand four hundred eighty.

(ii) 60,808,040

<table>
<thead>
<tr>
<th>Million</th>
<th>Thousand</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>808</td>
<td>040</td>
</tr>
</tbody>
</table>

Sixty million, eight hundred eight thousand forty.

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Exercise 2:2 Pg 21 (New Edition)
Remarks:

LESSON 4:
SUB TOPIC: READING AND WRITING NUMERALS IN FIGURES

CONTENT: Examples:
Write in figures:
(i) Fifty seven million four hundred twenty one thousand nine hundred five.

Solution:
57 million = 57,000,000
421 thousand + 421,000
905
905

57,421,905

(ii) A quarter of a million
A million = 1,000,000
\[ \frac{1}{4} \text{ of } 1,000,000 = \frac{1}{4} \times 1,000,000 = 250,000 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematic Bk 7 Exercise 2:1 Pg 21 (New Edition)
Remarks:

LESSON 5:
SUB TOPIC: EXPANDED NOTATION
CONTENT: Expanding numerals using:
- Place values
- Values
- Powers of ten/exponents

Examples:

Expand: 5624 using:
Place values: 5624 = (5 x 1000) + (6 x 100) + (2 x 10) + (4 x 1)
Values: 5624 = 5000 + 600 + 20 + 4
Powers: 5624 = (5 x 10³) + (6 x 10²) + (2 x 10¹) + (4 x 10⁰)

<table>
<thead>
<tr>
<th>10³</th>
<th>10²</th>
<th>10¹</th>
<th>10⁰</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

EVALUATION ACTIVITY:
A New MK Primary Mathematic Bk 6 Pg 37 Exercise 2:4
Mathematics Revision Hand book P.5 – P.7 Pg 27

Remarks:

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LESSON 6:
SUB TOPIC: FINDING THE EXPANDED NUMBERS (SHORT FORM)

CONTENT:

Write as a single number.
(i) \((6 \times 10,000) + (4 \times 10) + (5 \times 1)\)
Solution:
\((6 \times 10000) + (4 \times 100) + (5 \times 1)\)
= 60,000 + 400 + 5
= 60005
+ 5

60405

(ii) \(9000000 + 700 00 + 50000 + 1000 + 30 + 8\)
= 9000000
700000

LESSON 7:
SUB TOPIC: STANDARD FORM/SCIENTIFIC NOTATION

CONTENT:

Writing whole numbers in Scientific notation

Examples:
(i) Write 453 in standard form
\(4.53 \times 10^2\)
\(4.53 \times 10^2\)

(ii) Express 650000 in Scientific notation.

Finding numbers expressed in standard form.

EVALUATION ACTIVITY:
A New MK Primary Mathematic Bk 6 Pg 60 (Old Edition)
Macmillan Primary Mathematics Bk 7 Pg 56 Exercise 10 Pg 58 Exercise 11
LESSON 8:
SUB TOPIC: ROUNDDING OFF WHOLE NUMBERS
CONTENT: Examples:
Review – rounding off scale
Round off the following as instructed.
(i) 3864 to the nearest hundred.

H - R P V
3 8 6 4

+ 1

________
3 9 0 0

(ii) 214 (nearest tens

Tens - RPV
2 1 4

+ 0

________
2 1 0

EVALUATION ACTIVITY:
Macmillan Pri MTC pupils bk 7 pg 16 exercise 1
A New MK Primary Mathematic Bk 7 pg 23

LESSON 9:
SUB TOPIC: ROMAN NUMERALS; CONVERTING HINDU ARABIC NUMERALS TO ROMAN NUMBERS
CONTENT: Examples:
Revise basic Roman symbols (IXLCDM)
Example
1. What 124 in Roman numerals
   H T O
   1 2 4
   100 20 4
   100 + 20 + 4
   100 = C
   20 = XX
   4 = IV
   = CXXIV

2. 1962
   1000 + 900 + 60 + 2
   1000 = M
   900 = CM
   60 = LX
   2 = II
   = MCMLXII

EVALUATION ACTIVITY:
Macmillan Primary Mathematics Bk 7 Exercise 6 Pg 23

LESSON 10:
SUB TOPIC: ROMAN NUMERALS (CONVERSION OF ROMAN NUMERALS TO HINDU ARABIC)
CONTENT: Example
Write the following numbers in Hindu Arabic numerals
(i) MXLV
   M + XL + V
   1000 + 40 + 5
   = 1045

(ii) CDXCIV
   CD + XC + Iv
   400 + 90 + 4
   = 494

(iii) A temple had MDCCCLXIV written on top of it showing the year it was built. Which year is this in Hindu Arabic

EVALUATION ACTIVITY:
LESSON 11:  
SUB TOPIC: OPERATION ON ROMAN NUMERALS  

CONTENT: Example

(i) Add CCXLIII + DCLXXV (answer in Roman numerals)

Solution:
CCXLIII – Hindu Arabic
CC = 200
XL = 40
III = 3
243

DCLXXV
DC = 600
LXX = 70
V = 5
675

243 + 675 = 918

918 – Roman numerals
900 + 10 + 8
900 = CM
10 = X
8 = VIII
918 = CMXVIII

What base eight numeral is equal to 54 ten?
Express 83 nine to nonary base.

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils' Bk 6 Pg 39 exercise 5:8

Remarks:

LESSON 13:  
SUB TOPIC: BASES (CHANGING FROM NON DECIMAL BASES TO DECIMAL BASES)

CONTENT: Example

(i) Change 234 six to base ten

Solution:

2 3 4
Ones (60) Sixes (61) Six sixes (62)
(2 x 6^2) + (3 x 6^1) + (4 x 6^0)
(2 x 6 x 6) + (3 x 6) + (4 x 1)
12 x 6 + 18 + 4
72 + 22
94 ten
LESSON 14:
SUB TOPIC: BASES (CHANGING FROM NON DECIMAL BASES TO NON DECIMAL BASES)

CONTENT:
Example:
(i) Change 123 five to base six
Solution:
123 five  base ten
One (5^0)
Fives (5^1)
Five fives (5^2)
(1 x 5^2) + (2 x 5^1) + (3 x 5^0)
(5 x 5) + 10 + 3
25 + 10 + 3
35 + 3
38 ten

38 ten  to base six
6  38  rem 2
6  6  rem 0
6  1  rem 1
0
102 six
123 five = 102 six

(ii) 2t eleven to base nine

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils' Bk 6 Pg 39 exercise 5:8

Remarks:
______________________________________________________
______________________________________________________

LESSON 15:
SUB TOPIC: BASES (OPERATION ON BASES – ADDITION)

CONTENT:
Example:
225 six \( \div 6 \) 1 rem 3
+ 434 six
\[
\begin{array}{c}
225 six \\
\hline
\hline
434 six
\end{array}
\]
1103 six

143five + 11 five (answer in base ten)
23seven + 12 six (answer in base five)

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils' Bk 7 Pg 38 exercise 3:2

Remarks:
_______________________________________________

LESSON 16:
SUB TOPIC: BASES (SUBTRACTION OF BASES)

CONTENT: Examples:
(I) 671nine – 285nine
Solution:
\[
\begin{array}{c}
5 6 10 \\
6 7 1 nine \\
\hline
9 + 1 = 10 \\
- 2 8 5 nine9 + 6 = 15 \\
\hline
3 7 5 nine
\end{array}
\]

(ii) 345 six – 234 six (answer in base six)

EVALUATION ACTIVITY:
A New MK Old Edition Pupils Bk 7 Pg 39 exercise 3:3
LESSON 17:  MULITPLICATION OF BASES

CONTENT:  Example:

(i)  121 three  \[1 \times 2 = 2\]
   X 2 three  \[2 \times 2 = 4\]
   \[\underline{4 + 3 = 1 \text{ rem } 1}\]
   1012 three  \[1 \times 2 = 2 + 1\]
   \[\underline{3 \div 3 = 1 \text{ rem } 0}\]

(ii)  345 six  \[5 \times 2 = 20\]
   X 14 six  \[20 \div 6 = 3 \text{rem} 2\]
   \[\underline{4 \times 4 = 16 + 3}\]
   2312  \[10 \div 6 = 3 \text{rem} 1\]
   345  \[3 \times 4 = 12 + 3\]
   \[\underline{15 \div 6 = 2 \text{ rem} 3}\]
   10202 six

EVALUATION ACTIVITY:
Exercise 2:1
A New MK Primary Maths Pupils' Bk 7 Pg 40 exercise 3:4

Remarks:

LESSON 18:  DIVISION OF BASES

CONTENT:

Examples:

(i)  204 five \(\div\) 14 five.
Solution:

\[\begin{align*}
204 \text{ five} & = (2 \times 5^2) + (0 \times 5^1) + (4 \times 5^0) \\
= 50 + 4 \\
= 54 \text{ ten}
\end{align*}\]

\[\begin{align*}
14 \text{ five} & = (1 \times 5^1) + (4 \times 5^0) \\
= 9 \text{ ten}
\end{align*}\]

\[\begin{align*}
5 \div 9 \text{ ten} & = 6 \text{ ten}
\end{align*}\]

\[\begin{align*}
6 \text{ ten} & = \text{ base five}
\end{align*}\]

\[\begin{align*}
5 & \div \underline{6 \text{ rem } 1}\n5 & \div \underline{1 \text{ rem } 1}\n\underline{0}
\end{align*}\]

\[\begin{align*}
11 \text{ five}
\end{align*}\]

(ii)  448 nine \(\div\) 17 nine (answer in Septenary base)

EVALUATION ACTIVITY:

A New MK Old Edition Pupils Bk 7 Pg 41 - 42 exercise 3:5

Remarks:

LESSON 19:

SUB TOPIC:  FINDING THE UNKNOWN BASE (MISSING BASE)

CONTENT:  Examples:
If \( 44p = 359 \) nine

Solution:

\[
(4 \times 01) + (4 \times p0) = (3 \times 91) + (5 \times 90) \\
(4 \times p) + (4 \times 1) = (3 \times 9) + (5 \times 1) \\
4p + 4 = 27 + 5 \\
4p + 4 = 32 \\
4p + 4 - 4 = 32 - 4 \\
4p + 0 = 28 \\
4p = 28 \\
4p = 28 \\
4 \quad 4 \\
P = 7
\]

(ii) \( X^2 = 719 \) nine

(iii) \( 325 \) six = q3

EVALUATION ACTIVITY:

A New MK Old Edition Pupils Bk 7 Pg 43 exercise 3:7

Remarks:

TOPIC 3:

OPERATION ON NUMBERS

LESSON 1:

SUB TOPIC: ADDITION OF LARGE NUMBERS

CONTENT:

Examples:

Add correctly:

(i) \[
\begin{array}{c}
615 \ 146 \ 144 \\
+ \ 320 \ 006 \ 614 \\
935 \ 151 \ 758
\end{array}
\]

(ii) The population in four countries of a district shows that county A is 23,467, county B is 21,602, county C is 19,466, and county D is 25,102. What is the total population in the district?

County A \( 23467 \)
County B \( 21602 \)
County C \( 19466 \)
County D \( 25012 \)

\[
\begin{array}{c}
89 \ 547
\end{array}
\]

Emphasis on place value arrangement and regrouping.

EVALUATION ACTIVITY:

A New MK Bk 7 exercise 3:1 Pg 45
Primary School Mathematics Bk 7 exercise 2 Pg 11.

Remarks:

LESSON 2:

SUB TOPIC: SUBTRACTION OF LARGE NUMBERS

CONTENT:

Examples:

Subtract correctly:

(i) \[
\begin{array}{c}
596 \ 148 \ 320 \\
- \ 239 \ 610 \ 510 \\
356 \ 537 \ 810
\end{array}
\]

(ii) What is the difference between 3060 and 186?

\[
\begin{array}{c}
3 \ 0 \ 6 \ 0 \\
- \ 186 \\
2874
\end{array}
\]

(iii) Emphasis on place value arrangement and regrouping.

EVALUATION ACTIVITY:

A New MK Bk 7 exercise 3:1 Pg 45
Primary School Mathematics Bk 7 exercise 2 Pg 11.

Remarks:

LESSON 3:

SUB TOPIC: MULTIPLICATION OF LARGE NUMBERS
CONTENT: Examples: Multiply:
(i) 214 032 x 1324
   X 1324
   856128
   4280640
  64209600
+214032000
  __________
  283378368

(ii) A store can hold 1973 boxes each containing 34 pairs of shoes. How many pairs of shoes are in the store?
    1973
    X 34
    7892
  +59190
  __________
  67082 pairs

EVALUATION ACTIVITY:
New MK Bk 7 exercise 3:2 Pg 46
Remarks:

LESSON 4:
SUB TOPIC: DIVISION OF LARGE NUMBERS

CONTENT: Examples: Divide 3816648 by 132
(i) 3 8 1 6 6 4 8
   132 __________
    28914
   -264
    1176
   -1056
    1206
   -1188
    188
   -132
     528
  -528
  __________
     52
 
(ii) There are 6315 books to be packed in 15 boxes. How many books should be packed in each box?
       421

EVALUATION ACTIVITY:
A New MK Bk 7 exercise 3:2 Pg 46
Remarks:

LESSON 5:
SUB TOPIC: DISTRIBUTIVE PROPERTY
CONTENT: Examples:
Use the distributive property to work out:
(i) \((379 \times 27) + (27 \times 21)\)
    - Re-arrange \((27 \times 379) + (27 \times 21)\)
    - \(27 \times (379 + 21)\)
    - \(27 \times 400\)
    - \(27 \times 400\)
    - \(10800\)

(ii) \((137 \times 42) – (37 \times 42)\)
    - \((137 \times 42) – (37 \times 42)\)
    - \(42 \times (137 – 37)\)
    - \(42 \times 100\)
    - \(4200\)

ASSOCIATIVE PROPERTY
Example
Use the associative property to workout
\((5+8)+2=5+(8+2)=(5+2)+8\) the alteration of the position of the brackets does not change the result
\(13+2=5+10\)
\(15 = 15\)

\((5 \times 8) \times 2 = 5 \times (8 \times 2) = (5 \times 2) + 8\) The alteration of the position of the brackets does not change the result.
\(40 \times 2 = 5 \times 16 = 10 \times 8\)
\(80 = 80\)
Conclusion: the associative property holds for both addition and multiplication.

Commutative property
Example
\(4+3 = 3+4\) What you start with does not affect the result
\(7 = 7\)
\(4 \times 3 = 3 \times 4\) (What you start with does not affect the result
\(12 = 12\)
Conclusion: The commutative property holds for both addition and multiplication
Given that \(t^y = ty+y\)
Find:
(i) \(2 \times 3\)
(ii) \(5 \times 7\)

LESSON 6:
SUB TOPIC: LAWS OF INDICES IN MULTIPLICATION AND DIVISION
CONTENT: Examples:
(i) \(4^2 \times 4^4\)
    - Method 1: \(4^2 + 4^4\) using index rule
    - \(= 4^6\)
    - Method 2: Using expanded form \(4^2 \times 4^4\)
    - \(= 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4\)
    - \(= 4^6\)

(ii) Work out: \(43 \times 42\)
    - Method 1: Using the index rule.
    - \(43 \times 42 = 43 \times 42\)
    - \(= 43 \times 42\)
    - \(= 43 \times 42\)
    - \(= 4\)
    - Method 2: \(43 \times 42 = 4 \times 4 \times 4\)
    - \(= 4 \times 4\)
    - \(= 4\)
    - \(= 4\)
    - \(= 4\)

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 3:8 and 3:9 on Pg 51 & 52.

Remarks:

LESSON 7:
SUB TOPIC: APPLICATION OF INDICES

EVALUATION ACTIVITY:
A new MK pri MTC bk 7 exercise 3:3 pg 47 (new edition)
A new MK Ph MTC teacher’s bk 6 extra work to pupils pg 49
CONTENT: Solving multiplication equations.
Finding missing indices by multiplication.

Examples: Solve:
(i) \(2^x \times 3^2\)
Factorize 32 using 2.

\[
\begin{array}{c|c}
2 & 32 \\
2 & 16 \\
2 & 4 \\
2 & 2 \\
1 & \\
\end{array}
\]

\(2^x = 2 \times 2 \times 2 \times 2 \times 2\)
\(2^x = 2^5\)
\(\therefore \ x = 5\)

(ii) \(3^y \times 3 = 81\)
Factorise 81 using 3.

\[
\begin{array}{c|c}
3 & 81 \\
3 & 27 \\
3 & 9 \\
3 & 3 \\
1 & \\
\end{array}
\]

\(3^y \times 3^1 = 3 \times 3 \times 3 \times 3\)
\(3^y \times 3^1 = 3^4\)
\(3^y+1 = 3^4\)
\(3^y + 1 = 4\)
\(\therefore \ y = 3\)

(iii) \(2t \times 33 = 108\)
Factorize 108 using 2 and 3.

\[
\begin{array}{c|c}
2 & 108 \\
2 & 54 \\
3 & 27 \\
3 & 9 \\
3 & 3 \\
1 & \\
\end{array}
\]

\(2^t \times 3^3 = 2 \times 2 \times 3 \times 3 \times 3\)
\(2^t \times 3^3 = 2^2 \times 3^3\)
\(2^t \times 3^3 + 3^3 = 2^2 \times 3^3 + 3^3\)
\(2^t = 2^2\)
\(t = 2\)

EVALUATION ACTIVITY:
Mathematics Bk 7 exercise 3:10 Pg 53

Remarks:
____________________________________________________________________________
______________________________________________________

LESSON 8:
SUB TOPIC: APPLICATION OF INDICES

CONTENT: Finding missing indices by division

Examples: Solve:
(i) \(2^x \div 2^1 = 8\)
Factorize 8 using 2.

\[
\begin{array}{c|c}
2 & 8 \\
2 & 4 \\
2 & 2 \\
1 & \\
\end{array}
\]

\(2^x \times 2^1 = 2 \times 2 \times 2\)
\(2^x \times 2^1 = 2^3\)
\(2^x - 1 = 23\)
\(X - 1 = 3\)
\(X - 1 + 1 = 3 + 1\)
\(\therefore \ X = 4\)

(ii) \(4^y \div 4^x = 256\)
Factorise 256 using 4.

\[
\begin{array}{c|c|c|c|c|c}
3 & 256 & 4^3 \times 4^x = 4 \times 4 \times 4 \times 4 \\
4 & 64 & 4^3 \times 4^x = 4^4 \\
4 & 16 & 4^3 - x = 4^4 \\
4 & 4 & 3x - x = 4 \\
1 & \ & 2x = 4 \\
\end{array}
\]

\(2^x = 4\)
\(2 \quad 2\)
\(\therefore \ x = 2\)

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 3:11 Pg 54
Remarks:
LESSON 7:
SUB TOPIC: SQUARE NUMBERS AND SQUARE ROOTS

CONTENT:
Examples:
(i) Find the square of 4.
    Square of 4 = 4^2 = 4 x 4 = 16
(ii) Find the square root of 4.
     \[ \sqrt{4} = \sqrt{2 \times 2} = 2 \]
(iii) Find the square root of 7 \& 9
     First change it to improper fraction: \( \frac{7 \times 9 + 1}{9} \)
     \[ \frac{63 + 3}{9} = \frac{64}{9} \]
     \[ \begin{array}{c|c}
         9 & 64 \\
        \hline
         2 & 64 \\
         2 & 32 \\
         2 & 8 \\
         2 & 4 \\
         2 & 2 \\
         1 & 1 \\
     \end{array} \]
     \[ 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \]
     \[ 2 \times 2 \times 2 = 8 \]
(iv) Find the square root of 0.36

EVALUATION ACTIVITY:

Remarks:

LESSON 8:
SUB TOPIC: CUBE ROOTS

CONTENT:
Example:
Find the cube root of 8.
\[ 3^{\sqrt[3]{8}} = \frac{2}{8} \]
Method 2:
\[ 3^{\sqrt[3]{8}} = (2^{3})^{1/3} = 2^{1} = 2 \]

EVALUATION ACTIVITY:
Teachers' collection
Mathematics Revision Hand Book for Primary 5, 6 & 7 Pg 60
Remarks:
LESSON 9:

SUB TOPIC: APPLICATION OF SQUARE AND CUBIC NUMBERS

CONTENT:

Example:

(i) The area of a square is 121 mm$^2$. Find the length of each of its sides.

Sketch:

\[ S^2 = 121 \text{mm}^2 \]

\[ \sqrt{S^2} = \sqrt{121} \text{mm} \]

\[ A = 121 \text{mm}^2 \]

\[ \sqrt{S} \times S = \sqrt{11} \text{mm} \times 11 \text{mm} \]

\[ S = 11 \text{mm} \]

(ii) The volume of a cube is 64 m$^3$. Find the length of one side.

Vol of a cube = $L^3 = 64 \text{m}^3$

\[ 3 \times L^3 = 3 \times 64 \text{m}^3 \]

\[ L = 4 \text{m} \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 6 Pg 102 exercise 4:43.

TOPICAL EXERCISE:

1. Add: 426 + 1519 + 3
2. Subtract 105 from 200
3. Evaluate $3^2 \div 3^2 = 27$
4. $5^1 \times 5^2 \div 5^1$
5. There were 32 apples in each box and 12 boxes in each carton. How many apples did Annet get if she bought 124 cartons?
6. What is the sum of 8456 litres of petrol and 45631 litres?
7. There were 38600 chicken on the teacher’s farm. 12364 were sold on Id day. How many remained?
8. At a party, 4848 people were served with sodas each. How many crates of soda were bought if each crate contains 24 bottles?
9. Work out (a) $2.5 \times 13 + 2.5 \times 7$
   (b) $4.5 \times 75 - 4.5 \times 25$
10. What number must be added to 54068 to give 60000?

TOPIC 4: PATTERNS AND SEQUENCES

LESSON 1:

SUB TOPIC: DIVISIBILITY TESTS

CONTENT: Divisibility tests of 2, 3, 4 and 5.

Divisibility for 2.
A Number is divisible by 2 if the digit in the one’s place is 0, 2, 4, 6, or 8 eg 1460

Test for 3:
A number is divisible by 3 if the sum of its digits is divisible by 3 eg 741 = 7 + 4 + 1 = 12

Test for 4:
A number is divisible by 4 if the number formed by its last two digits is divisible by 4. eg 572. The last two digits are 7 and 2 therefore the number formed is 72 which is divisible by 4. Hence 572 is divisible by 4.

Test for five (5):
A number is divisible by 5 if the last digit in the ones place is either 0 or 5. eg 360 or 805.

EVALUATION ACTIVITY:

A New Edition MK Primary Maths Pupils BK 7 Pg 60 exercise 4:1

Remarks:

LESSON 2:
SUB TOPIC: DIVISIBILITY TESTS

CONTENT: Divisibility tests for numbers 6 to 10.

Test for 6:
A number is divisible by 6 if it is divisible by 2 and 3. In other words a number is divisible by 6 if it is even and the sum of its digits is divisible by 3.
Example:
618 is divisible by 6 since it is an even number and the sum of its digits $6 + 1 + 8 = 15$ is divisible by 3.
738 is divisible by 6 since it is an even number and the sum of its digits $7 + 3 + 8 = 18$ is divisible by 3. Therefore 738 is divisible by 6.

Test for 7:
When the last digit of a number is doubled and the result is subtracted from the number formed by the remaining digits, the outcome is divisible by 7.
Example: Take the number 861. the last digit is 1 and the number formed by the remaining digits is 86, double 1 to give $(1+1)= 2$
Subtract 2 from 86 to give $(86 - 2) = 84$
84 is divisible by 7. Hence 861 is also divisible by 7.

Test for 8:
A number is divisible by 8 if the number formed by the last three digits is divisible by 8.
Example: In the number 7960,760 is number formed by the last three digits. It is divisible by 8 therefore 7960 is divisible by 8.

Test for 9:
A number is divisible by 9 if the sum of its digits is divisible by 9.
Example: 198 the sum of 198 is $1+9+8 = 18$
18 is divisible by 9 therefore 198 is divisible by 9.

Test for 10:
A number is divisible by 10 if the digit in the ones place is 0 eg 70, 60, 120, 3010.
A number which is divisible by 10 is also divisible by 2 and 5.

Test for 11:
A number is divisible by 11 if the difference between the sum of the digits in even places and the sum of the digits in the odd place is zero (0) or divisible by 11.

eg Even position: 7 3 3 6 8 9
Odd position
Sum of the numbers in odd positions = 7 + 3 + 8 = 18
Sum of the numbers in even positions = 7 + 3 + 0 = 10
Difference between sums = $21 - 10 = 11$
Since difference is divisible by 11
$\therefore$ the number 676390 is divisible by 11.

EVALUATION ACTIVITY:
A New Edition MK Primary Maths Pupils BK 7 Pg 63 exercise 4:2
Remarks:

LESSON 3:
SUB TOPIC: WHOLE, NATURAL, ODD, EVEN AND PRIME NUMBERS

CONTENT: Definition of:

(i) Whole numbers:
All positive numbers with zero (0) inclusive form a set of whole numbers
eg 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ...

(ii) Natural numbers:
Natural numbers are counting numbers. The first natural number is 1
eg 1, 2, 3, 4, 5, 6, 7, 8, 9, ...

(iii) Odd numbers:
Any number which is not exactly divisible by 2
eg 1, 3, 5, 7, 9, ...

(iv) Even numbers:
Any number which is exactly divisible by 2. The first even number is 0
eg 0, 2, 4, 6, 8,

(v) Prime numbers:
Numbers with only two factors. One and itself. The first prime number is 2. 2 is the
only even/prime number.
eg 2, 3, 5, 7, ….

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 4:5 Pg 68
Remarks:

LESSON 4:
SUB TOPIC: COMPOSITE, TRIANGULAR, SQUARE, CUBE NUMBERS

CONTENT:
(i) Composite numbers:
Numbers with more than two factors. Eg 4, 6, 8, 9, 10, 12,……

(ii) Triangular numbers:
Numbers got by adding consecutive counting numbers eg 1, 3, 6, 10, ….

(iii) Square numbers:
Numbers got by adding consecutive odd numbers starting from 1.

(iv) Cube numbers:
Numbers got by multiplying a number by itself three times.
Eg
\[1^3 = 1\]
\[2^3 = 8\]
\[3^3 = 27\]
\[4^3 = 64\]
\[5^3 = 125\]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 4:3 Pg 65
Remarks:

LESSON 5:
SUB TOPIC: MULTIPLES, FACTORS

CONTENT:
(i) Multiples:
These are numbers which are obtained by multiplying a number by consecutive
counting numbers ie. 1 x 2 x 3, etc

Examples:
(i) \[M_6 = \{6 \times 1, 6 \times 2, 6 \times 3, 6 \times 4, 6 \times 5, 6 \times 6, 6 \times 7 \ldots\}\]
\[6 \quad 12 \quad 18 \quad 24 \quad 30 \quad 36 \quad 42\]
(ii) \[M_8 = \{8 \times 1, 8 \times 2, 8 \times 3, 8 \times 4, 8 \times 5, 8 \times 6, 8 \times 7 \ldots\}\]
\[8 \quad 16 \quad 24 \quad 32 \quad 40 \quad 48 \quad 56\]
(iii) \[M_9 = \{9 \times 1, 9 \times 2, 9 \times 3, 9 \times 4, 9 \times 5, 9 \times 6, 9 \times 7 \ldots\}\]
Factors:
Any one of a pair of numbers which when multiplied gives the same multiple is called a Factor.

List examples:
All factors of 6

- $6 \div 1 = 6$
- $6 \div 2 = 3$
- $6 \div 3 = 2$
- $6 \div 6 = 1$

F_6 = \{1, 2, 3, 6\}

Find factors of 9.

- $1 \times 9 = 9$
- $3 \times 3 = 9$

F_9 = \{1, 3, 9\}

CONTENT:
Examples:

(i) Find the LCM of 24, 36 and 40.

\[
\begin{array}{c|c|c|c}
2 & 24 & 36 & 40 \\
2 & 12 & 18 & 20 \\
3 & 6 & 9 & 10 \\
3 & 1 & 3 & 5 \\
5 & 1 & 1 & 5 \\
\end{array}
\]

- $= 2 \times 2 \times 2 \times 3 \times 3 \times 5$
- $= 4 \times 6 \times 15$
- $= 4 \times 90$
- $= 360$

(ii) Find the HCF of 6, 8 and 12.

\[
\begin{array}{c|c|c|c}
2 & 6 & 8 & 12 \\
3 & 4 & 6 \\
\end{array}
\]

- $= 2$

LESSON 6:
SUB TOPIC: L.C.M AND H.C.F

LESSON 7:
SUB TOPIC: APPLICATION OF LCM AND GCF

CONTENT:
Examples:

(i) Find the least number which is exactly divisible by 6, 8 and 12.
(ii) What is the smallest number of sweets that can be shared by 3, 4 or 6 pupils leaving 5 sweets as a reminder?
(iii) Two bells are used in Sir Apollo at intervals of 30 minutes and 40 minutes respectively. They are first rung together at 8:45 am, when will the two bells ring together again?
(iv) The product of two numbers is 240. One of them is 60, work out their:
   (a) LCM
   (b) GCF
(v) The LCM of x and y is 48 and HCF is 4. If x 16 find y.

EVALUATION ACTIVITY:
MK Primary Mathematics Bk 6 exercise 9:20 Pg 85 (Old Edition)
Oxford Primary Mathematics Bk 6 Pg 35
Remarks:

LESSON 8:
SUB TOPIC: APPLICATION OF NUMBER PATTERNS; NATURAL, ODD AND EVEN NUMBERS

CONTENT:
Examples:
The sum of three consecutive counting numbers is 18. Find the numbers.
Solution: Let the first number be r.

<table>
<thead>
<tr>
<th>1st No.</th>
<th>2nd No.</th>
<th>3rd No</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>R + 1</td>
<td>R + 2</td>
<td>18</td>
</tr>
</tbody>
</table>

R + r + 1 + r + 2 = 18
R + r + 1 + 2 = 18
3r + 3 = 18
3r + 3 – 3 = 18 – 3
3r = 15
3r = 15
3 = 3
R = 5

1st no. = r = 5

2nd No. = r + 1 but r = 5
5 + 1 = 6
3rd No. = r + 2
Where r = 5
5 + 2 = 7
The numbers are 5, 6, and 7

Example ii.
The sum of 3 consecutive odd numbers is 15. Find the numbers:
Solution:
Let the first number be y.

<table>
<thead>
<tr>
<th>1st No.</th>
<th>2nd No.</th>
<th>3rd No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Y + 2</td>
<td>Y + 4</td>
<td>15</td>
</tr>
</tbody>
</table>

y + Y + 2 + y + 4 = 15
y + y + Y = 2 + 4 = 15
3y + 6 = 15
3y + 6 – 6 = 15 – 6
3y = 9
3y = 9
3 = 3
y = 3

Example 3:
The sum of 4 consecutive even numbers is 76. What are the numbers?

Example 4:
The sum of three consecutive integers is 84. Find them.

EVALUATION ACTIVITY:
A New MK Primary Bk 6 Pg 76 exercise 9:8 9Old Edition)
TOPICAL EXERCISE:

1. Find the sum of even numbers between 13 and 31.
2. List down all the composite numbers between 2 and 15.
3. Find the G.C.F of 8 and 12.
4. What is the Lowest Common Multiple of 6, 8 and 16?
5. Workout the square root of 961.
6. The sum of 3 consecutive natural numbers is 63. Find the numbers.
7. Find the next number in the sequence: 4, 7, 6, 9, 8, 11, ...
8. What is the Smallest number which when divided by 9 and 11 leaves a remainder of 2?
9. Bulangiti buses leave for Kasese every 3 hours and Gateway buses leave for Soroti every four hours. Two buses set off from Kampala’s bu park at 7:30am. When will the two buses leave together again?
10. The G.C.F of two numbers is 2 and their L.C.M is 24. If one of the numbers is 8, find the second number.
11. The sum of 3 consecutive even numbers is 36. Find their range.
12. Find the cube root of 64.
13. The area of a square garden is 169m². Find its perimeter.
14. Find the square root of 0.81.
15. Find the area of a square flower garden whose one side is 0.16.
16. Use the venn diagram below to answer the questions about it.

F24

F40

x

2^1

y

2^3

2^2

(a) Find the value of x and y.
(b) Find the G.C.F and the L.C.M of 24 and 40.

TOPIC 5:

LESSON 1:

TOPIC: FRACTIONS

SUB TOPIC: TYPES OF FRACTIONS

CONTENT:

Proper – \( \frac{3}{7} \)

Improper – \( \frac{7}{5} \)

Mixed numbers – 2 \( \frac{1}{3} \)

Expressing improper fractions as mixed numbers.

Examples:

Express as mixed numbers:

\[
\begin{align*}
14/9 &= 1 \frac{5}{9} \\
211 &= 14 \frac{15}{211}
\end{align*}
\]

Express as improper fractions:

\[
\begin{align*}
6 \frac{2}{3} &= \frac{6 \times 3 + 2}{3} \\
&= \frac{18 + 2}{3} \frac{20}{3} \\
\therefore \ 6 \frac{2}{3} &= \frac{20}{3}
\end{align*}
\]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 5:1 Pg 73

Remarks:

______________________________________________________

LESSON 2:
SUB TOPIC: CHANGING FRACTIONS TO DECIMALS AND VISE VERSA
CONTENT: Changing fractions to decimals and decimals to fractions

Examples:

- Changing fractions to decimals:
  
  \[
  \frac{5}{8} = 0.625 \quad \frac{1}{3} = 0.33\ldots
  \]

- Changing decimals to fractions:
  
  \[
  1 \quad \frac{1}{4} = \frac{25}{100} \quad \frac{1}{8} = \frac{1.25}{1000}
  \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 5:20 Pg 88

Remarks:
_____________________________________________________________________________
_____________________________________________________________________________

LESSON 3:

SUB TOPIC: CHANGING RECURRING DECIMALS TO RATIONAL NUMBERS AND VISE VERSA
CONTENT: Changing recurring decimals to rational numbers and rational numbers to recurring decimals.

Examples:

- Changing recurring decimals to rational numbers:
  
  1. \(0.33\ldots\) 
  2. \(0.45\ldots\)

- Changing decimals to fractions:
  
  1. \(0.1666\ldots\) 
  2. \(0.125\) 

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 5:22 Pg 91

Remarks:
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LESSON 4:
SUB TOPIC: CHANGING RATIONAL NUMBERS TO DECIMALS
CONTENT: Changing rational numbers to decimals

Examples:

1. \[ \frac{3}{11} = 0.2727 \ldots \]
2. \[ \frac{1}{12} = 0.08333 \ldots \]

EVALUATION ACTIVITY:

Macmillan Primary Mathematics Bk 7 exercise 1 Pg 81.

Remarks:

_____________________________________________________________________________

LESSON 5:

SUB TOPIC: OPERATIONS OF FRACTIONS

CONTENT: Addition and subtraction

Examples:

1. \[ \frac{1}{3} + \frac{1}{2} = \frac{2}{6} + \frac{3}{6} = \frac{5}{6} \]
2. \[ \frac{1}{3} + \frac{1}{5} = \frac{7}{15} + \frac{3}{15} = \frac{10}{15} = \frac{2}{3} \]

Subtract:

1. \[ \frac{3}{4} - \frac{1}{3} = \frac{9}{12} - \frac{4}{12} = \frac{5}{12} \]
2. \[ \frac{3}{5} - \frac{1}{4} = \frac{12}{20} - \frac{5}{20} = \frac{7}{20} \]

Subtract:

1. \[ \frac{61}{30} \]
2. \[ \frac{2}{30} = \frac{1}{15} \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercises 5:2 and 5:3 Pgs 73/74

Remarks:

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LESSON 6:

SUB TOPIC: OPERATION ON FRACTIONS

CONTENT: Multiplication of fractions

Examples:

1. \[ \frac{1}{5} \times 3 = \frac{3}{5} \]
2. \[ \frac{1}{3} = \frac{1}{4} \]

2. \[ \frac{2}{4} \times 1 \frac{1}{4} = \frac{9}{6} \times \frac{5}{10} = \frac{2}{11 \frac{1}{10}} \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercises 5:4 and 5:5 Pgs 75/76

Remarks:

_____________________________________________________________________________

LESSON 7:

SUB TOPIC: OPERATION ON FRACTIONS

CONTENT: Division of fractions

Examples:

1. \[ \frac{2}{5} \div 2 = \frac{2 \times \frac{1}{2}}{4} = \frac{3}{4} \div \frac{1}{2} = \frac{3 \times 4}{2} = \frac{3}{2} = 1 \frac{1}{2} \]

EVALUATION ACTIVITY:
LESSON 8:

SUB TOPIC: USE OF BODMAS TO SIMPLIFY MIXED FRACTION

CONTENT: Combined operations

Brackets
Of
Division
Multiplication
Addition
Subtraction

Examples:

1. \[
\left( \frac{2}{3} \right) - \left( \frac{1}{3} \right)
\]

2. \[
\frac{5}{6} - \frac{3}{1} \frac{1}{2}
\]

LESSON 9:

SUB TOPIC: APPLICATION OF FRACTIONS IN REAL LIFE SITUATION

CONTENT: Word problems

Examples:

(i) A boy had a jerry can full of water. He used \(\frac{13}{20}\). What fraction remained?

\[
\frac{1}{20} - \frac{13}{20} = \frac{7}{20}
\]

(ii) A, B and C contributed to start a Company. A paid \(\frac{3}{10}\) of the cost and B contributed \(\frac{5}{10}\) of the cost.

(a) What fraction did C contribute?

(b) If C contributed shs 30,000 what was their total contribution?

(iii) John spent \(\frac{1}{3}\) of his money on books and \(\frac{1}{6}\) of the remainder on transport.

(a) What fraction of his money was left?

(b) If he was left with shs 15,000, how much did he have at first?

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercises 5:6 and 5:7 and 5:5 Pgs 74 - 78

LESSON 10:

SUB TOPIC: APPLICATION OF FRACTIONS

CONTENT: Word problems

Examples:

1. Tap A can fill the tank in 6 minutes and tap B can fill the same tank in 3 minutes. How long will both taps take to fill the tank if they are opened at the same time?

Method 1:

<table>
<thead>
<tr>
<th>Tap A</th>
<th>Tap B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{1}{6})</td>
<td>(\frac{1}{3})</td>
</tr>
</tbody>
</table>

\[
\text{Tap A and B} = \frac{1}{6} + \frac{1}{3} = \frac{1}{2}
\]

In 1 minute the tank will be \(\frac{1}{2}\) filled.

\[
\text{i.e } \frac{1}{2} \times 2 = 2 \text{ minutes.}
\]

(1 part is filled in 1 minute)

(2 parts are filled in 2 minutes.)
Method 2:  
**Product**  
Time taken by  
The two taps  
= Tap A x tap B  
= Tap A + tap B  
= 6 x 3  
= 6 + 3  
= 18  

**Sum**  

\[ \begin{align*} 
\text{The two taps} &= \text{Tap A} \times \text{tap B} \\
&= \text{Tap A} + \text{tap B} \\
&= 6 \times 3 \\
&= 6 + 3 \\
&= 18 \\
\end{align*} \]

**EVALUATION ACTIVITY:**

MK Bk 7 Pg 79 exercise 4:8

**Remarks:**

_____________________________________________________________________________

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**LESSON 11:**

**SUB TOPIC:**  
APPLICATION OF FRACTIONS

**CONTENT:**  
Word problems

**Examples:**

1. Twaha spent 1/3 of his money on books and 1/6 of the remainder on transport.
   (i) What fraction of his money was left?
   Fraction spent on books 1/3
   Remained fraction: 1 – 1/3 = 3 - 1 = 2  
   3 3 3 3
   Fraction spent on transport: 1 of 2 = 1 x 2  
   6 3 6 3
   = 1  
   9
   Total fraction spent on transport and books: 1 + 1  
   3 9
   3 + 1 = 4  
   9 9
   Remained fraction = 1 – 4 = 9 – 4 = 5  
   9 9 9 9
   (ii) If he was left with shs 15,000= how much did he have at first?

   Let the total be y.
   5 \text{ of y} = 15,000=
   9
   \[ \frac{5}{9} \times y = 15,000 \]
   \[ \frac{5y}{9} = 15,000 \]
   \[ x \frac{5y}{9} = 15000 \times \frac{9}{5} \]
   \[ Y = 3000 \times 9 \]
   = shs 27,000=
   He had shs 27,000 at first

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 5:7 Pg 78

**Remarks:**

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**LESSON 11:**

**SUB TOPIC:**  
DECIMAL (PLACE VALUES AND VALUES)

**Content:** place value chart for decimals

<table>
<thead>
<tr>
<th>TH</th>
<th>H</th>
<th>T</th>
<th>O</th>
<th>Th</th>
<th>Hth</th>
<th>THth</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Place values are:
4 Thousand (1000)
3 Hundreds (100s)
7 Tens (10s)
8 Ones (1s)
2 Tenths (1/10)
5 Hundredths (1/100)
9 Thousandths (1/1000)

Values of digits
Value of 7 = 7 x 10
= 70
Value of 2 = 2x1/10
= 2/10  
= 0.2  

Operation on values of digits in decimals  
Evaluation  
A new MK pri mtc bk 6  
Mtc revision hand bk 5 – p.7 pg25  

LESSON 12:  
SUB TOPIC: reading and writing decimals in words  
CONTENT:  
Examples:  
Write the following decimals in words  
232.76  

<table>
<thead>
<tr>
<th>T</th>
<th>O</th>
<th>T'^h</th>
<th>H'^h</th>
<th>TH'^h</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>2</td>
<td>.7</td>
<td>6</td>
</tr>
</tbody>
</table>

Twenty three and two hundred seventy six thousand  
378.01  

<table>
<thead>
<tr>
<th>H</th>
<th>T</th>
<th>O</th>
<th>Th</th>
<th>Hh</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>7</td>
<td>8</td>
<td>.0</td>
<td>1</td>
</tr>
</tbody>
</table>

Three hundred seventy eight and one hundredths  
Writing decimals in figures  
Thirty six and seventeen hundredths  
Thirty six  
36  
Seventeen hundredths = 17  
100  
0.17  

36 + 0.17  
36.17  
3600  
+0.17  
36.17  

LESSON 13:  

SUB TOPIC: EXPANDING DECIMALS USING VALUES AND POWERS/EXPOONENTS OF 10  
CONTENT:  
Expand 486.5729 using:  
(a) Values:  
(4 x 10^2) + (8 x 10^1) + (6 x 1) + (5/1 x 1/10) + (7/1 x 1/100) + (2/1 x 1/1000) + (9/1 x 1/10000)  
400 + 80 + 6 + 0.5 + 0.07 + 0.002 + 0.0009  
486.5129 = 400 + 80 + 6 + 0.5 + 007 + 0.002 + 0.0009  
(b) \(10^2\) \(10^1\) \(10^0\) \(10^{-1}\) \(10^{-2}\) \(10^{-3}\) \(10^{-4}\)  
4 8 6 5 7 2 9  
\((4 \times 10^2) + (8 \times 10^1) + (6 \times 10^0) + (5 \times 1) + (1 \times 10^{-2}) + (2 \times 10^{-3}) + (9 \times 10^{-4})\)  

EVALUATION ACTIVITY:  
A New MK Primary Mathematic Pupils Bk 7 Pg 90 Exercise 7:11.  
Remarks:  
_____________________________________________________________________________  
______________________________________________________  

LESSON 14:  
SUB TOPIC: WRITING DECIMALS IN SHORT FORM  
CONTENT:  
Find the number expanded:  
(i) \(600 + 70 + 8 + 0.2 + 0.003\)  
Solution:  
600.000  
70.000  
8.000  
0.200  
+ 0.003  
6 78.203  

divide by 1000  
(ii) \((5 \times 10^3) + (7 \times 10^1) + (3 \times 10^1) + (4 \times 10^0) + (9 \times 1/10^1) + (6 \times 1/10^2)\)  
Solution:  
(5 \times 1000) + (7 \times 10) + (3 \times 10) + (4 \times 1) + (9 \times 0.1) + (6 \times 0.01)  
(5000 + 700 + 30 + 4 \times 0.9 + 0.06)  
5734.96
LESSON 14:

SUB TOPIC: WRITING DECIMALS IN SCIENTIFIC FORM OR STANDARD NOTATION

CONTENT:
Express the following decimals in standard notation/Scientific form.

Example:
(i) \[365.72\]
\[3.6572 \times 10^2\]

(ii) \[0.67\]
\[6.7 \times 10^{-1}\]

(iii) \[0.00098\]
\[9.8 \times 10^{-4}\]

Finding decimals expressed in Scientific notation.

EVALUATION ACTIVITY:

1. Express the following in standard notation/Scientific form.
2. Find the decimal number expressed in standard form.
   (a) \[2.34 \times 10^{-2}\]
   (b) \[6.1 \times 10^{-2}\]

Ref: MTC Revision Hand Book P.6, 6, P7 Pg 29

Remarks:

LESSON 16:

SUB TOPIC: Rounding Off Decimals

CONTENT:

Example:
Round off the following decimals as instructed:

(i) \[4.78516\]

Solution:

\[
\begin{array}{c|c|c|c|c|c}
Tth & Hth & THth & Hth & \hline
4 & 7 & 8 & 5 & 6 & +0
\end{array}
\]

\[4.78500\]

\[4.78516\] to the nearest thousandths = 4.885

(ii) \[75.634\]

Solution:

\[
\begin{array}{c|c|c|c|c|c|c}
0 & Tth & Hth & THth & Hth & \hline
7 & 5 & 6 & 3 & 4 & +1
\end{array}
\]

\[76.000\]

\[75.634\] to the nearest whole number = 76

EVALUATION ACTIVITY:

Macmillan Primary Mathematics Pupils’ Bk 7 Pg 24 Exercise 7 Mathematics Revision Hand Book P5, 6 & 7 Pg 28

Remarks:
### Lesson 18

#### SUB TOPIC: DECIMALS

**CONTENT:** Addition and of decimals

**Examples:**

1. \[3.4 + 0.23 = 3.63\]
2. \[5.00 - 0.03 = 4.97\]
3. \[8 - 5.16 + 3.07 = 5.91\]

---

#### Lesson 19

#### SUB TOPIC: DECIMALS

**CONTENT:** Multiplication of decimals

**Examples:**

1. \[27.36 \times 6 = 164.16\]
2. \[11.9 \times 0.3 \times 10 = 3.57\]

---

#### Lesson 19

#### SUB TOPIC: ORDERING DECIMALS

**CONTENT:**

(i) Ascending order

(ii) Descending order

**Examples:**

1. Arrange 0.36, 0.054, 0.07 and 0.8 in descending order.

   Express decimals as fractions
   \[
   \begin{align*}
   0.36 &= \frac{36}{100} \\
   0.054 &= \frac{54}{1000} \\
   0.07 &= \frac{7}{100} \\
   0.8 &= \frac{8}{10}
   \end{align*}
   \]

   Find the LCM which is 1000.

   \[
   \begin{align*}
   36 \times 1000 &= 36000 \\
   54 \times 1000 &= 54000 \\
   7 \times 1000 &= 7000 \\
   8 \times 1000 &= 8000
   \end{align*}
   \]

   \[
   \begin{align*}
   3.6 \times 10 &= 360 \\
   7 \times 10 &= 70 \\
   8 \times 10 &= 80
   \end{align*}
   \]

   \[
   \begin{align*}
   360 &= 360 \\
   54000 &= 54000 \\
   7000 &= 7000 \\
   8000 &= 8000
   \end{align*}
   \]

   \[
   \begin{align*}
   
   \end{align*}
   \]

   \[
   \begin{align*}
   \therefore \text{Order} &= 0.8, 0.36, 0.07, 0.054
   \end{align*}
   \]

**EVALUATION ACTIVITY:**

New MK Primary Mathematics Bk 7 exercise 7:14 Pg 95 (Old Edition)

Remarks:

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**Lesson 19**

**SUB TOPIC: DECIMALS**

**CONTENT:**

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---
EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 7:15 Pg 96 (Old Edition)
Remarks:

LESSON 20
SUB TOPIC: DECIMALS
CONTENT: Division of decimals
Examples:
1. \[ \frac{0.72}{9} \]
   \[ = \frac{72}{9} \times \frac{1}{10} \]
   \[ = 8 \times \frac{1}{10} \]
   \[ = 0.8 \]

LESSON 22
SUB TOPIC: RATIOS
CONTENT: Definition
- A ratio is a comparison of objects
- Forming ratios
Examples:
A class has 20 boys and 30 girls. What is the ratio of boys to girls?
The ratio of boys to girls is 2:3 and the ratio of girls to boys is 3:2

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 14:19 Pg 135 (Old Edition)
Remarks:

LESSON 20
SUB TOPIC: DECIMALS
CONTENT: Multiplication and division of decimals
Examples:
1. \[ \frac{0.24 \times 0.3}{0.8} \]
   \[ = \left( \frac{24}{100} \times \frac{3}{10} \right) \div \left( \frac{8}{100} \right) \]
   \[ = \frac{24 \times 3 \times 10}{100 \times 10 \times 8} \]
   \[ = \frac{9 \times 3}{100} \]
   \[ = 0.09 \]
LESSON 23

SUB TOPIC: INCREASING AND DECREASING QUANTITIES IN A GIVEN RATIO

CONTENT: Increasing and decreasing quantities in a given ratio
Examples: Increase 80kg in the ratio of 5:4

New : old
5 : 4
?
4 parts make 80kg
1 part makes \( \frac{80}{4} = 20 \) kg
5 parts make \( 20 \times 5 = 100 \) kg

Example 2: Decrease 2000= in the ratio of 3:5
New : old
3 : 5
?
5 parts make 2000=
1 part makes \( \frac{2000}{5} = 400 \)
3 parts make \( 400 \times 3 = 1200 \)=

EVALUATION ACTIVITY:

LESSON 24

SUB TOPIC: SHARING IN RATIOS

CONTENT: Sharing quantities in ratios
Examples: 1. Share 18 in the ratio 4:5
Total ratio = 4 + 5 = 9
1st share = \( \frac{4}{9} \times 18 = \frac{4}{2} \times 2 \)
2nd share = \( \frac{5}{9} \times 18 \times 5 \times 2 \)
= 10

EVALUATION ACTIVITY:

LESSON 25

SUB TOPIC: FINDING RATIO OF INCREASE OR DECREASE

CONTENT: Finding ratio of increase or decrease
Examples: In what ratio must 30 be decreased to 24?

New : old
24 : 30
24 ÷ 6 : 30 ÷ 6
= 4 : 5

EVALUATION ACTIVITY:

LESSON 26
SUB TOPIC: RATIOS

CONTENT: Finding the number shared in the given ratio

Examples:

1. Mary, Jane and shared money in the ratio 2:3:1 respectively. If Mary got shs 12,000—how much money did they share?
   
   - Total ratio = 2 + 3 + 1 = 6
   - Mary had 2 parts
   - 1 part = 12000
   - 2 parts = 12000 x 2
   - 6 parts = 12000 x 6
   - Mary had 36,000=

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 9:3 Pg 112 (Old Edition)

Remarks:

______________________________________________________

LESSON 28

SUB TOPIC: PROPORTION

CONTENT: Direct proportion

Examples:

1. \( \frac{2}{3} \) of the books in the book shop are school textbooks. How many books are in the book shop altogether if the school textbooks are 240?

   Method 1:
   - 2 pairs make 240 books
   - 1 part makes 240
   - Let all the books be a \( \frac{2}{3} \) of a
   - \( \frac{2}{3} = 240 \) books
   - \( 2a = 240 \)
   - \( a = 120 \)

   Method 2:
   - 3 pairs make \( 240 \times 3 \)
   - \( \frac{2}{3} = 240 \times 3 \)
   - \( 2 \times 2a = 240 \times 3 \)
   - \( = 120 \times 3 \)
   - \( \Rightarrow a = 120 \times 3 \)
   - \( = 360 \) books

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 9:4 Pg 115 (Old Edition)

Remarks:

______________________________________________________

LESSON 28

SUB TOPIC: PROPORTION

CONTENT: Indirect/inverse proportion

Examples:
1. 4 men take 9 days to complete a job. How long will 12 men take to finish the job at the same rate?
   4 men take 9 days
   1 man take 9 x 4 days
   Therefore, 12 men take 9 x 4 days
   12 men take 3 days

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 7.6 Pg 104 (New Edition)
Remarks:

LESSON 29
SUB TOPIC: CONSTANT PROPORTION
CONTENT: Constant Proportion
Definition of:
Constant proportion: Neither direct nor inverse proportion. The proportion is always constant.
Example:
A bus carrying 30 people take 2 hours to reach Jinja. How long would it take if it carried 10 people and was driven at the same speed?
Solution: Since the speed driven at is the same, it would take: 2 hours to reach Jinja.

EVALUATION ACTIVITY:
Primary Mathematics for Uganda Pg 6 exercise 4.
Remarks:

LESSON 32
SUB TOPIC: FRACTIONS - Changing percentages to fractions
CONTENT: Meaning of percentages
- Changing percentages into common fractions.
Examples:
Express 35% as a common fraction:
35% = \frac{35}{100} = \frac{7}{20}

Changing fractions into percentages:
Examples:
Write \frac{1}{3} as a percentage.
Solution:
= \frac{1}{3} \times 100\% = \frac{2}{5} \times 100\% = \frac{2}{5} \times 20\% = \frac{1}{3} \times \frac{100}{3} = 40\%

Changing percentage to decimals:
25% as a decimal
\frac{25}{100} = 0.25

Changing decimals to percentages:
0.2 = \frac{2}{10} = \frac{2}{10} \times 100\% = 20\%
1.5 as a percentage
\frac{1.5}{10} = \frac{15}{100} \times 100\% = 150\%

EVALUATION ACTIVITY:
Primary School Maths Bk 7 Pg 105 – 106 exercise 1 and 2.
A New MK Primary Mathematics 2000 Bk 7 Pg 105 – 106 exercise 8:1 and 8:2 & 8:4, 8:5
LESSON 33

SUB TOPIC: CHANGING PERCENTAGES TO RATIOS AND VISE-VERSA

CONTENT: Changing percentage to ratios

Examples:

Express the following as ratios:

1. 5% = 5
   100
   = 1
   3

   Ratio = 1:20

2. 33 1/3% = 100%

   100 100
   = 1
   3
   1

   = 100 x 1

   Ratio = 1:3

Changing ratios to percentages:

Express as a percentage.

(i) 4.5
    Ratio = 4:5
    Fraction = 4
    1
    5
    3
    4 x 20
    5 x 20
    = 80
    100
    = 80%

(ii) 1 : 1
    1
    1

(iii) 1:8

LEOSS 34

SUB TOPIC: PERCENTAGES

CONTENT: Finding percentages of quantities

Examples:

1. Find 40% of 150

   40% of 150 = 40 x 15

   = 600

   = 60%

2. A piece of land is 200 hectares. A farmer used 60% of it for cultivation. How much land is used for cultivation?

   Cultivation = 60% of 200

   = 4 x 15

   = 60 x 200 hectares

   = 120 hectares

3. If 20% of a number is 40, what is the number?

   Solution:

   Let the number be x

   or:

   20% of x = 40

   20 x x = 40

   100

   X = 5

   or

   20% of a number = 40

   20

   X = 200

   = 40 x 5

   = 200

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 8:3 and 8:6 Pg 106 & 108.

Remarks:

LESSON 35

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 8:9 and 8:10 Pg 111 and 112 (New Edition)

Remarks:
SUB TOPIC: FINDING THE REMAINING PERCENTAGES

CONTENT:
1. If 40% of a class is absent, what percentage is present? What percentage is a present?
   Those absent = 40%
   Those present = 100% - 40%
   = 60%
2. 35% of the pupils in a school like rice while 10% like potatoes. If the rest like posho, what percentage of pupils like posho?
   %ge for rice and potatoes = 35% + 10%
   = 45%
   Percentage for posho = 100% - 45%
   = 55%
3. Expressing quantities and percentages:
   Examples:
   (i) Write 20 as a percentage of 80.
       Fraction = \( \frac{20}{80} \)
       = \( \frac{1}{4} \times 100\% \)
       = 25%
   (ii) Amos got 12 out of 25 in a Maths test. Express his mark as a percent.
       Fraction = \( \frac{12}{25} \)
       Percentage = \( \frac{12 \times 100\%}{25} \)
       = 48%

LESSON 37
SUB TOPIC: PERCENTAGES
CONTENT: Application of percentages
Examples:
1. Nanyonjo earns shs 12,000. She spends 75% and saves the rest. How much does she spend?
   Solution:
   = 75% of 12,000
   = 75 \times 12,000
   = 9,000
   (ii) How much does she save?
       (100% - 75%) of 12,000
       = 25% of 12,000
       = 25 \times 12000
       = 3000

2. If 30% of my salary is spent on food and I save shs 21,000. What is my salary?
   Solution:
   Let the salary be P.
   Total Food Savings
   100% 30% 70% 100% - 30% = 70%
   70% of P = 21,000
   70 \times P = 21,000
   70% of salary = 21,000
   100 10% of salary = 21,000
   100
   7P x 10 = 210,000
   700
   1
   7P = 210,000
   7
   30,000
   P = 30,000

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 8:7 and 8:8 Pg 109 - 110 (New Edition)
LESSON 39
SUB TOPIC: PERCENTAGE INCREASE AND DECREASE
CONTENT: Percentage increase

Examples:

1. Increase 800 by 20%  
   New amount: 
   = 100% + 20% of old amount 
   = 120% x shs 800 
   = 120 x 800 
   100 
   = 960=

2. Increase 800 pupils by 12 ½ %:  
   New number = 100% + 12 ½ % of old number 
   = 112 ½ % of 800 pupils 
   = 225% x 800 pupils 
   2 
   = 225 ÷ 100 x 800 
   2 1 
   = 225 x 1 x 800 
   2 100 1 
   = (225 x 4) pupils 
   = 900 pupils

3. Increase shs 4800 by 10% and then by 20%  
   Old amount = shs 4800 
   10% increment = 100% + 10% = 110% 
   20% increment = 100% + 20% = 120% 
   = 110% x 120% of shs 4800 
   = 110 x 120 x 4800 
   100 100 
   = 11 x 12 x 48

EVALUATION ACTIVITY:

LESSON 32:
SUB TOPIC: PERCENTAGE DECREASE
CONTENT:

Examples:

1. Decrease shs 1,500 by 10%  
   New amount as percentage 
   = 100% - 10% = 90% 
   New amount: = 90% of 1500= 
   = 90 x 1500 
   100 
   = 90 x 15=
   = 1350=

2. Decrease 720 dollars by 33 1/3%  
   New percentage = 100% - 33 1/3% 
   = 66 2/3% 
   New amount = 66 2/3 of 720 dollars 
   = 200% of 720 dollars 
   3 
   = 240 dollars 
   3 100 1 
   = 2 x 240 dollars 
   = 480 dollars

3. Decrease shs 12000 by 15% and then by 20% 

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Pg 117 exercise 8:14 
Mathematics Revision Handbook P5 – P7 Pg 101
LESSON 41
SUB TOPIC: FINDING THE ORIGINAL NUMBER AFTER %age INCREASE

CONTENT:
Examples:
1. Percentage after increase:
   Let the amount be x.
   New amount = (100% + 20) of x
   \[120\%x = 1440\]
   \[120 \times x = 1440\]
   \[10 \times 12x = 1440 \times 10\]
   \[1200 = 12x\]
   \[100 = x\]
   \[X = 1,200\]

2. What amount of money when increased by 20% becomes 1440?
   Let the amount be x.
   New amount = (100% + 20) of x
   \[120\%x = 1440\]
   \[120 \times x = 1440\]
   \[10 \times 12x = 1440 \times 10\]
   \[1200 = 12x\]
   \[100 = x\]
   \[X = 1,200\]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 6 & 7 Pg 118 exercise 8:15

Remarks:

LESSON 42
SUB TOPIC: FINDING THE ORIGINAL NUMBER AFTER THE DECREASE

CONTENT:
Examples:
1. A worker's salary was decreased by 35% to shs 1560.
   Let the old salary be x.
   New salary = (100% - 35%) of x
   \[1560 = \frac{65}{100}x\]
   \[100\% - 35 = 65\%\]
   \[1560 \times 100 = 65 x \times 100\]
   \[20 = \frac{100}{100%}\]
   \[x = \frac{1560}{65}\]
   \[10\% of salary = \frac{1560}{65}\]
   \[1\% = \frac{1560}{65}\times \frac{1}{100}\]
   \[120 \times 20 = x\]
   \[240 = x\]
   \[X = 2,400\]

2. What number when decreased by 25% becomes 30,000?

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 119 exercise 8:16

Remarks:

LESSON 35:
SUB TOPIC: FINDING PERCENTAGE INCREASE AND DECREASE

CONTENT:
Examples:
1. By what percentage will 480 be increased to become 540?
   Old number = 480
   New number = 540
   Increase = 540 – 480
   = 60
   Percentage increase:
   = \( \frac{60 \times 100}{480} \)
   = 100 \%
   = 12 \( \frac{1}{2} \) %

2. When 240 is decreased, it becomes 192. Calculate the percentage decrease.
   Solution:
   Old number = 240
   New number = 192
   Decrease = 240 – 192
   = 48
   Percentage decrease:
   = \( \frac{48 \times 100}{240} \)
   = 20 %

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 6 & 7 Pg 121 - 122 exercise 8:18 and 8:19

Remarks:

LESSON 43

SUB TOPIC: PERCENTAGE PROFIT AND LOSS

CONTENT:
Percentage profit
Examples:
1. An article was bought at 100,000 and sold at shs 120,000. Calculate the percentage profit.
   Solution:
   Cost price = 100,000
   Selling price = 120,000
   Profit = 120,000 – 100,000
   = 20,000
   Percentage profit:
   = \( \frac{20,000 \times 100}{100,000} \)
   = 20 %

   Percentage loss:
   2. I bought a house at $ 120,000 but I was forced to sell it at $ 100,000. Find my percentage loss.
      Solution:
      Buying price = 120,000
      Selling price = $ 100,000
      Loss = BP – SP
      = 120,000 – 100,000
      = $ 20,000
      Percentage loss:
      = \( \frac{20,000 \times 100}{120,000} \)
      = 16 \( \frac{2}{3} \) %

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 123 – 124 exercise 8:20/8:21
Mathematics Revision Hand book P.5 – P.7 Pg 104
Remarks:

LESSON 44

SUB TOPIC: FINDING COST PRICE FROM PERCENTAGE PROFIT/LOSS

CONTENT:
Examples:
1. After selling a pair of shoes at shs 21,000, a trader made a profit of 20%. Find the buying price of the pair of shoes.
Cost price as a percentage = 100%
Selling price as a percentage = 100% + 20% = 120
120% represents = shs 21,000
1% represents = 21,000

\[
\begin{align*}
\text{700} & \quad \text{25} \\
\text{100% represents} & \quad \text{21,000 x 100} \\
\text{(25 x 700)} & \quad = 17,500
\end{align*}
\]

By selling his cow at shs 34,000, Obala made a loss of 15%. How much did the cow cost?

\[
\begin{align*}
\text{Loss} & = 15% \\
\text{CP} & = 100% \\
\text{SP} & = 100\% - 15% \\
85\% & \text{of CP} = 34,000 \\
\text{Cost price} & = 40,000
\end{align*}
\]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 123 – 124 exercise 8:20/8:21
Mathematics Revision Hand book P.5 – P.7 Pg 104

Remarks:

LESSON 45
SUB TOPIC: APPLICATION OF PERCENTAGE PROFIT AND LOSS

CONTENT: Examples:
1. The cost price of a 50kg bag of sugar is shs 45,000. At what price must he sell each kilogram in order to make a profit of 20%.

\[
\begin{align*}
\text{Cost price for 50kg} & = 45,000 \\
\text{Cost price for 1kg} & = \frac{45,000}{50} \\
\% \text{age profit} & = 20\% \\
\text{Selling price as percentage} & = 100 + 20\%= 120 \\
\end{align*}
\]

2. Kakeeto bought three bags of soya beans at shs. 21,000 each. If each bag weighed 70kg and sold each kg at shs 250.

\[
\begin{align*}
\text{Amount paid} & = 60,000 \\
\text{Amount paid} & = 85 \times 600 = 51,000
\end{align*}
\]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 129
Mathematics Revision Hand book P.5 – P.7 Pg 109

Remarks:
LESSON 47
SUB TOPIC: FINDING ORIGINAL PRICE WHEN GIVEN PERCENTAGE DISCOUNT
CONTENT:
Example:
1. Cissy paid shs 18,000 for a hand bag after being a discount of 10%. Calculate the marked price.

Solution:
Cost price as %age = 100%
Let the marked price be x
Discount offered = 10%
90% of x = shs 18,000

Cissy paid = 100% - 10%
= 90%

90 x = shs 18,000
100 1
90x = 18,000 x 100
100 x 100
200
90x = 18,000 x 100
90
X = 20,000

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 130 - 131 exercise 8:25

Remarks:
_____________________________________________________________________________
_____________________________________________________________________________
CONTENT: Review the following:
- Terms used
- Simple interest
- Principle (P)
- Rate (R)

Example:
1. A Man deposited shs 40,000 for 5 years at a simple interest rate of 2 ½ % per year. Calculate his simple interest and the total amount after 5 years.

Solution:
Simple interest (SI)
SI = PTR
= 40,000 x 5 x 2 ½ %
= 40,000 x 5 x 5
200
= 40,000 x 5 x 5
200
= 200 x 25
= shs 5,000

Amount = principle interest
= shs (40,000 + 5000)
= shs 45,000

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 132 - 133 exercise 8:26
Remarks:
_____________________________________________________________________________
____________________________________________________________

LESSON 51
SUB TOPIC: FINDING THE PERCENTAGE RATE

CONTENT:
Example:
1. Calculate the rate of interest if shs 30,000 can yield a simple interest of shs 1,125 in 9 months.

Solution:
Method 1: Method 2:

<table>
<thead>
<tr>
<th>PTR = SI</th>
<th>Rate = SI x 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,000 x 9 x R = sh 1,125</td>
<td>1125 x 100</td>
</tr>
<tr>
<td>1 x 12 x 100</td>
<td>100</td>
</tr>
<tr>
<td>150 x 50</td>
<td>30,000 x 9</td>
</tr>
<tr>
<td>12 x 100</td>
<td>1125</td>
</tr>
<tr>
<td>300 x ¾</td>
<td>375</td>
</tr>
<tr>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td>25 x 9R = 1125</td>
<td>= 1125 x 4</td>
</tr>
<tr>
<td>25 x 9</td>
<td>25 x 9</td>
</tr>
</tbody>
</table>

R = 5% 3  Rate = 5%

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 138 - 139 exercise 9:2
Remarks:
_____________________________________________________________________________
____________________________________________________________

LESSON 52
SUB TOPIC: CALCULATING PRINCIPAL

CONTENT:
Example:
1. What principal will yield shs 6,000 at 5% per year for 3 years?

Solution:
SI = 6000
R = 5% per year
T = 3 years
P x R x T = Simple interest
100

P x 5 x 3 = 6000
15
100
P = 600,000
15
Principal = 40,000=

2. A farmer borrowed money at 12 ½ per year. After 2 years, a simple interest of shs 8,000 was paid. Find the amount borrowed.

Solution:
SI = 8,000=
R = 12 ½ %
T = 2 years
P = SI x 100
R x T

P = 8,000 x 100
12 ½ x 2

Principal = 32,000

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 140 exercise 9:3
Remarks:

LESSON 53

SUB TOPIC: CALCULATING TIME

CONTENT:

Example:

1. In what time will shs 12,000 yield an interest of shs 1,800 at 5% per year.
   \[ P \times T \times R = SI \]
   \[ P \times R \times T = SI \]
   \[ SI = 1800 = 12,000 \times 5 \times T = 1800 \]
   \[ P = 12,000 \quad 100 \]
   \[ R = 5\% \]
   \[ 600 \quad 1800 \quad 3 \]
   \[ 600 \quad 600 \quad 1 \]
   \[ T = 3 \text{ years} \]

2. How long will 48,000= take to yield shs 5400 at 15% per year?
   Solution:
   \[ P = 48,000 \quad 480 \times 15T = 5400= \]
   \[ R = 15\% \text{ per year} \quad 7200T = 5400 \]
   \[ SI = 5400 = 7200 \quad 7200 \]
   \[ P \times R \times T = SI \quad T = \frac{3}{4} \text{ years} \]
   \[ 48,000 \times 15 \times T = 5400= \quad = (3/4 \times 12) \]
   \[ 100 \quad 9 \text{ months} \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 142 exercise 9:4

Remarks:

TOPICAL EXERCISE ON FRACTIONS

1. Name the types of fractions and give an example on each.
2. Divide: \(2\frac{3}{13} \div \frac{3}{13} \)
3. Simplify: \(\frac{2}{3} - \frac{1}{3} \)
4. Salim's bicycle got spoilt after he had covered a distance of 20km which was \(\frac{2}{5}\) of his journey. How long was the journey?
5. In a class of 120 pupils, the ratio of girls to boys is 4:2. Find the number of boys.
6. Work out: \(\frac{2}{3} + \frac{3}{4} \)
7. Simplify: \(0.27 \times 0.06 \)

8. Work out: \(\frac{9}{10} - \frac{1}{5} \)
9. Otim had 30km still to cover after traveling 3/5 of the journey. How was the journey?
10. Simplify: \(\frac{2}{3} + \frac{1}{4} \)
11. Subtract: \(\frac{2}{5} - \frac{1}{4} \)
12. In Sir Apollo Schools, \(\frac{3}{5}\) of the pupils who sat for the Primary Leaving Examination passed.
   (a) If those who failed were 30, find the number of pupils who passed.
   (b) What percentage of pupils failed the examination?
13. \(\frac{2}{5} - \frac{1}{6} \)
14. Add: \(35.7 + 0.35 \)
15. A bus broke down after covering \(\frac{5}{7}\) of the journey. The remaining distance to complete the journey was 140km. How long was the whole journey?
16. Divide: \(4.2 \div 0.03 \)
17. Add: \(4.05 + 11.4 + 2.36 \)
18. Usamah spent \(\frac{1}{4}\) of his salary on food, \(\frac{1}{3}\) of the remainder on debts and saved shs 3600=.
   (a) How much did he spend on paying debts?
   (b) What are his earnings per month?
19. Arrange in ascending order: \(\frac{2}{5}, \frac{3}{4}, 0.03\) and \(2/3\).
20. Tap A takes 9 minutes to fill in the tank.

Fractions (Percentages) Topical questions:

1. Express 2:5 as a percentage.
2. Change 0.8 as a percentage.
3. Express 66.6% as a fraction to the lowest terms.
4. Express 40cm as a percentage of 2m.
5. What is 10% of 2200 pencils?
6. A bag of cement cost shs 5,600. How much will it cost after a 30% increase?
7. Asiimwe deposited shs 50,000 in Uganda Commercial Bank which offers an interest of 30% per year. How much money will Asiimwe have in the Bank after six months?
8. Okello bought a car at shs 2,500,000 and sold it to Otim at a profit of 20%. Otim then sold it to Tumwine at a loss of 15%. How much did Tumwine pay for the car?
9. If 280 is increased by $x$ it become 392. Find the value of $x$.

10. Decrease 65kg by 5.

11. A farmer has the following animals:
   - Chicken = 30
   - Goats = 35
   - Sheep = 15
   - Rabbits = 10
   What percentage of the total animals are rabbits.

12. Milk was mixed with water to make tea. If 14 litres of milk was used and this was 40% more than the amount of water in the tea, how tea was prepared?

13. Mugisha bought about at shs 200,000 and sold it as shs 180,000 what was his percentage loss?

14. (a) Okello’s wage was increased by 10% to shs 77,000 per month. Find his salary?
    (b) If his new wage of shs 77,000 was decreased by 5%, find his final wage.

15. A man spent 20% of his salary on food, 10% on transport, 40% on medical care and the rest on rent.
    (i) Find the percentage of his salary spent on rent.
    (ii) How much does he spend on medical care if he earns 800,000 as his salary?
    (iii) How much more is spent on food than transport?

16. Fatuma had shs 5,000 if she used 10% of her money to buy soap what was her balance?

---

**TOPIC 9: INTEGERS**

**LESSON 1:**

**SUB TOPIC:** OPPOSITES/INVERSES/ADDITIVE INVERSES
CONTENT:
Examples: -2 + 2

Note: - Arrows pointing to the positive direction are positive arrows.
- Arrows pointing to the negative direction are negative arrows.

Example 1. Give the integers indicated by arrows on the number line below.

Example 3. What is the additive inverse of +6
Let the inverse be x.
+6 + x = 0
+6 – 6 +x = 0 – 6
X = -6.

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 13 Nos 1, 2 & 3 Pg 348 (New Edition)

LESSON 2:
SUB TOPIC: ORDERING INTEGERS ON A NUMBERLINE

CONTENT:
The number line:

Example 2. Arrange in descending order/decreasing order the following integers:
-6, 0, +7, +4
Solution: +7, +4, 0, -3, -6

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 13 Nos 4 and 5 Pg 348 (New Edition)

LESSON 3:
SUB TOPIC: ADDITION OF INTEGERS USING A NUMBER LINE

CONTENT:
Example 1. +5 + +3 = +8

Examples
1. Use >, < or = to compare the pair of integers. Given:
   (i) -6 < -3
   (ii) -3 < 0
   (iii) 0 < +4
   (iv) 0 > -6
   (v) -3 > -6
   (vi) +7 > +4
   (vii) +4 = +4
   (viii) -8 = -8
2. Arrange in descending order/decreasing order the following integers:
   -6, 0, +7, -3, +4
   Solution: +7, +4, 0, -3, -6

Note: - (i) All integers to the left of zero are –ve.
   - (ii) All integers to the right of zero are +ve
   - (i) Any integer is less than that on its right.
   - (ii) Any integer is more than that on its left.
LESSON 4:
SUB TOPIC: SUBTRACTION OF INTEGERS USING A NUMBERLINE
CONTENT:
Example 1. +5 - 3 = 8

(-) Means start from where the first arrow started and move in the direction of the second integer. How far are you from the end point of the first integer.

Example 2. +7 - 3 = 4

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 1 a, b, c, dPg 346 (New Edition)
Remarks:

LESSON 5:
SUB TOPIC: SUBTRACTION OF INTEGERS BY NAMING THE INTEGERS USING LETTERS
CONTENT:
Example 1. +8 - 5 = 3

Naming the integers +8 as a and +5 as b.

Subtraction means moving backwards. The arrow shows the answer.

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 19:4Pg 358 (New Edition)
Remarks:

LESSON 6:
SUB TOPIC: SUBTRACTING INTEGERS WITHOUT NUMBER LINES
CONTENT:
Example 1.
1. +8 - 7 Note = + = -
   = +1
2. -8 +3 = -3 = -11
3. -5 - 2 Note = - = +
   = -3

EVALUATION ACTIVITY:
Remarks:
LESSON 7:

SUB TOPIC:  ADDING INTEGERS WITHOUT USING A NUMBERLINE

CONTENT:
Example 1.
1. +7 + +2  +ve X +ve = +ve
   = +7 + 2
   = +9
2. +7 + -2  +X = -  +ve X -ve = -ve
   = +7 - 2
   = +5
3. -7 + -2 = -7 -2  +ve X -ve = -ve
   = -9

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 19:1 Nos 1 and 2 Pg 352 (New Edition)
Remarks: ______________________
____________________________________________________
____________________________________________________
____________________________________________________
____________________________________________________

LESSON 8:

SUB TOPIC:  MULTIPLICATION OF INTEGERS

CONTENT:
Example 1.
Note: +ve x +ve = +ve
     +ve x -ve = -ve
     -ve x -ve = +ve

Examples:
1. +2 x +6 = +12
2. +2 x -6 = -12
3. -2 x -6 = +12

Multiplication of integers on a number line:
Examples:
1. +2 x +3

LESSON 9:

SUB TOPIC:  DIVISION OF INTEGERS

CONTENT:
-ve ÷ -ve = +ve
-ve ÷ +ve = -ve
+ve ÷ -ve = -ve
+ve ÷ +ve = +ve

Examples:
1. +16 ÷ +2 = +8
2. +16 ÷ -2 = -8
3. -16 ÷ +2 = -8
4. \[-16 \div -2 = +8\]
Check: \[-16 \div -2 = +8\]
-16 = +8 x -2
2
-16 = +8 x -2
Also -16 = +8 x -2
+8 +8
-16 \div +8 = -2

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 19:7 Pg 361 (New Edition)
Remarks:

LESSON 10:
SUB TOPIC: APPLICATION OF INTEGERS
CONTENT:
Bc, LOSS, Time before debts, below sea level are –ve.
AD, profit, time after, above sea level are +ve.
Example 1:
A Scientist was born in 30BC and died immediately after his birthday in 76AD. How old was he when he died?
Year died
-40 -30 -20 -10 0 +10 +20 +30 +40 +60 +70 +80
Date of birth
The man lived from -30 to +76
The Scientist lived from +76 - 30)
= 76 + 30
106 years

LESSON 11:
SUB TOPIC: FINITE/MODULAR SYSTEM (ADDITION)
CONTENT:
Review the following digits used in the different finite system.
Examples:
(i) Add 6 + 7 = ___ (finite 9)
6 + 7
13 = 1 rem 4
\therefore 6 + 7 = 4 (finite 9)
(ii) 8 + 6 + 3 = ___ (finite 13)
(8 + 6) + 3
14 + 3
17 = 1 rem 4
\therefore 8 + 6 + 3 = 4 (finite 13)
(iii) 3 + 4 + 5 = x (finite 7)

EVALUATION ACTIVITY:
A New MK Old Edition Pupils Bk 6 Pg 47 exercise 6:2
Remarks:

LESSON 12
SUB TOPIC: SUBTRACTION IN THE FINITE SYSTEM
CONTENT: Examples:
(i) 1 - 3 = ___(finite 4)
(1 + 4) - 3
5 - 3
= 2
\therefore 1 - 3 = 2 (finite 4)
(ii) 2^2 - 5 = ___(finite 7)
(2 x 2) - 5 = ___(finite 7)
4 - 5 = ___(finite 7)
4 + 7 - 5
11 - 5
= 6
\therefore 2^2 - 5 = 6 (finite 7)
(iii) \(2 - 6 - 4 - 8 = \) ____ (finite 9)

EVALUATION ACTIVITY:
A New MK Pupils Bk 7 Pg 48 exercise 4:1
Remarks:

LESSON 13

SUB TOPIC: MULTIPLICATION USING THE FINITE SYSTEM

CONTENT: Examples:

(i) \(5 \times 7 = \) ____ (finite 9)
\[= 5 \times 7\]
\[= 35 + 9\]
\[3 \text{ rem } 8\]
\[= 5 \times 7 = 8 \text{ (finite 9)}\]

(ii) \(2^3 = \) ____ (finite 7)
\[= 2^3\]
\[= 2 \times 2 \times 2\]
\[= 4 \times 2\]
\[= 8 \text{ 7}\]
\[= 1 \text{ rem } 1\]
\[\therefore 2^3 = 1 \text{ (finite 7)}\]

(iii) \(4 \times (5 \times 2) = \) ____ (mod 6)

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils Bk 7 Pg 50 exercise 4:4
Remarks:

LESSON 14

SUB TOPIC: SOLVING EQUATIONS USING THE FINITE SYSTEM

CONTENT: Examples:

(i) \(x - 4 = 3 \text{ (mod 7)}\)
\[x - 4 + 4 = 3 + 4 \text{ (mod 7)}\]
\[x + 0 = 7 \text{ (mod 7)}\]
\[x = 7 \div 7 \text{ (mod 7)}\]
\[x = 1 \text{ rem } 0 \text{ (mod 7)}\]
\[x = 0 \text{ (mod 7)}\]

(ii) \(m + 4 = 3 \text{ (mod 5)}\)
\[m + 4 - 4 = 3 - 4 \text{ (mod 5)}\]
\[m + 0 = (3 + 5) - 4 \text{ (mod 5)}\]
\[m = 8 - 4 \text{ (mod 5)}\]
\[m = 4 \text{ (mod 5)}\]

(iii) \(2x - 3 = 3 \text{ (finite 4)}\)
\[2x - 3 + 3 = 3 + 3 \text{ (finite 4)}\]
\[2x + 0 = 6 \text{ (finite 4)}\]
\[2x = 6 \text{ (finite 4)}\]
\[2\]
\[x = 3 \text{ (finite 4)}\]

(iv) \(2(2x - 1) = 4 \text{ (finite 7)}\)
\[2 \times 2x - 1 \times 2 = 4 \text{ (finite 7)}\]
\[4x - 2 = 4 \text{ (finite 7)}\]
\[4x + 2 + 2 = 4 + 2 \text{ (finite 7)}\]
\[4x = 6 \text{ (finite 7)}\]
\[4x + 6 + 7 \text{ (finite 7)}\]
\[4x + 13 + 7 \text{ (finite 7)}\]
\[1 \]
\[4x = 20 \text{ (fin 7)}\]
\[4 \]
\[x = 5 \text{ (finite 7)}\]

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils Bk 7 Pg 49 - 50 exercise 4:2, 4:3
Remarks:

LESSON 15

SUB TOPIC: DIVISION IN THE FINITE SYSTEM

CONTENT: Review use of dial clock in dividing numbers
Example:

Divide 2 ÷ 5 = ___ (Mod 7)

Solution:

2 ÷ 5 = ___ (mod 7)
= 2 + 7 5
= 9 ÷ 5 = ___ (mod 7)
= 9 + 7 5
= 16 ÷ 5 = ___ (mod 7)
= 16 + 7 5
= 23 ÷ 5 = ___ (mod 7)
= 23 + 7 5 = ___ (mod 7)
= 30 ÷ 5 = 6 rem 0 (mod 7)
∴ 2 ÷ 5 = 6 (mod 7)

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7
Maths Revision Hand Book 5, 6 & 7 Pg 35
Primary Maths Revision & Practice for Uganda Pg 19

Remarks:

LESSON 16

SUB TOPIC: APPLICATIONS OF THE FINITE SYSTEM (FINITE 7 AND FINITE 12)

CONTENT: Review the idea of the finite system as applied to days in a week.
           Review the application of finite system in months of a year.

Example:

(i) Today is Thursday, what day of the week will it be 82 days from today?
   Solution:
   Thursday stands for 4
   4 + 8 = ___ (finite 7)
   86 = ___ (finite 7)
   86 ÷ 7 = ___ (finite 7)
   12 rem 2
   2 stands for Tuesday
   It will be Tuesday.

(ii) Today is Tuesday what day of the week was it 85 days ago.
    Solution:
    2 represents Tuesday
    2 – 85 = ___ (finite 7)
    85 = 1 (finite 7)
    85 ÷ 7 = 12 rem 1
    1 stands for Monday
    The day was Monday.

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7 Pg 53 exercise 4:5

Remarks:

LESSON 17:

SUB TOPIC: APPLICATION OF FINITE 12

CONTENT: Months of the year
           Digits representing specific months in the year.
           Finite 12 (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11)
           1 – January
           2 – February
           3 - March
           4 – April
           5 – May

Example:

(i) It is July now, which month of the year will it be after 2132 months?
   Solution:
   7 represents July
   7 + 2132 = ___ (finite 12)
   2139 = ___ (finite 12)
   178
   12 2139
(i) It is 7:00 am. What time will it be after nine hours from now?
Solution:
7 + 9 = ___ (fin 12)
16 = ___ (fin 12)

(ii) It is April now, which month of the year was it 346 months ago?
Solution:
4 stands for April
4 – 346 = ___ (finite 12)
346 – (finite 12)

12 346
24 346 = 10 (fin 12)
106
- 96
10
4 – 10 = (fin 12)
(4 + 12) – 10 + (fin 12)
16 – 10 = 6 (fin 12)
6 stands for June
So the month was June

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils Bk 7 Pg 54 – 55 exercise 4:6
Remarks:
_____________________________________________________________________________
______________________________________________________
________________________________________________________________

LESSON 19
SUB TOPIC: APPLICATION OF FINITE 24 IN 24 HOUR CLOCK SYSTEM
CONTENT:
Example:
(i) It is 5:00 pm now what time will it be after 1340 hours?
Solution:
5:00 pm = 24 hr clock
12:00 + 5:00 = 1700 hours
1340 hours 24
55 rem 20

1340
24
120
120
20
55 days rem 20 hours

.: 17:00 + 20:00 hours
= 37:00 hours
= 37:00 hours 24
= 1 rem 13
13:00 hours or 1:00pm

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils Bk 7 Pg 56-57 exercise 4:8
LESSON 20
SUB TOPIC: APPLICATION OF THE FINITE SYSTEM IN GROUPING ITEMS

CONTENT:

Example:

A Headmaster bought some pens. Teachers grouped them in groups of nines but seven pens were left and if they grouped them in groups of 8’s, 4 pens were left. If they grouped them in 3’s only 1 pen is left. How many pens were bought by the headmaster?

Solution:

7 (finite 9) = 7, 16, 25, 34, 43, 52, 61, …
4 (finite 8) = 4, 12, 20, 28, 36, 44, 52, 60, …
1 (finite 3) = 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43, 46, 49, 52, 55, …

The common number for all is 52 so they were 52 pens.

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7 Pg 57 exercise 4:9

Remarks:

7. Change 15 ten to binary base.
8. Change 101 two to decimal base.
9. Add 111 two to 11 two.
10. Multiply 1001 two
    X 10 two

TOPOCAL EXERCISE:

1. Find the value of 4 in the figure 78,421.
2. Find the place value of 6 in 71.867.
3. Write down all 3 digit numerals that can be formed using the digits 7, 1, 6.
4. Find the product of the values of 2 and 4 in 823.45.
5. Write in figures: Sixty thousand sixteen.
6. Write 454 in Roman numerals.

7. Change 15 ten to binary base.
8. Change 101 two to decimal base.
9. Add 111 two to 11 two.
10. Multiply 1001 two
    X 10 two

TOPIC 6:

TOPIC: GRAPHS AND INTERPRETATION OF INFORMATION

LESSON 1:

SUB TOPIC: PICTO GRAPHS
CONTENT: 0.3

Definition:

A picot graph is where we use pictures to represent quantities of actual items.

Example:

The graph below shows the number of books that were given to different schools.

<table>
<thead>
<tr>
<th>School</th>
<th>No of copies sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kyengera P/s</td>
<td>📚📚</td>
</tr>
<tr>
<td>Nakasero P/S</td>
<td>📚📚📚📚</td>
</tr>
<tr>
<td>Mengo P/s</td>
<td>📚📚📚📚📚</td>
</tr>
<tr>
<td>Old Kampala P/s</td>
<td>📚📚📚📚📚📚</td>
</tr>
<tr>
<td>Winston P/s</td>
<td>📚📚📚📚📚📚📚</td>
</tr>
</tbody>
</table>

Given that stands for 100 books and for 50 books.

(a) How many more books did Mengo pupils get than Kyengera?
(b) Which school had the maximum number of books?
(c) Find the total number of books that were given out to the five schools.
(d) Calculate the average number of books that were distributed to the five schools.

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 10:1 Pg 146

Remarks:

LESSON 2:

SUB TOPIC: BAR GRAPHS

CONTENT:

Example:

The bar graphs represents the copies of Newspapers which were sold to the Education Manager’s office on a certain day. Use it to answer the questions that follow:

(a) Which Newspaper was sold in the biggest number?
(b) How many copies were sold altogether?
(c) Which newspaper was bought by the least number of people?
(d) How many more copies of New Vision were sold than the Red Pepper?

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 10:2 Pg 147

Remarks:

LESSON 3:

SUB TOPIC: BAR GRAPHS

CONTENT: Using given data to draw bar graphs

Example:

1. The table below represents points scored by 30 players.
Frequency table:

<table>
<thead>
<tr>
<th>No</th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>//</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>///</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>////</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>/// /</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>/// ///</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>/// ///</td>
<td>5</td>
</tr>
</tbody>
</table>

A bar graph to represent the above information:

LESSON 4:
SUB TOPIC: LINE GRAPHS
CONTENT:

Example: The graph represents the schools’ daily attendance for a week.

Use the information on the graph to make a table showing the daily attendance.

(i) On which day was the attendance very poor?
(ii) On which day was the attendance 600?
(iii) How many pupils attended on Wednesday?
(iv) What was the average attendance that week?
(v) How many more pupils attended on Wednesday than Tuesday?

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 10:4 Pg 150
Remarks:

LESSON 5:
SUB TOPIC: TEMPERATURE GRAPHS
CONTENT: Interpreting temperature graphs
Example:

Study the table below:

<table>
<thead>
<tr>
<th>Days</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28°C</td>
<td>27°C</td>
<td>29°C</td>
<td>30°C</td>
<td>26°C</td>
<td>29°C</td>
<td>27°C</td>
</tr>
</tbody>
</table>

The same information can be represented on the graph as shown below.

<table>
<thead>
<tr>
<th>Days of the week</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50°C</td>
<td>100°C</td>
<td>150°C</td>
<td>200°C</td>
<td>250°C</td>
<td>300°C</td>
<td>350°C</td>
</tr>
</tbody>
</table>

Time is shown on the horizontal axis and distance is shown on the vertical axis.

Example:

The graph below shows 3 people moving between Kampala and Mpiji.

1. What is the scale on the horizontal axis.
2. What is the scale on the vertical axis?
3. Find the average speed of each person.
4. Who is moving at the highest speed?
5. Where was Amon after 2 ½ hours?
6. How many hours did Amon take to complete her journey?
7. Where was Ladoki after 2 hours?
8. Where did Amon meet Ladoki?
9. How many hours earlier did Océn arrive at Mpiji before Amon?
10. How long did Océn take to cover 30km?

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 12:9 Pg 185
Remarks:

LESSON 6:

SUB TOPIC: TRAVEL GRAPHS

CONTENT:
A travel graph is one which shows the distance traveled and time taken.
LESSON 7:
SUB TOPIC: DRAWING TRAVEL GRAPHS
CONTENT:
Example:
Mukasa covered a journey in 4 hours traveling at 15 K.P.H. Show the journey on the grid.

<table>
<thead>
<tr>
<th>KM</th>
<th>0 + 15</th>
<th>15 km + 15</th>
<th>30 km + 15</th>
<th>60 km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>0 + 1</td>
<td>1 hr + 1</td>
<td>2 hrs + 1</td>
<td>4 hrs</td>
</tr>
</tbody>
</table>

A graph representing Mukasa's journey.

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 10:14 Pg 173 -174
Remarks:

LESSON 8:
SUB TOPIC: COORDINATE GRAPHS
CONTENT:
Example:
Plot the following points
A = (-1, 4)
B = (5, 4)
C = (5, 0)
D = (-1, 0)
Join the points name the figure formed and find its area.
2. P = (-2, 3) Q = (2, 3) R = (3, -2) S = (-4, -2)
Join the points, name the figure formed and find its area.
EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 10: 20 Pg 183
Remarks:

LESSON 9:
SUB TOPIC: GRAPHS OF EQUATIONS
CONTENT:
Example:
1. Given that x = y. Complete the table.
   (a) Draw a graph for the equation.
   2. 2x = y
   3. y = x + 4
   4. y = 2x – 1
EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 10:22 Pg 182
Remarks:

LESSON 10:
**SUB TOPIC:**  
**GRAPHS OF EQUATIONS**

**CONTENT:**  
Complete the table of the given equation

Example:  
If \(2x + y = 10\). Complete the table.

<table>
<thead>
<tr>
<th>(X)</th>
<th>(2x)</th>
<th>(y)</th>
<th>(2x + y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(X)</th>
<th>(2x)</th>
<th>(y)</th>
<th>(2x + y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

**EVALUATION ACTIVITY:**

1. \(Y = 2x - 1\) Complete the table.

<table>
<thead>
<tr>
<th>(X)</th>
<th>(2x)</th>
<th>(y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. Complete the table \(y = 3x - 5\)

<table>
<thead>
<tr>
<th>(X)</th>
<th>(3x)</th>
<th>(y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>1/3</td>
<td>3/1</td>
<td>-2</td>
</tr>
<tr>
<td>-2</td>
<td>-6</td>
<td>-8</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>

3. \(3x + y = 5\) Complete the table

<table>
<thead>
<tr>
<th>(X)</th>
<th>(3x)</th>
<th>(y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>18</td>
<td>3</td>
</tr>
</tbody>
</table>

**Remarks:**
_____________________________________________________________________________
_____________________________________________________________________________

**LESSON 11:**
**SUB TOPIC:**  
**LINES FORMED BY ORDERED PAIRS ON A GRAPH**

**CONTENT:**  
Example:

1. Line A in the graph passes through (3, -3), (-2, -2), (-1, -1), (0, 0), (1, 1), (2, 2), (3, 3), etc. 
   The table shows the x and y coordinates from line A.

<table>
<thead>
<tr>
<th>(X)</th>
<th>(-3)</th>
<th>(-2)</th>
<th>(-1)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Y)</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

In comparison x coordinates are equal to the y coordinates

1. The equation of line A is \(y = x\)

2. Line B passes through (-3, -2), (-2, -1), (-1, 0), (0, 1), (1, 2), (2, 3), (3, 4), etc.

<table>
<thead>
<tr>
<th>(X)</th>
<th>(-3)</th>
<th>(-2)</th>
<th>(-1)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Y)</td>
<td>-2</td>
<td>-2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

The equation for line B is \(y = x + 1\)

Represent the above lines on a coordinate graph

**EVALUATION ACTIVITY:**

MK Bk 7 Pg 185 exercise 10:21

**Remarks:**
_____________________________________________________________________________
_____________________________________________________________________________

**LESSON 12:**
**SUB TOPIC:**  
**PIE CHARTS**
CONTENT:
Example:
1. The pie chart below shows the monthly expenditure and savings of Mr Mugisha who earns 72,000=

   - Save 360°
   - Rent
   - Food 144°
   - 72°
   - Others

(a) How much does he spend on each item?
(b) Change the given degrees to percentages.

2. The pie chart below shows a man's expenditure and savings if he earns 10,800=

   - Rent
   - Save 150°
   - Others 120°

(a) How much does she spend on rent?
(b) Express the savings as a percentage of the total.
(c) How much more does he spend on other than he saves.

EVALUATION ACTIVITY:
MK Bk 7 Pg 192 exercise 12:11

Remarks:
_____________________________________________________________________________
______________________________________________________

LESSON 13:
SUB TOPIC: PIE CHARTS
1. Mukibi spent 70% of his salary on rent 50% of the remainder on others. He was left with 3,000=

(i) What did he have at first?
(ii) Draw a pie chart using the information above.

2. The table below shows how Mr Mwanje spends his salary.

<table>
<thead>
<tr>
<th>Items</th>
<th>School fees</th>
<th>Food</th>
<th>Transport</th>
<th>Others</th>
<th>Car expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentages</td>
<td>15%</td>
<td>20%</td>
<td>X%</td>
<td>10%</td>
<td>15%</td>
</tr>
</tbody>
</table>

(i) Calculate the value of x.
(ii) If he spends 60,000 on others, calculate his salary.
(iii) Draw a pie chart to represent the information above.

EVALUATION ACTIVITY:

MK Bk 7 196 - 197 exercise 12:12

Remarks:

LESSON 15:
SUB TOPIC: PROBABILITY

CONTENT: Probability is a measure of the likelihood of an event.

Example: A basket has 2 ripe mangoes and 6 row mangoes. What is the probability of Twaha picking a ripe mango at random?

Solution: Total number of events is picking whatever is in the basket, whether ripe or not. So the number of chances is raw + ripe. Then the desired chance are the ripe mango.

Probability: Desired chance = 2
Total chance = \( \frac{2}{2 + 6} \)
= \( \frac{2}{8} \)
= \( \frac{1}{4} \)

What is the probability that a baby will be produced by a pregnant mother?

EVALUATION ACTIVITY:

A New MK Primary Maths Bk 7 Pg 189 exercise 10:23.
Primary Mathematics for Uganda Pg 57 exercise 1

Remarks:

LESSON 16:
SUB TOPIC: TOSSING A COIN AND A DICE

CONTENT:

Example: If a coin is tossed once, what is the probability of getting a head on the top?

Total chance = \{H, T\}
Number of possible outcomes = 2
Expected outcomes = \{H\}
\therefore Number of expected outcome = 1
Hence Probability = \( \frac{n(E)}{n(s.s)} \)
= \( \frac{1}{2} \)

Example 2: When a die is rolled once, what is the probability of getting an even number on top?

Probability space = \{all expected outcomes\}
\( n(s.s) = \{1, 2, 3, 4, 5, 6\} \)
\( n(s.s) = 6 \)
Expected outcomes = \{all desired chances\}
\( n(E) = \{2, 4, 6\} \)
\( N(E) = 3 \)
Probability = \( \frac{All\ expected\ outcomes\ (desired\ chances)}{All\ possible\ outcomes.} \)
Probability = \( \frac{n(E)}{n(s.s)} \)
= \( \frac{3}{6} \)

EVALUATION ACTIVITY:

A New MK Primary Bk 7 Page 189 exercise 10:23

Remarks:
**Lesson 17:**

**Sub Topic:** CARTESIAN PRODUCTS AND PROBABILITY SPACE

**Content:** Two coins, die and a coin

Example:
If two coins are tossed at once, what is the probability of two heads showing up?

Probability space =

<table>
<thead>
<tr>
<th>1st</th>
<th>H</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>H</td>
<td>HH</td>
</tr>
</tbody>
</table>

Expected outcome = \{H, H\}

\[ n(E) = 1 \]

\[ n(s.s) = 4 \]

Probability = \[ \frac{n(E)}{n(s.s)} = \frac{1}{4} \]

Example II
What is the probability that an even number and a tail will show up?

<table>
<thead>
<tr>
<th>Dice</th>
<th>Coin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H</td>
</tr>
<tr>
<td>2</td>
<td>H, T</td>
</tr>
<tr>
<td>3</td>
<td>H</td>
</tr>
<tr>
<td>4</td>
<td>H, T</td>
</tr>
<tr>
<td>5</td>
<td>H</td>
</tr>
<tr>
<td>6</td>
<td>H, T</td>
</tr>
</tbody>
</table>

Possible pairs (out come) = \{2, H, 4, H, 6, H\}

\[ n(E) = 6 \]

\[ n(s.s) = 4 \]

Probability space = 12

Probability of even and tail = \[ \frac{3}{12} = \frac{1}{4} \]

**Evaluation Activity:**

A New MK Primary Maths Bk 7 Pg 189 exercise 10:24

Primary Mathematics for Uganda Pg 57 exercise 1

**Remarks:**

**Lesson 18:**

**Sub Topic:** TOSSING TWO DIES (DIE AND DIE)

**Content:**

Example:

1. When two dies are tossed once what is the probability that the sum is 8?

<table>
<thead>
<tr>
<th>Dice A</th>
<th>Die B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample space</th>
<th>Sample space</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>36</td>
</tr>
</tbody>
</table>

\[ n(E) = 5 \]

\[ n(s.s) = 36 \]

\[ \text{Probability (sum 8)} = \frac{n(E)}{n(s.s)} = \frac{5}{36} \]

2. When two dies are tossed once, what is the probability that the product of 20 appears on top?

**Evaluation Activity:**

MK Bk 7 Pg 191 exercise 10:24

Remarks:

**Lesson 19:**

**Sub Topic:** STATISTICS

**Content:** Mode, medium, range and mean

Example:

1. The table below represents the goals scored by different teams.

<table>
<thead>
<tr>
<th>Goals scored</th>
<th>2</th>
<th>3</th>
<th>6</th>
<th>7</th>
<th>10</th>
</tr>
</thead>
</table>

**Remarks:**
| Number of teams | 4 | 1 | 2 | 1 | 2 |

(a) Find the mode score.
(b) What was the modal frequency?
(c) Calculate the medium
(d) Calculate the mean and range.

2. Find the medium of the following scores 3, 1, 2, 0, 6, 1, 4

EVALUATION ACTIVITY:

MK Bk 7 Pg 156 exercise 10:7

Remarks:

_____________________________________________________________________________
_____________________________________________________

LESSON 20:

SUB TOPIC: COMPLEX AVERAGE/INVERSE OF AVERAGE

CONTENT:

Example:
The average of 4 boys in a group is 12 years. A young boy as 4 years joined the group. Find the average age of the 5 boys.

\[
\text{Mean} = \frac{\text{Total}}{\text{Number of boys}}
\]

Total age of 4 boys = \(\text{Mean age } \times \text{number of boys}\)

= \(12 \times 4\)

= 48

Mean age of 5 boys = \(\frac{\text{Sum of ages}}{\text{Number of boys}}\)

= \(\frac{48 + 4}{5}\)

= 10.2/5

The mean age of the 5 boys = 10.2/5 years.

Example 2:
The average mark of 36 pupils in a class is 5. Two pupils whose marks are 20 and 24 leave the group. Find the average mark of the remaining pupils.

TOPOICAL EXERCISE ON GRAPHS

1. Hamisa kept the following daily record of the number of people who visited their home in a week: 3, 5, 3, 2, 0, 3, 5. Find the mean.
2. A die is rolled once. What is the probability that a composite number will show on top?
3. The average height of Peter, James and John is 51cm. If the height of Peter is 53cm and that of James is 46cm, find the height of John.
4. Mary kept the following record of rainfall in centimeters: 4, 3, 6, 5, 3, 0. Find the mode.
5. A football team can win, draw or lose a match. What is the probability that it will win a match?
6. The mean of the scores: 8, 7, 6, 5, \((a - 5)\) is 6
   (a) Find the value of \(a\).
   (b) Find the range of the scores.
7. Sumaya scored the following marks in her homework exercises: 2, 5, 7, 3, 10, 4, 7, 11, 8, 3
   (a) Find her median mark
   (b) Find the mean mark
   (c) Find the probability that Sumaya scored a mark above her mean mark
8. The equation of a line is \(2x + 1 = y\). Make a table for the coordinates of \(x\) and \(y\) with the coordinates of \(x\) between -2 and +3. Show the line on a graph.
9. Given that \(x = 2y + 1\) complete the table below.

<table>
<thead>
<tr>
<th>X</th>
<th>1</th>
<th>5</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

10. (a) Draw a grid and plot the following points:
    (i) A (-4, 3)
    (ii) B (0, 3)
    (iii) C (2, -3)
    (iv) D (-4, -1)
    (b) Join the points A to B, B to C, C to D, D to A
    (c) Name the quadrilateral formed.
    (d) Find the area of the quadrilateral formed above.
11. Find the mean of \(x, 4, 2x, 6\) and 2x.
12. What number is mid way of $\frac{1}{2}$ and $\frac{1}{3}$?

13. A cyclist traveled from town P to R as follows. For 2 hours, he cycled from P to town Q a distance of 30km and then rested for 1 hour from Q. He continued for another 1 hour to town R at a speed of 40km/hr.
(a) Draw a travel graph to show his journey.

14. Given that $Y = 2x - 1$
(a) Complete the table below.

<table>
<thead>
<tr>
<th>X</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>-1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) Plot the points given in the table above on a graph.

15. The average of 3, 5, 4, 7, 9, 5 and y is 5. Find:
(a) the value of y
(b) the median
(c) the mode

16. The average speed of a car is 60km/hr for 30 minutes. What distance is covered?

17. The pie chart below shows how a farmer has divided his land. C is for cash crops, G is for grazing, F is for food crops and for other purposes. The land available is 720 hectares.

(a) How many hectares are left for grazing?
(b) If he pays rent of shs 200 per hectare per year, how much will he pay for land reserved for cash crops?

18. In a Mathematics test given to a class, the marks scored frequency and total marks scored are shown in the table below.

<table>
<thead>
<tr>
<th>Marks scored</th>
<th>Frequency</th>
<th>Total marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>___________</td>
<td>9</td>
<td>45</td>
</tr>
<tr>
<td>6</td>
<td>__</td>
<td>84</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>___________</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>45</td>
</tr>
</tbody>
</table>

(a) Complete the table
(b) What was the mode?
(c) How many pupils were in the class?
(d) What was the average mark scored?

19. Study the frequency table and answer the questions that follow:

<table>
<thead>
<tr>
<th>Marks scored</th>
<th>20</th>
<th>40</th>
<th>70</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of children</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

(a) How many pupils did the test?
(b) Find their mean mark.
(c) Calculate their median mark.
(d) What was the modal mark.
(e) Workout the range

20. When two dice are tossed, what is the probability of even numbers showing on top?

TOPIC 8 GEOMETRY
LESSON 1:

SUB TOPIC: LINES ((MEASURING, DRAWING AND CONSTRUCTING))

CONTENT: Review:
- Measuring line segments
- Naming line segments (AB)
- Types of lines
- (Parallel, not parallel, intersecting, etc)
Drawing line segments:
1. Draw a line segment measuring 6cm.

2. Measure the following lines:
   (i)  
   (ii) N

3. Construct the following line segments:
   (i)  
   (ii) DE = 8.3cm  
   (iii) TB = 3.2cm

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 Trial exercise Pg 287 (New Edition)
Remarks:
___________________________________________________________________________
____________________________________________________

LESSON 2:
SUB TOPIC: LINES (BISECTING LINES)
CONTENT: Steps to follow

EVALUATION ACTIVITY:
Pupils will bisect lines and drop perpendicular lines from points to meet known line segments.
Remarks:
LESSON 4:

SUB TOPIC: MEASURING AND DRAWING ANGLES

CONTENT: Measure the size of angles below.

(i) \( M = 56^\circ \)  (ii) \( t = 148^\circ \)  (iii) \( y = 247^\circ \)

Draw the following angles:

(a) 40\(^\circ\)  (ii) 53\(^\circ\)  (iii) 107\(^\circ\)  (iv) 235\(^\circ\)

EVALUATION ACTIVITY:


Remarks:

LESSON 6:

SUB TOPIC: CONSTRUCTING REFLEX ANGLES

CONTENT: Construct an angle of 210\(^\circ\)

\( 210^\circ = 180^\circ + 30^\circ \)

210

2100

3000

EVALUATION ACTIVITY:

Construct the following angels:

1. 225\(^\circ\)
2. 195\(^\circ\)
3. 240\(^\circ\)
4. 270\(^\circ\)

Remarks:

LESSON 7:

SUB TOPIC: CONSTRUCTING OF TIRANGLES SSA, SAS, ASA

CONTENT: Construct an equilateral triangle ABC of side 6cm
Construct an isosceles triangle KLM in which KL = 7.3cm KM = LM = 8cm

LESSON 7:  CONSTRUCTING TRIANGLES

CONTENT: Construct a triangle RST where angle R = 600 angle S = 450 and RS = 5cm
Measure the length of ST and angle T.

T = 750
Length of ST = 4.6cm
Drop a perpendicular line from point T to meet RS at point O, measure OT
and work out the area. OT = 3.2cm

EVALUATION ACTIVITY:

Remarks:
A New MK Primary Mathematics 2000 Bk 7

LESSON 1: ANGLES

CONTENT: Complementary angles
- An angle with 900 is called a right angle.
- Any two angles that add up to 900 are complementary angles.

Examples:
1. What is the complement of 300?
   Let the complement be x
   X + 30° = 90°
   X + 30 – 30 = 90 – 30
   x = 60

2. Find the complement of $(x + 40)°$
   Comp of $(x + 40)°$
   = 90° – (x + 40)°
   = 90° – x + 40°
   = 90° – 40° – x
   (50 – x)°

3. What angle is ½ of its complement?
   Let Y represent the complement
   Y is ½ of (90 – y)°
   Y = ½ (90 – y)
   2y = (90 – Y) x 2
      2
   2y = 90 – y
   2y + y = 90
   3y = 90
   y = 30°
   Y = 30°

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 11:5 Pg 202-203 (New Edition)

Remarks:
LESSON 2: SUPPLEMENTARY ANGLES

CONTENT: Supplementary angles add up to 180°.

\[ X + Y = 180° \] (supp. S)

Examples:
1. In the above figure, if \( x = 48° \), find \( y \).
\[ \begin{align*}
X + y &= 180° \\
y + 48° &= 180° \\
y &= 180° - 48° \\
y &= 132°
\end{align*} \]
2. What angle is \( \frac{1}{4} \) of its supplement?
\[ X = \frac{1}{4}(180° - x) \]
\[ X = (180° - x) \times \frac{1}{4} \]
\[ 4x = 180° - x \]
\[ 4x + x = 180° \]
\[ 5x = 180° \]
\[ x = 36° \]
3. What angle is 5 times its supplement?

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 11:56 Pg 204 (New Edition)

Remarks:

_____________________________________________________________________________

__________________________________________

LESSON 3: ANGLES ON PARALLEL LINES

CONTENT: Properties of angles on parallel lines

Illustration:

\[ \begin{align*}
a + b &= 180° \text{ (supp. } \angle S) \\
a &= d \text{ (vertically opp } \angle S) \\
a &= e \text{ (corresp } \angle S)
\end{align*} \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 13:10 Pg 216 - 218 (New Edition)
Mathematics Revision Handbook Bk 5 – 7 Pg 209 - 120

LESSON 4: ANGLES ON PARALLEL LINES

CONTENT: More about angles on parallel lines

Examples:
1. Find the value of \( x \).

\[ \begin{align*}
50° + x &= 180° \text{ (supp. } \angle S) \\
x &= 180° - 50° \\
x &= 130°
\end{align*} \]

Imaginary lines
Draw imaginary lines and rename the S.

\[ M = 50^\circ \] (Alt. int. \( \angle S \))

\[ N + 140^\circ = 180^\circ \] (Co. int. \( \angle S \))

\[ N = 140^\circ - 140^\circ = 180^\circ - 140^\circ \]

\[ N = 40^\circ \]

\[ \angle ABF = \angle BFG \] (Allt. Int. \( \angle S \))

\[ X + 72^\circ = 130^\circ \]

\[ 4 \times 72^\circ = 130^\circ - 72^\circ \]

\[ X - 58^\circ \]

\[ 130^\circ \]

\[ 72^\circ \]

**EVALUATION ACTIVITY:**


Remarks:

**LESSON 5:**

**SUB TOPIC:** ANGLES OF TRIANGLES

**CONTENT:** Types of triangles and their angel properties.

Equilateral

All \( \angle S \) are equal

Examples:

\[ 50^\circ \]

\[ 60^\circ \]

\[ 60^\circ \]

**Interior angle sum of a triangle**

\[ Y + 50 + 60 = 180 \] (sum of a triangle)

\[ Y + 110 = 180 \]

\[ Y + 110 - 110 = 180 - 100 \]

\[ Y = 70 \]

\[ 89^\circ \]

\[ 112^\circ \]

\[ 90^\circ \]

**Interior and exterior angles of a triangle**

**EXTERIOR ANGLES OF TRIANGLES**

Find the value of \( x \)

\[ 2x + 3x + 6x = 360^\circ \]

(sum of ext. \( \angle S \) of any polygon)

\[ 12x = 360^\circ \]

\[ \frac{12}{12} \]

\[ X = 30^\circ \]

**EVALUATION ACTIVITY:**


Remarks:

**LESSON 6:**

**SUB TOPIC:** ANGLES OF QUADRILATERALS

**CONTENT:** Angle properties of quadrilaterals

The interior angle sum of a quadrilateral is 360°.

**Example:**

(i)

\[ x = 112^\circ + 90^\circ + 89^\circ = 360^\circ \]

\[ X + 291^\circ = 360^\circ \]

\[ X + 291^\circ - 291^\circ = 360^\circ - 291^\circ \]

\[ X = 69^\circ \]

(ii)

\[ q = 110^\circ \] (vert. opp \( \angle S \))

\[ X + x + 110 = 180 \] (int \( \angle \text{sum} \))

\[ 2x + 110^\circ = 180^\circ \] of \( \angle \text{sum} \)

\[ 2x + 110^\circ - 110^\circ = 180^\circ - 110^\circ \]

\[ 2x = 70^\circ \]

\[ 2 \times 70^\circ = 70^\circ \]

\[ x = 35^\circ \]

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics 2000 Bk 7 Pg 237-241 (New Edition)

Remarks:
LESSON 7:

SUB TOPIC: PROPERTIES OF REGULAR POLYGONS

CONTENT: Exterior angles of polygons

- The number of centre, exterior or interior angles is equal to the number of sides.
- The centre angle is equal to the exterior angle in a regular polygon.
- Interior angle plus exterior angle is equal to 180.
- All exterior angles of a regular polygon add up to 360.

Examples:

\[ \begin{align*}
2x + x + 10^\circ + 3x + x &= 360^\circ \\
7x + 10^\circ &= 360^\circ \\
7x + 10^\circ &= 10^\circ = 360^\circ - 10^\circ \\
7x &= \frac{360^\circ}{7} \\
x &= 50^\circ \\
\end{align*} \]

\[ \begin{align*}
X + 4x + x + 10^\circ + x + 60^\circ &= 360^\circ \\
x + 70^\circ &= 360^\circ \\
x + 70^\circ - 70^\circ &= 360^\circ - 70^\circ \\
7x &= 270^\circ \\
7 &= 7 \\
x &= 30^\circ \\
\end{align*} \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 Pg 242 – 244 (New Edition) Exercise 12:9

Remarks:

LESSON 8:

SUB TOPIC: ANGLES OF REGULAR POLYGONS

CONTENT: Calculating the number of sides of a polygon

Examples:

1. Calculate the number of sides of a regular polygon whose exterior angle is 30.
   Solution:
   All ext S = 360°

\[ \begin{align*}
\text{Each ext angle} &= 30^\circ \\
\text{Number of sides} &= \text{all ext angles} \\
\text{Each ext angle} &= \frac{360^\circ}{30^\circ} \\
\text{No of sides} &= 12 \\
\end{align*} \]

2. The interior angle of a regular polygon is 144. Name the polygon.
   Let the ext angle be x.
   \[ \frac{144}{x} \]
   No of side = All ext angles
   each ext angle
   \[ \frac{X + 144^\circ}{180^\circ} = \frac{360^\circ}{x} \]
   \[ X = 36^\circ \]
   Exterior angle = 36°
   The polygon is a decagon

3. The interior angle of a regular polygon is 90° more than the exterior angle.
   (a) Calculate the exterior angle
   (b) How many sides has the polygon?
   Solution:
   Let the ext. angle be x
   ext. angle = 45°
   Int angle x + 90°
   No of sides = All ext angles
   each ext angle
   \[ \frac{X + 90^\circ}{x} = \frac{360^\circ}{90^\circ} \]
   \[ 2x + 90^\circ - 90^\circ = 180^\circ - 90^\circ \]
   \[ 90 = 90 \]
   \[ 2 = 2 \]
   \[ X = 45^\circ \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 Pg 246 - 249 (New Edition) Exercise 12:12

Remarks:

LESSON 9:

SUB TOPIC: ANGLES OF POLYGONS

CONTENT: Triangulation

Triangulation is forming triangles in a polygon.
Polygon | Number of sides | Number of triangles
--- | --- | ---
Quadrilateral | 4 | $4 - 2 = 2$ triangles
Pentagon | 5 | $5 - 2 = 3$ triangles
Hexagon | 6 | $6 - 2 = 4$ triangles
Septagon | 7 | $7 - 2 = 5$ triangles

Examples:

1. How many triangles can be formed in a polygon with 8 sides?
   
   No of triangles = $n - 2$
   
   = 8 – 2
   
   = 6 triangles

2. If 10 triangles can be formed in a regular polygon, find the number of sides of the polygon.
   
   No. of triangles = $n - 2$
   
   $n - 2 = 10$
   
   $n = 12$ sides

EVALUATION ACTIVITY:


Remarks:

LESSON 10:

SUB TOPIC: THE SUM OF INTERIOR ANGLES OF A REGULAR POLYGON

CONTENT: Polygon

Examples:

1. The interior angle of a regular pentagon is 108. Calculate the sum of all interior angles of the polygon.

   Solution:

   A pentagon has 5 sides.
   
   Each int angle = 108
   
   The sum of interior angles = $108 \times 5$
   
   = 540°.

2. Calculate the interior angle sum of a regular polygon with 7 sides.

   Solution:
   
   Int angle sum = $180(n-2)$
   
   $180 \times (7 - 2)$
   
   = $180 \times 5$
   
   = 900°

3. Each exterior angle of a polygon is 30. Calculate the sum of the interior angles of a polygon.

   All ext. S
   
   The sum of int S
   
   Each ext $180°(n-2)$
   
   301 $180°(12-2)$
   
   30 $180 \times 10$
   
   = 12 sides
   
   = 1800°

4. The sum of interior angles of a regular polygon is 1440.

   (a) How many sides has the polygon?
   
   (b) What is the size of each exterior angle of the polygon?

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7Pg 252 - 257 (New Edition) Exercise 12:16/12:17/12:18

Remarks:

LESSON 11:

SUB TOPIC: MORE ABOUT INTERIOR ANGLE SUM OF POLYGONS

CONTENT: Examples

1. Find the value of x in the figure.

   Sum of int S of triangle = 180°
2. Find the value of $y$.

\[
\begin{align*}
2y + 10^\circ &+ y + 10^\circ + 90^\circ = 360^\circ \\
5y + 110^\circ & = 360^\circ \\
5y + 110^\circ - 110 & = 360^\circ - 110 \\
5y & = 250^\circ \\
5 & 5 \\
& = y = 50^\circ
\end{align*}
\]

**EVALUATION ACTIVITY:**


Remarks:

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**LESSON 9**

**SUB TOPIC:** CONSTRUCTION OF REGULAR POLYGONS OF GIVEN RADIUS OR LENGTH OF SIDE

**CONTENT:** Constructing regular polygons with given radii

- Sketch the polygon.
- Calculate the centre angle.
- Draw a circle of the given radius.
- Draw the radius line.
- Measure and draw the centre angle.
- Mark the points of intersection of angle arms to circumference A and B respectively.
- Open the pair of compasses along are AB and use the pair of compasses to mark off other arcs. (name the arcs C,D,E)
- Join the adjacent points BCDEA to form the polygon.

Constructing regular polygon when given length of its side.

- Construct a line segment of the given length.
- Determine the base angles and draw them at both points of the line segment.
- Draw a circle through the points on the line segment.
- Open the pair of compasses to the radius of the line segment continue to draw arcs on circumference.
- Join the adjacent points to form a figure/polygon.

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics 2000 Bk 7 Pg 314 - 315 (New Edition)

Remarks:
LESSON 10

SUB TOPIC: CONSTRUCTION OF QUADRILATERALS (SQUARE, RECTANGLE, RHOMBUS & PARALLELOGRAM)

CONTENT: Square & rectangle

Constructing square PQRS of side 4cm.
- Draw sketch of the square to be constructed.
- Draw line PQ = 4cm
- Through point P construct a line perpendicular to PQ.
- With the centre P and radius PQ, make an arc on the perpendicular line cutting it at points.
- With centre S and Q and with the same radius make arcs to cut each other at R.
- Join SR and QR

Constructing rectangles ABCD of length 7cm and width 4cm:
- Draw a sketch of the rectangle ABCD
- Draw line AB = 7cm
- At A construct a line perpendicular to AB.
- Place the compass at A and with a radius of 4cm make an arc on the perpendicular cutting it at point D.
- Place the compass at B and with the same radius make an arc above AB.
- With a radius of 7cm, place the compass at D and make an arc to cut the previous arc at point C
- Join DC and BC

EVALUATION ACTIVITY:
Maths Revision Hand Book Pupils Bo 5, 6, and 7 Pg 264.
Remarks: __________________________________________________________
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LESSON 11

SUB TOPIC: CONSTRUCTION OF RHOMBUS AND PARALLELOGRAM

CONTENT: Construction of a rhombus

Example: Using a ruler and a pair of compasses only, construct a rhombus ABCD of side 5cm and angle ABC 60°.

Steps:
1. Draw a sketch
2. Draw line BC = 5cm
3. Construct an angle of 60° at B and mark line AB = 5cm.
4. With centres A and C and with the same radius 5cm, mark arcs to cut each other at D.
5. Join A to D and C to D.

Construction of parallelogram:

6. Draw a sketch of the parallelogram
7. Draw line ST = 6cm
8. Construct an angle of 60° at S and mark off 4cm at R.
9. With centre T and radius line ST.
10. With centre R and radius equal to ST draw an arc to cut the first arc at U.
11. Join TU and RU to form the required parallelogram

EVALUATION ACTIVITY:
Maths Revision Hand Book Pupils Bo 5, 6, and 7 Pag 267-269.
Remarks: _____________________________________________________________________________
______________________________________________________________

LESSON 12

SUB TOPIC: DIRECTION, BEARING AND SCALE DRAWING

Review clockwise and anticlockwise.
Complete rotation/turn/revolution is 360°.
- Angles covered by a minute hand on a clock face.
- Turns and angles and the vice versa
- Angle son compass

Example:
Find the angle made in each of the following:
(a) 3 rotations
   1 rotation = 360°
   3 rotations = 360° x 3
   = 1080°
(b) 1 ½ turn
   1 turn = 360°
   1 ½ turn = 1 ½ x 360°
   = 540°
(c) What angle does a minute hand turn in:
(i) 10 minutes
   Complete turn of a minute hand is 60 minutes

Remarks: __________________________________________________________
= 540° and 3600
60 minutes = 360
1 minute = \( \frac{360}{60} \)
10 minutes = \( \frac{360 \times 10}{60} \)
= 6 x 10
= 60°

(b) What is the smaller angle between North and East

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7 Pg 333 - 334 & 335 exercise 18:1
Remarks:

_____________________________________________________________________________
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LESSON 13

SUB TOPIC: ORDINARY BEARING (DIRECTION)

CONTENT: Direction and angles made by clockwise and anti clock wise turns

Example:
In which direction will I face if I turned anti clock wise through an angle of 1350 from South.
Solution:
I will face NE direction.

NW

W

E

SW

S

SE

- State the angle made through the following turns.

- A boy was facing North. He turned clockwise to face SW. what angle did he make?

45° + 45° + 45° + 45° + 45° = 225°
From North to SW clockwise he turned through 225°.

EVALUATION ACTIVITY:

A New MK P.6 Maths Pupils Bk 7 (New Edition) Pg 288 – 289 Exercise 15.3 and 15.4
Remarks:

_____________________________________________________________________________
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LESSON 14

SUB TOPIC: ORDINARY BEARING (DIRECTION)

CONTENT:

Example:

What is the bearing of Q from P?
The direction of Q from P is N 70°E
LESSON 15

SUB TOPIC: MORE ABOUT ORDINARY BEARING

CONTENT: Find the direction of Q from P and P from Q using the figure below.

The direction of Q from P is S 70°E
The direction of P from Q is N 70°W.

LESSON 16

SUB TOPIC: TRUE BEARING

CONTENT: True bearing is measured from North in clockwise direction. Angles less than 100° must be written in 3 digits without letters N., S, E or W.

Example:
Bearing of P from O is O 45°.
Bearing of B from A is 080°
Bearing of A from B is 180° + 80° = 260°

LESSON 17

SUB TOPIC: OPPOSITE DIRECTIONS AND BEARING

CONTENT: Opposite direction

Opp of NE is W
Opp of W is E
Opp of SE is NW
Point P is N 700 E opp. to Q (S 700W)
Point R is N300 W opp. to M (S300E)

**EVALUATION ACTIVITY:**
A New MK Primary Maths Pupils Bk 7 Pg 293 - 294 exercise 15:7

Remarks:

_____________________________________________________________________________

_____________________________________________________________________________

LESSON 18

**SUB TOPIC:** OPPOSITE BEARING

**CONTENT:** Table showing opposite bearing

<table>
<thead>
<tr>
<th>Bearing</th>
<th>Opposite bearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>045°</td>
<td>225°</td>
</tr>
<tr>
<td>090°</td>
<td>270°</td>
</tr>
<tr>
<td>135°</td>
<td>315°</td>
</tr>
<tr>
<td>225°</td>
<td>045°</td>
</tr>
</tbody>
</table>

Examples:

1. If the bearing P from Q is 060°, what is the bearing from P to Q?
Solution: Bearing of Q from P (Opposite bearing) = 060° + 180° = 240°

2. The bearing of A from B is 270°. Find the bearing of B from A.
Bearing of B from A (Opposite bearing) = 270° - 180° = 090°

Bearing of A from B (Opposite bearing) = 150° + 180°

**EVALUATION ACTIVITY:**
A New MK Primary Maths Pupils Bk 7 Pg 299 exercise 15:11.
LESSON 20

SUB TOPIC: SCALE DRAWING

CONTENT:
Construct the figure below using scale drawing.

Scale: 1cm represents 10km

<table>
<thead>
<tr>
<th>Actual length</th>
<th>Drawing length</th>
</tr>
</thead>
<tbody>
<tr>
<td>60km</td>
<td>6cm</td>
</tr>
<tr>
<td>85km</td>
<td>8.5cm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sketch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
</tr>
<tr>
<td>P</td>
</tr>
<tr>
<td>R</td>
</tr>
</tbody>
</table>

60km |
\[60 \div 10 = 6\text{cm}\]

85km |
\[85 \div 10 = 8.5\text{cm}\]

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7 Pg 304 exercise 15:5

Remarks:

TOPICAL REVISION QUESTIONS:

1. Using a ruler measure the following lines segments in cm.

2. With the help of a ruler and pair of compasses only, construct the following angles.
   (a) 30°
   (b) 45°
   (c) 75°
   (d) 120°

3. Construct using a ruler and pair of compasses only the triangles with the following measurement.
   (a) Triangle ABC where AB = 7cm, AC = 6cm and BC = 5cm
   (b) Triangle PQR where PQ = 8cm, ∠Q = 120 and QR = 5cm. Measure PR

4. What is the smaller angle between West and South West.

5. The bearing of a village P from town K is 049. What is the bearing of town K from village P.

6. Construct a square WXYZ whose sides are 4.5cm.

7. Each interior angle of a regular polygon is 120.
   (i) Find the number of sides of the polygon.
   (ii) Calculate its interior angle sum.

8. How many degrees will Munduni turn through in 3 \(\frac{1}{4}\) revolutions?

9. Town B is 60km South of town A and town C is 80km East of town B.
   Draw an accurate diagram for the 3 towns and measure the shortest distance between A and C
TOPIC: MEASURES

LESSON 1:

SUB TOPIC: TIME
CONTENT: Changing seconds to minutes and hours and vice versa

Examples:
1. Change 3600 sec to minutes and hours.
   Solution: \(60\sqrt{3600}\) 60 seconds = 1 minute
   60 minutes

2. Change 60 minutes to hours
   1 hour = 60 minutes
   \[ 60 \div 60 = 1 \text{ hour} \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 17:1 Pg 324 (New Edition)

Remarks:

LESSON 2:

SUB TOPIC: TIME
CONTENT: Changing 24 hour clock to 12 hour clock

Use a conversion time table (A New MK Pg 411)

Example
1. Write 0436 hrs in the 12-hour clock
   Solution: 0436 -0000
   \[ 4:36 = 4:36\text{am} \]

2. Write 2310 hrs in the 12-hour clock time
   Solution: 2340 -1200
   \[ 11:40 = 11:40\text{pm} \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 21:3 Pg 413 (New Edition)

Remarks:

LESSON 4:

SUB TOPIC: TIME
CONTENT: Finding duration

Example
1. A bus left Nairobi at 1315 hours and arrived in Kampala at 1630 hrs. How long did the journey take?
   Subtract: 1630 hrs
   - 1315 hrs
   \[ 3\text{ hrs} \]

2. A party started at 2000hrs and ended at 11:30. How long did the party last?
   (Express 11:30pm in 24 hr-clock)
11:30pm Then subtract 2330hrs
+12:00hrs -2000hrs

2330
3:30

The party lasted for 3 hours and 30 minutes.

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 21:5 Pg 414 (New Edition)
Remarks:
_____________________________________________________________________________
______________________________________________________

LESSON 5
SUB TOPIC:  TIME
CONTENT: School Time Table
Example: 1. Study the time table below for a P.6 class in Kyebando Primary School and answer the questions that follow.

<table>
<thead>
<tr>
<th>From</th>
<th>Mon</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 am</td>
<td>MTC</td>
<td>9:10 am</td>
</tr>
<tr>
<td>9:10 am</td>
<td>Eng</td>
<td>9:50 am</td>
</tr>
<tr>
<td>9:50 am</td>
<td>PAPE</td>
<td>10:30 am</td>
</tr>
<tr>
<td>10:30 am</td>
<td>PAPE</td>
<td>11:10 am</td>
</tr>
<tr>
<td>11:10 am</td>
<td>R.E</td>
<td>11:50 am</td>
</tr>
<tr>
<td>11:50 am</td>
<td>PAPE</td>
<td>12:30 pm</td>
</tr>
<tr>
<td>12:30 pm</td>
<td>MDD</td>
<td>1:00 pm</td>
</tr>
<tr>
<td>1:00 pm</td>
<td>PAPE</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>MDD</td>
<td>3:00 pm</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>PAPE</td>
<td>4:00 pm</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>MDD</td>
<td>5:00 pm</td>
</tr>
<tr>
<td>5:00 pm</td>
<td>PAPE</td>
<td>6:00 pm</td>
</tr>
<tr>
<td>6:00 pm</td>
<td>MDD</td>
<td>7:00 pm</td>
</tr>
<tr>
<td>7:00 pm</td>
<td>PAPE</td>
<td>8:00 pm</td>
</tr>
<tr>
<td>8:00 pm</td>
<td>MDD</td>
<td>9:00 pm</td>
</tr>
<tr>
<td>9:00 pm</td>
<td>PAPE</td>
<td>10:00 pm</td>
</tr>
<tr>
<td>10:00 pm</td>
<td>MDD</td>
<td>11:00 pm</td>
</tr>
<tr>
<td>11:00 pm</td>
<td>PAPE</td>
<td>12:00 am</td>
</tr>
<tr>
<td>12:00 am</td>
<td>MDD</td>
<td>1:00 am</td>
</tr>
<tr>
<td>1:00 am</td>
<td>PAPE</td>
<td>2:00 am</td>
</tr>
<tr>
<td>2:00 am</td>
<td>MDD</td>
<td>3:00 am</td>
</tr>
<tr>
<td>3:00 am</td>
<td>PAPE</td>
<td>4:00 am</td>
</tr>
<tr>
<td>4:00 am</td>
<td>MDD</td>
<td>5:00 am</td>
</tr>
<tr>
<td>5:00 am</td>
<td>PAPE</td>
<td>6:00 am</td>
</tr>
<tr>
<td>6:00 am</td>
<td>MDD</td>
<td>7:00 am</td>
</tr>
<tr>
<td>7:00 am</td>
<td>PAPE</td>
<td>8:00 am</td>
</tr>
<tr>
<td>8:00 am</td>
<td>MDD</td>
<td>9:00 am</td>
</tr>
<tr>
<td>9:00 am</td>
<td>PAPE</td>
<td>10:00 am</td>
</tr>
<tr>
<td>10:00 am</td>
<td>MDD</td>
<td>11:00 am</td>
</tr>
</tbody>
</table>

(i) How long does each lesson last?
9:10am (60 + 10) = 70 minutes
-8:30am -30

Each lesson lasts for 40 minutes

(ii) At what time does break end?

(iii) For how long do the pupils take studying Science the whole week?
5 lessons x 40 minutes = 200 minutes
3 rem 20 minutes
60 / 200
3 hours and 20 minutes.

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 21:6 Pg 415 (New Edition)
Remarks:
_____________________________________________________________________________
_____________________________________

LESSON 6
SUB TOPIC: TIME
CONTENT: Taxi and bus time tables
Example 1. The table shows the departure and arrival time of a taxi at given stations. Study it and answer the questions that follow:

<table>
<thead>
<tr>
<th>Station</th>
<th>Arrival</th>
<th>Departure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tororo</td>
<td>6:00am</td>
<td>7:00am</td>
</tr>
<tr>
<td>Iganga</td>
<td>7:30am</td>
<td>8:30am</td>
</tr>
<tr>
<td>Jinja</td>
<td>8:35am</td>
<td>9:30am</td>
</tr>
<tr>
<td>Kampala</td>
<td>10:50am</td>
<td>11:45am</td>
</tr>
</tbody>
</table>

(i) How long did the taxi take to move fro Tororo to Iganda?
Solution: Time of arrival - Time of departure
Subtract 7:30am - 6:00am

1:30

It took 1 hour 30 minutes

(ii) How long was the taxis stopover in Jinja?

Subtract 8:50am - 8:35am

6 minutes

(iii) How long did the taxi take to move from Iganda to Kampala?
EVALUATION ACTIVITY:
Remarks:

LESSON 7

SUB TOPIC: TIME

CONTENT: Train timetables

Example

1. The tables below shows the departure, the arrival time and the fares for a train from Mityana to Tororo. Study the table carefully:

<table>
<thead>
<tr>
<th>Station</th>
<th>Arrival</th>
<th>Departure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mityana</td>
<td>11:00pm</td>
<td></td>
</tr>
<tr>
<td>Bujjuko</td>
<td>11:45pm</td>
<td>12:00 Mid night</td>
</tr>
<tr>
<td>Kampala</td>
<td>12:30am</td>
<td>12:45am</td>
</tr>
<tr>
<td>Jinja</td>
<td>1:30am</td>
<td>1:40am</td>
</tr>
<tr>
<td>Iganga</td>
<td>2:10am</td>
<td>2:30am</td>
</tr>
<tr>
<td>Tororo</td>
<td>3:30am</td>
<td></td>
</tr>
</tbody>
</table>

Table II:

<table>
<thead>
<tr>
<th>Mty</th>
<th>BJK</th>
<th>Kla</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>1100</td>
<td>1000</td>
</tr>
<tr>
<td>1600</td>
<td>2100</td>
<td>2000</td>
</tr>
<tr>
<td>2600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3600</td>
<td>3100</td>
<td>3000</td>
</tr>
</tbody>
</table>

(a) How long does the train take to move from Mityana to Kampala?
Solution: 12:30am

(b) Three tourists boarded the train from Kampala to Iganga. How much did they pay?
Solution: Kampala to Iganga costs shs 2,000
3 tourist pay shs 2000
X 3
Shs 6,000

LESSON 8

SUB TOPIC: TIME

CONTENT: Marine timetables

Example

1. The table below describes the MV Victoria journey on the Island. Study it and answer the questions that follow:

<table>
<thead>
<tr>
<th>Port</th>
<th>Day</th>
<th>Time</th>
<th>Fares (shs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Bell (KP)</td>
<td>Dep</td>
<td>Wed 06:00</td>
<td>1500</td>
</tr>
<tr>
<td>Bukoba</td>
<td>Arrival</td>
<td>Wed 09:15</td>
<td>3000</td>
</tr>
<tr>
<td>Mwanza</td>
<td>Dep</td>
<td>Wed 09:55</td>
<td>15:55 3000</td>
</tr>
<tr>
<td>Musoma</td>
<td>Arrival</td>
<td>Thurs 02:00</td>
<td>3000</td>
</tr>
<tr>
<td>Kismu Peir</td>
<td>Dep</td>
<td>Thurs 04:00</td>
<td>5000</td>
</tr>
</tbody>
</table>

(i) How long does the steamer take to move from Port Bell to Mwanza?
Subtract 15:55 - 06:00
9:55 It takes 9 hours and 55 minutes
LEON S 9
SUB TOPIC: TIME
CONTENT: Air timetables
Example
Below is part of Uganda Airlines timetable for daily flights between Entebbe, Soroti and Kasese. Use it to answer the questions which follow:

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Flight</th>
<th>Departure</th>
<th>Arrival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entebbe</td>
<td>Soroti</td>
<td>QU 740</td>
<td>07:00 hours</td>
<td>08:00 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>QU 758</td>
<td>17:00 hours</td>
<td>18:00</td>
</tr>
<tr>
<td>Entebbe</td>
<td>Kasese</td>
<td>QU 702</td>
<td>07:00 hours</td>
<td>08:15 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>QU 730</td>
<td>21:00 hours</td>
<td>22:15</td>
</tr>
<tr>
<td>Kasese</td>
<td>Entebbe</td>
<td>QU 703</td>
<td>07:00 hours</td>
<td>08:15 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>QU 731</td>
<td>21:45 hours</td>
<td>23:00</td>
</tr>
<tr>
<td>Soroti</td>
<td>Entebbe</td>
<td>QU 741</td>
<td>08:30 hours</td>
<td>09:30 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>QU 759</td>
<td>18:30 hours</td>
<td>19:30 hours</td>
</tr>
</tbody>
</table>

(a) How long does the flight from Entebbe to Soroti take?
Subtract 0800 – 0700 = 1
(b) Owori traveled from Entebbe to Kasese in the evening. He then traveled to Entebbe by the earliest flight.
(i) For how long did Owori wait at Kasese?

LESSON 10
SUB TOPIC: TIME
CONTENT: Application of timetables
Example
1. The table below shows a morning programme line up on star FM. Study the programme and answer the questions:

<table>
<thead>
<tr>
<th>Time</th>
<th>Programme</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00am – 8:15am</td>
<td>News</td>
<td>Aisha Nambedha</td>
</tr>
<tr>
<td>8:15am – 10:15am</td>
<td>Healthy tips</td>
<td>Apio Olga</td>
</tr>
<tr>
<td>10:15am – 10:30am</td>
<td>News</td>
<td>Mwanga Kisolo</td>
</tr>
<tr>
<td>10:30am – 11:30am</td>
<td>Educational Programme</td>
<td>Birungi Apuuli</td>
</tr>
<tr>
<td>11:30am – 11:45am</td>
<td>News</td>
<td>Mwanga Kisolo</td>
</tr>
<tr>
<td>11:45am – 12:30pm</td>
<td>Farmers' platform</td>
<td>Iriko Tasiko</td>
</tr>
</tbody>
</table>

(i) How many programmes are covered from 8:00am up to 12:30pm?
Six programmes are covered from 8:00am up to 12:30pm.
(ii) Which presenter is concerned with farming?
Iriko Tasiko is concerned with farming?
(iii) Which programme in the table is the longest?
The healthy tips programme is the longest.
(iv) How long does the healthy tips programme last?

Oi 10:15 am
-8:15 am The healthy tips programme lasts 2 hours.

1:45 2:00

Owori waited at Kasese for 8 hours and 45 minutes.

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 21:8 Pg 418 - 419 (New Edition)
Remarks:
____________________________________________________________________________
____________________________________________________________________________
_______________________
EVALUATION ACTIVITY:
Remarks:
_____________________________________________________________________________

LESSON 10
SUB TOPIC:   TIME
CONTENT: changing km/hr to m/s and vise versa
Example
1. change 10m/s to km /hr
2. change 90km/hr to m/s

EVALUATION ACTIVITY:
A New MK Primary Mathematics  Bk 7 pg 331 (old edition)
MK NCDC bk 6 pg 116
Remarks:
_____________________________________________________________________________

TOPICAL QUESTIONS ON TIME
1. Namayanja arrives at Kampala at 11:20pm and leaves at 2:0am to travel to Nairobi. She is due into Nairobi at 6:00am the following day. Unfortunately she is delayed and arrives at 9:30am.
   (a) How late is Namayanja in arriving at Nairobi?
   (b) For how long does Namayanja have to wait in Kampala?
   (c) At what time does Namayanja leave Kampala on the 24 – hour clock?
2. A lesson started at 10:30am and ended at 11:50 am. How long did the lesson last?
3. Convert 7200 seconds into hours.
4. Convert 1717 hours to a 12- hour clock.
5. Thieves escaped from the prisons at 12:15 am. Express this time in a 24-hour clock.
6. Convert 2 ½ hours to minutes.
7. It takes 4 hours for a bus traveling at 75 km/hr to move from town X to town y. Find the time taken by a bus traveling at 50km/hr to cover the same distance.
8. Two buses were moving towards each other. Bus A moving at a speed of 40km/hr and bus B at a speed of 60km/hr   If bus A starts at town P and bus B starts at Q a distance of 240km.
   (i) After how many KM from B will they meet?
   (ii) If both vehicles start at 9:00 am at what time will the two buses meet?
9. The table below shows the arrival and departure time for a bus moving between Masaka and Kampala.
   (i) How long did the bus take to travel from Masaka to Nateete?
   (ii) For how long did the bus stay at Nateete?
   (iii) If the distance between Masaka and Kampala is 280km. calculate the average speed of the bus for the time it spent traveling.
10. Express 90km/hr as m/sec.
11. Convert 10m/second to km/hour
13. It takes a car industry 1 hour 10 minutes 20 seconds to assemble a car. How long will it take to assemble 50 cars?

LESSON 1
SUB TOPIC:   MONEY
CONTENT: Bills
Example
1. A mother had a 5,000 shillings note and bought the following items.
   1 ½ kg of beans at 600= per kg.
   500g of salt at shs 700 each kg.
   2 bars of soap at shs 1400=

(a) How much did she spend and what was her balance?

Solu:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans</td>
<td>1 1/2kg</td>
<td>x 600</td>
<td>900</td>
</tr>
<tr>
<td>Salt</td>
<td>6 x 600</td>
<td>x 600</td>
<td>360</td>
</tr>
<tr>
<td>Soap</td>
<td>2 x 300</td>
<td>x 300</td>
<td>600</td>
</tr>
</tbody>
</table>

Total expenditure = 1,650

Balance = Money at hand – Total expenditure

Money at hand = 5,000

Total expenditure = 1,650

Balance = 3,350

(b) Given that she was given a discount of 10% on the total expenditure. How much money did she pay?

Total expenditure = 100%

Discount = 10%

%age of money paid = 100% - 10% = 90%

Amount = 90 x 1,650

= 1,485

LESSON 3: REVIEW (LOWER WORK)

SUBTOPIC: MONEY

CONTENT: NOTES IN A BUNDLE

Example:

Moses was preparing for his birthday party and had a bundle of 5000 shilling notes numbered from DL 576634 to DL 576733. Find how much money he had to use.

EVALUATION ACTIVITY:

A New MK Primary Mathematics, Pupils' Book 6 (Pg. 218), Exercise 10.

LESSON 4: REVIEW (LOWER WORK)

SUBTOPIC: MONEY

CONTENT: EXCHANGE RATES

Example:

Given that the exchange rate of US$ to Ush. is US$ 1 to U sh. 1,800 and that the exchange rate of K sh to U sh. is K sh. 1 to U sh 23. How much money in Uganda shillings do I have in total if I have US $ 85 and K sh. 12,500?

EVALUATION ACTIVITY:

A New MK Primary Mathematics, Pupils' Book 6 (Page. 220-221), Exercise 10:4

Remarks:
LESSON 5:

SUB TOPIC: CURRENCY

CONTENT: The type of money used in a country is called currency. Different countries’ currencies have different names:

<table>
<thead>
<tr>
<th>Country</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burundi</td>
<td>Burundi francs (BF)</td>
</tr>
<tr>
<td>Zambia</td>
<td>Kwacha (Kch)</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>Zimbabwe Dollar (Z$)</td>
</tr>
<tr>
<td>German</td>
<td>Deutsch mark (DM)</td>
</tr>
<tr>
<td>Egypt</td>
<td>Egyptian pound, etc</td>
</tr>
</tbody>
</table>

Bank notes:
Bank notes are numbered consecutively from A/P 003782 to A/P 003881. How many notes are there?
- First note: A/P 003782
- Last note:  A/P 003881
- Number of notes: A/P 003881 - A/P 003782 = 100

Total number of notes = 99 + 1 = 100 notes

EVALUATION ACTIVITY:
1. Amos has paper notes numbered from A/P 004300 to A/P 004399.
   (a) How many paper notes does Amos have?
   (b) If each is 1000 shillings in value, how much money does Amos have?
2. A school bursar withdrew money from the bank. He was given new banknotes numbered consecutively A/P 728601 to A/P 728700. If each note was shs 500. How much money was withdrawn?
3. Find the amount of money in a bundle of 1000= notes if they are numbered UH 627400 to UH 627499
4. A cashier is paying salaries to teachers. How many 1000 shilling notes will he give to a teacher who gets a salary of:
   (i) 96000=
   (ii) 75000
5. A money counting machine detects and records paper money. If 98000 of 1000 shillings denominations are inserted in the machine, what number will be recorded on the machine?
6. Francis has the following money:
   - 5000 shilling notes numbered AC 502830 to ACX 502839
   - 1000 shilling notes numbered CU 412389 to CU 412397
   - 10000 shilling notes numbered SM 301422 to SM 301437

LESSON 6:

SUB TOPIC: COMPARISON OF CURRENCIES

CONTENT: Bills

Example

<table>
<thead>
<tr>
<th>Other country</th>
<th>Uganda shilling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya shillings (Ksh 1)</td>
<td>Ushs 20</td>
</tr>
<tr>
<td>Tanzania shilling (TZ sh)</td>
<td>Ush 2.2</td>
</tr>
<tr>
<td>USA dollar (US$ 1)</td>
<td>Ushs 1050</td>
</tr>
<tr>
<td>Great Britain pound (£ 1)</td>
<td>Ushs 1650</td>
</tr>
<tr>
<td>Rwanda francs (RF 1)</td>
<td>Ushs 2.5</td>
</tr>
</tbody>
</table>

1. A trader sold maize to Kenya for K shs 150,000. How much money did he get in Uganda money?
   - K sh 1 equivalent to U sh 20
   - K sh 150,000
   - Ushs 20 x 150,000 = U shs 3,000,000

2. How much Uganda shillings is equivalent to £ 20 plus TZ hs 30,000?
   - Tz shs 30,000
   - Total Uganda currency
   - Ushs 1650
   - Ushs 33,000
   - 20 = Ush 1650 x 20
   - Ush 66,000
   - = U sh 3,300
   - TZ sh = Ush 2.2
   - Ushs 99,000
   - TZ shs 30,000 = Ush 22 x 30,000
   - 10

3. Kizito works with the Tanzania high commission and his monthly salary is TZ sh 15,000. What is his salary in Uganda currency?
4. Musiime exported coffee to USA and earned US$ 25,000. He also exported maize to Kenya and earned K shs 500,000. Calculate his total earning in Ug currency.
5. Convert £ 37,000 to Uganda shillings.
6. Mr Senabulya Mwanje went to the Forex Bureau with U shs 4725000. How much US$ did he get in exchange.
7. Convert US$150 to Kenya shillings if the exchange rate Kshs to US$ is US$ to Kshs 55.

EVALUATION ACTIVITY:
Remarks:
__________________________________________________________

LESSON 8
SUB TOPIC: ADVERTISEMENT
CONTENT:
Example
Advertisement is sometimes done in newspapers or radios or television.
The table below shows how adverts are charged in red pepper newspaper.

<table>
<thead>
<tr>
<th>Size</th>
<th>Black and white</th>
<th>Full colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full page (inside)</td>
<td>1,145,300</td>
<td>1,750,000</td>
</tr>
<tr>
<td>Half page</td>
<td>257,650</td>
<td>875,000</td>
</tr>
<tr>
<td>Quarter page</td>
<td>286,350</td>
<td>438,000</td>
</tr>
<tr>
<td>Front page</td>
<td>1,145,300</td>
<td>1,638,000</td>
</tr>
<tr>
<td>Back page</td>
<td>297,800</td>
<td>595,000</td>
</tr>
</tbody>
</table>

1. What would be the total cost of advertising using front page full coloured and quarter page black and white?
2. Calculate the cost of running the following adverts.
   (a) Front page black and white
   (b) Half page full colour
   (c) Back page full colour
3. Musoke advertised using quarter page full colour for 3 days and full page black and white for the same number of days. Calculate his total expenditure.
4. A company advertised using half page black and white for 3 days and half page full colour for 4 days. What is the total company’s expenditure on the adverts?
5. Which is cheaper?
   (i) to advertise quarter full colour for 4 days or
   (ii) to advertise half page black and white for 3 days?

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 291-293 (New Edition)
Remarks:
__________________________________________________________

LESSON 9
SUB TOPIC: RADIO ANNOUNCEMENTS
CONTENT:
(i) Death, accidents and sickness US 1000 for the first 25 words.
    U shs 100 for each extra word
(ii) Notices last funeral rites, lost and found items.
    U shs 3,000 for the first 25 words
    U shs 100 for each extra word
(iii) Business thanks and births
    U shs 5000 for the first 25 words.
    U sh 100 for each extra word

1. What is the cost of sending a death announcement of 27 words on Radio Kiboga?
   The death announcement of 27 words
   First 25 words cost 1000=
   2 extra words cost 100 x 2 = 200
   Total cost = 1000 + 200
   = 1200

EVALUATION ACTIVITY:
1. What is the cost of sending 2 death announcements of 30 words each?
2. Mr Kasekende sent 2 notices one of 24 words and another of 34 words through Radio Kiboga. How much money did he pay to Radio Kiboga?
3. Mr Ssenku sent 2 business announcements of 30 words each and sent 2 business announcements of 30 words each and a thanks announcement of 23 words. Calculate his total expenditure?
4. What will be the total cost of sending:
   (i) One sickness announcement of 27 words.
   (ii) One death announcement of 33 words.
   (iii) The last funeral rite announcement of 33 words.
   (iv) A thanks announcement of 15 words.

5. Remarks:
__________________________________________________________

Remarks:
LESSON 10
SUB TOPIC: POSTAGE CHARGES
CONTENT: Letters and printed papers
Example
The Uganda posts and Telecommunication transports letters and Newspaper for people and charges them accordingly.
1. Letters: For the first 20 grams shs 50
   Each additional word 50gram shs 30.
2. Printed papers: For the first 50 grams shs 50
   Each additional 50 grams shs 20
(a) How much does it cost to post a letter weighing 120 gram?
   First 20 grams = shs 50
   Additional grams = 120 – 20
   100
   Additional 20 grams = 100
   20
   = 5 additional 20 grams
   = 5 x 30 = 150
   = 150 + 50
   = 200
(b) How much does it cost shs 2000 to post 2 letters each weighing 120 grams
   and 2 printed papers each weighing 300 grams?
   Letters
   1 letters weighing 120g – 20g = shs 50
   Additional grams = 120 – 20
   = 100g
   Additional 20 grams = 100
   20
   = 5
   1 letter = 50 + 150
   = 200
   2 letters = 200 x 2
   = 400
   Printed papers:
   First 50g = shs 50
   Additional grams = (300 – 5)
   = 250g
   Additional 50g = 250
   50
   = 5
   = 5 x 20 = 100

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 14:13 271-272 (Old Edition)
Remarks:

LESSON 11
SUB TOPIC: HIRE PURCHASE
CONTENT: A system of buying goods wit a deposit and clearing the balance in installments after a certain period of time.
Example 1:
Music craft (Uganda Limited sells good on Hire purchase as follos:
1. Deposit shs 218,400 with shs 72,000 a month for 12 months.
2. cash shs 1,092,000 without hire purchase. Kapere bought 3 cookers, 2 of them on hire purchase and 1 by cash on Saturday.
   (a) How much money did he pay that day?
      For the 2 cookers, the deposit was 218,400 x 2 = 436,800
      +1,092,000
      Total payment 1,528,800
   (b) How much was to be paid in installments?
      Balance to be paid in installment was 72,000 x 12 x 2 = shs 1,728,000

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 14:4 Pg 258 (New Edition)
Remarks:
LESSON 12
SUB TOPIC: VALUE ADDED TAX (VAT)

CONTENT: VAT is a tax paid by a customer when he pays for a service or buys a commodity.

Example:
A retail trader bought a bicycle from a whole sale at 120,000= including VAT if the VAT was 20%.
(a) Find the VAT in the cost price.
   \[ \text{VAT Value} = \frac{R \times \text{cost price}}{100 + R} \]
   \[ = \frac{20 \times 120,000}{100 + 20} \]
   \[ = \frac{20 \times 120,000}{120} \]
   \[ = 20,000= \]
What was the cost price before the VAT?
   \[ \text{Cost price before VAT} = \text{Cost price} - \text{VAT value} \]
   \[ = 120,000 - 20,000= \]
   \[ = 100,000= \]

Example 2:
A trader buys a radio from a whole sale at 60,000 and the VAT rate is 20% if the trader adds 10% profit on the cost price, find:
(i) VAT value in the selling retail price
(ii) The selling price including VAT

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 Trial exercise Pg 287 (New Edition)
Remarks:
_______________________________________________________________________
______________________________________________________

TOPICAL EXERCISE:
1. How much money is contained in 100 shilling notes between AZ 324151 and 324168?
2. US $ 1 = Us 1,080 Kenya shs 1 = Us 20
TERM III 2015

LESSON 1:
SUB TOPIC: METRIC SYSTEM
CONTENT: Comparing units/conversion of metric units
Examples:
Comparing metric units
Using base ten to compare metric units.

<table>
<thead>
<tr>
<th></th>
<th>Km</th>
<th>Hm</th>
<th>Dm</th>
<th>M</th>
<th>Dl</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Conversion of metric units.
(a) Change 7m to millimeter
1m = 1000m
7m = (7 x 1000m)
= 7000mm

3. Change 800m to km
1km = 1000m
1m = 1
1000km
800m = 1 x 800
1000
= 8 = 0.8km
10

LESSON 2:
SUB TOPIC: ADDITION AND SUBTRACTION OF METRIC UNITS
CONTENT: Addition and subtraction of metric units
Examples:
1. 5cm, 8mm + 8cm + 3mm (Answer in Cm)
   Cm  mm
   5    8
   +8    3
   ________
   14 . 1 = 14.1cm

2. Subtract: 8m – 7cm
   M  cm
   7   100
   8   00
   -   07
   ________
   7      93 = 7m 93cm

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 18:3 and 18:1 Pg 345
Remarks:

LESSON 3:
SUB TOPIC: METRIC SYSTEM
CONTENT: Multiplication and division of metric units
Examples:
1. Multiply 7cm 9mm by 4.
   Cm  mm
   7   9
   X   4
   ________
   316mm

2. Divide 2.4km wire into pieces of 60 metres each.
   2.4km 1km = 1000m
   60m 2.4km = 24 x 1000
   10
   = 24 x 100
   = 2400ms
LESSON 4:
SUB TOPIC: METRIC SYSTEM
CONTENT: Perimeter of triangles, quadrilaterals combined figures and other polygons
(Revision)

Examples:

Find the distance (Perimeter) around the shapes given below:

(i)

(ii)

(iii)

LESSON 5:
SUB TOPIC: application of perimeters
CONTENT: Perimeter of triangles Application of perimeter
(a) a) Roles in a straight line (Open fences)
(b) 1. Electric poles are planted 20m apart. Find the distance
(c) from the first pole to the 10th pole.
(d) Solution:
(e) a) Relating numbers of poles to number of spaces.
(f)

By counting we have ten poles between 1st and tenth pole and nine spaces.
No. of spaces = No of poles – 1
Distance = (10 – 1) X 20m
= 9 X 20m
= 180m.

2. Closed fences:
In closed fences the number of poles corresponds with the number of spaces. In the illustration below the number of poles is 10 and the number of spaces is also 10.

Example:
Mukasa’s rectangular flower garden measures 10m by 8m. He fenced it, putting the poles 2m apart. How many poles did he need?
Solution:
Perimeter of flower garden
\[ = 2(l + w) \]
\[ = 2(10 + 8) \text{m} \]
\[ = 36 \text{m} \]

No. of poles
\[ = \frac{\text{Perimeter}}{\text{Space between poles}} \]
\[ = \frac{36 \text{m}}{2 \text{m}} \]
\[ = 18 \text{ poles} \]

ACTIVITY:
1. When sprinting, Ivan athlete covers 180 cm with every stride.
   (a) How many strides does he take to finish 100m.
   (b) How far does he run in 200 strides?
2. Telephone poles are 20 m apart. What is the distance from the first pole to the 16th pole?
3. The distance around my farm is 400m. If I want posts for fencing spaced 4m, how many posts will I need?

EVALUATION ACTIVITY:
Macmillan Primary Mathematics Bk 7 exercise 1 Pg 81
Remarks:

Lesson : 6
SUB TOPIC: TRIANGLE
CONTENT: Area of a triangle
Examples:
1. Find the area of triangle ABC

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:1 and 18:1 Pg 351
Remarks:

LESSON 7:
SUB TOPIC: TRIANGLE
CONTENT: Finding the missing side when given the area.
Examples:
1. Find the height marked h.

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:2 and 18:1 Pg 352
Remarks:
LESSON 8
SUB TOPIC: TRIANGLE
CONTENT: Application of Pythagoras theorem in a triangle.
Examples:
1. Find the value of x and the area of the figure below.

\[ a^2 + b^2 = c^2 \]
\[ 4^2 + x^2 = 5^2 \]
\[ 4 \times 4 + x^2 = 5 \times 5 \]
\[ 16 + x^2 = 25 \]
\[ 16 - 16 + x^2 = 25 - 16 \]
\[ x^2 = 9 \]
\[ x = 3 \text{ cm} \]

2. Area of the triangle
\[ A = \frac{1}{2} b \times h \]
\[ = \frac{1}{2} \times 4 \times 3 \]
\[ = 2 \times 3 \]
\[ = 6 \text{ cm}^2 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:3 Pg 353

Remarks:

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LESSON 9
SUB TOPIC: QUADRILATERALS
CONTENT: Area of: square, rectangle and parallelogram
Examples:
1. Find the value of x and the area of the figure below.

\[ A = S \times S \]
\[ = 7 \times 7 \]
\[ = 49 \text{ cm}^2 \]

2. 
\[ A = L \times W \]
\[ = 9 \times 5 \]
\[ = 45 \text{ cm}^2 \]

3. 
\[ A = b \times h \]
\[ = 11 \times 6 \]
\[ = 66 \text{ cm}^2 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:4 Pg 354

Remarks:
LESSON 10

SUB TOPIC: QUADRILATERALS

CONTENT: Finding the unknown side when given area.

Examples:

1. The area of a square is 49cm². Find the length of each side.
   \[ A = s \times s \]
   \[ s \times s = 49\text{cm}^2 \]
   \[ s^2 = 49\text{cm}^2 \]
   \[ s = \sqrt{49} \]
   \[ s = 7\text{cm} \]

2. The area of a rectangular garden is 48m². Find its length if it has a width of 6cm.
   \[ A = L \times W \]
   \[ L \times 6 = 48\text{m}^2 \]
   \[ 6L = 48 \]
   \[ 6 \times 48 \]
   \[ L = 8\text{m} \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:5 and 18:1 Pg 355

Remarks:

LESSON 11

SUB TOPIC: AREA OF QUADRILATERALS

CONTENT: Comparison of different areas

Examples:

1. How many mats (B) can cover floor (A)?

   6m
   
   + 1.5m
   
   8m
   
   2m

   \[ A_{\text{floor}} = 90 \times 60 = 5400\text{cm}^2 \]

   \[ A_{\text{cloth}} = 70 \times 50 = 3500\text{cm}^2 \]

   \[ A_{\text{uncovered}} = 5400\text{cm}^2 - 3500\text{cm}^2 \]

   \[ = 1900\text{cm}^2 \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:6 Pg 356

Remarks:

LESSON 12

SUB TOPIC: AREA OF RECTANGLE

CONTENT: Shaded and unshaded regions.

Examples:

1. A table of size 90cm by 60cm was partly covered with a piece of cloth 70cm by 50cm. What part of the table was uncovered?

   \[ A_{\text{table}} = 90 \times 60 = 5400\text{cm}^2 \]

   \[ A_{\text{cloth}} = 70 \times 50 = 3500\text{cm}^2 \]

   \[ A_{\text{uncovered}} = 5400\text{cm}^2 - 3500\text{cm}^2 \]

   \[ = 1900\text{cm}^2 \]
LESSON 13
SUB TOPIC: AREA OF Rhombus
CONTENT: Area of a Rhombus
Examples:
- This parallelogram and height is called a rhombus.
- If the base and height are given, Area = base x height.
- If the two diagonals are given, 
  \[ \text{Area} = \frac{1}{2} \times d_1 \times d_2 \]
Therefore, the area of the 4 congruent triangles in a Rhombus.

A = \( \frac{1}{2} \times b \times h \times 4 \) triangles

Example: A = \( \frac{1}{2} \times b \times h \times 4 \)
\[
\frac{1}{2} \times 12 \times 5 \times 4 \\
= \frac{1}{2} \times 12 \times 5 \times 4 \\
= 12 \times 5 \times 2 \\
= 12 \times 10 \\
= 120 \text{cm}^2
\]

LESSON 14
SUB TOPIC: AREA OF QUADRILATERAL
CONTENT: Application of Pythagoras theorem in a rhombus
Examples:
1. Calculate the length of each side of a rhombus whose diagonals are 8cm and 6cm.

\[
a^2 + b^2 = C^2 \\
3^2 + 4^2 = C^2 \\
3 \times 3 + 4 \times 4 = C^2 \\
9 + 16 = C^2 \\
25 = C^2 \\
5 = C
\]

Each side of a rhombus is 5cm

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:9 Pg 360
Remarks:
### LESSON 16

**SUB TOPIC:** AREA OF QUADRILATERAL

**CONTENT:** Finding the unknown side of a kite given area.

**Examples:**

The area of the kite below is 160cm². One of the diagonals is 20cm. Find the length of the second diagonal.

Area of a kite = \( \frac{1}{2} \times d_1 \times d_2 \)

\[
160 = \frac{1}{2} \times 12 \times d_2 \\
160 = 10d \\
160 = 10d \\
16 = d
\]

Second diagonal = 16cm

\[
X = \frac{x}{2} = \frac{16}{2} = 8cm
\]

---

### LESSON 17

**SUB TOPIC:** AREA OF QUADRILATERAL

**CONTENT:** Finding the area of a trapezium

- **a =** short parallel side
- **b =** long parallel side
- **h =** height

Area of a triangle PQS = \( \frac{1}{2} \times a \times h = \frac{1}{2} ah \)

Area of triangle QRS = \( \frac{1}{2} \times b \times h = \frac{1}{2} bh \)

Area of two triangles = \( \frac{1}{2} ah + \frac{1}{2} bh \)

\[= \frac{1}{2} h(a+b)\]

Area of a trapezium = \( \frac{1}{2} h(a+b) \)

**Example:**

Area of a trapezium = \( \frac{1}{2} h(a+b) \)

\[
= \frac{1}{2} \times 4 \times (7 + 9) \\
= \frac{1}{2} \times 4 \times 16 \\
= 2 \times 16 \\
= 32cm^2
\]

---

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 19:10 Pg 361

Remarks:

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**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 19:11 Pg 362

Remarks:

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**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 19:12 Pg 363

Remarks:
LESSON 18
SUB TOPIC: CIRCLE
CONTENT: Circumference of a circle when given diameter
Parts of a circle

Meaning of pie (π)
π (pi) = (Ratio = Circumference to diameter.
Example: 
\[ \pi = \frac{C}{D} \]

X D = \( \frac{C \times D}{D} \)

1. Find the circumference of a circle whose diameter is 10cm. (Use \( \pi = 3.14 \))
\[ C = D \]
\[ = 3.14 \times 10 \]
\[ = 31.4 \]
\[ = \frac{314}{100} \]
\[ C = 31.4cm \]
2. Calculate the circumference of a circle whose diameter is 14cm. (Use \( \pi = \frac{22}{7} \))
\[ C = \pi D \]
\[ = \frac{22 \times 14}{7} \]
\[ = 22 \times 2 \]
\[ = 44cm \]

LESSON 19
SUB TOPIC: CIRCLE
CONTENT: Finding circumference when given radius
Examples:
\[ C = 2 \pi R \]
1. Find the circumference of a circle whose radius is: 
   (a) 7cm
   (b) 10cm
   \[ C = 2 \pi r \]
   \[ = 2 \times 22 \times 7 \]
   \[ = 2 \times 3.14 \times 10 \]
   \[ = 2 \times 22 \]
   \[ = 44cm \]
   \[ = 628 \]
   \[ = 62.8cm \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:16 Pg 371
Remarks:
_____________________________________________________________________________
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LESSON 20
SUB TOPIC: CIRCLE
CONTENT: Finding the radius of a circle when circumference is given
Examples:
1. Find the radius of a circle whose circumference is 44cm.
   \[ C = 2 \pi r \]
   \[ 2 \pi r = 44cm \]
   \[ 2 \times 22r = 44 \]
   \[ 7 \]
   \[ 44r = 44 \]
   \[ 7 \]
   \[ \frac{44}{7} = 44 \times \frac{7}{44} \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:19 Pg 375
Remarks:
LESSON 21
SUB TOPIC: CIRCLE
CONTENT: Finding the perimeter of shapes using pi (π)
Examples:

\[ P = \frac{1}{2} \pi D + D \]
\[ = \frac{1}{2} \times 22 \times 14 \times 14 \]
\[ = 22 + 14 \]
\[ P = 36cm \]

\[ P = \frac{1}{4} 2\pi R + R + R \]
\[ = \frac{1}{4} \times 2 \times 22 \times 7 + (7 + \&) \]
\[ = 11 + 14 \]
\[ P = 25cm \]

Examples:

\[ P = \frac{1}{2} \times 22 \times 14 \times 14 = 22 + 14 \]
\[ P = 36cm \]

\[ P = \frac{1}{4} 2\pi R + R + R = \frac{1}{4} \times 2 \times 22 \times 7 + (7 + \&) = 11 + 14 \]
\[ P = 25cm \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:19 Pg 375
Remarks:

LESSON 22
SUB TOPIC: CIRCLES
CONTENT: Circumference (Application)
Examples:

1. How many revolutions can a wheel of a car 35cm in diameter make in a distance of 4.4km?
\[ C = \pi D = \frac{22}{7} \times 35 \]
\[ = 22 \times 5 \]
\[ = 110cm \]
\[ 1km = 100,000cm \]
\[ 4.4km = 44 \times 100000 \]
\[ = 440000cm \]
\[ 1 revolution = 110cm \]
\[ No of revolutions = \frac{440000}{110} \]

2. A wire of length 352ms is wound round a tin 400 turns. Find the diameter of the tin.
\[ 1m = 100cm \]
\[ 352m = 352 \times 100 \]
\[ = 35200cm \]
\[ 1 revolution = 35200 \]
\[ 400 \]
\[ = 88cm \]
\[ C = \pi D \]
\[ \frac{22D}{7} = 88cm \]
\[ 7 \times 22D = 88 \times 7 \]
\[ 22 \times \frac{7}{22} \]
\[ \therefore \ D = 4 \times 7 = 28cm \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:20 Pg 376 – 377 (New Edition)
Remarks:
LESSON 23
SUB TOPIC: CIRCLES
CONTENT: Area of a circle (given Radius)
Formular of the area of a circle.

Area of a circle = \( \pi r^2 \)

Examples:
1. Find the area of a circle whose radius is 14 cm (\( \pi = 22 \))

\[ \text{Area of a circle} = \pi r^2 = \frac{22 \times 14 \times 14}{7} = 44 \times 14 = 616 \text{ cm}^2 \]

2. A circular table cloth has a radius of 20 cm. Calculate the area. (\( \pi = 3.14 \))

\[ \text{Area of a circle} = \pi r^2 = (3.14 \times 20 \times 20) \text{ cm}^2 = 1256.06 = 1256 \text{ cm}^2 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:21 Pg 380 (New Edition)
Remarks:

LESSON 24
SUB TOPIC: CIRCLES
CONTENT: Calculating area of circles given diameter.
Examples:
1. Find the area of a circle whose diameter is 8 cm (\( \pi = 3.14 \))

\[ \text{Diameter} = 8 \text{ cm} \]
\[ \text{Radius} = \frac{8}{2} = 4 \text{ cm} \]
\[ \text{Area} = \pi r^2 = (3.14 \times 4 \times 4) \text{ cm}^2 = 50.24 \text{ cm}^2 \]

2. Find the area of a circle whose diameter is 28 cm (\( \pi = \frac{22}{7} \))

\[ \text{Diameter} = 28 \text{ cm} \]
\[ \text{Radius} = \frac{28}{2} = 14 \text{ cm} \]
\[ \text{Area} = \pi R^2 = (\frac{22}{7} \times 14 \times 14) \text{ cm}^2 = 616 \text{ cm}^2 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:22 Pg 381
Remarks:
**LESSON 25**

**SUB TOPIC:** CIRCLES

**CONTENT:** Find the radius, diameter, circumference when given the area.

**Examples:**

1. The area of a circle is 154cm². Find its:
   - (a) radius
   - (b) Diameter
   - (c) Circumference

   
   
   \[
   \begin{align*}
   A &= r^2 \\
   R^2 &= 154cm^2 \\
   22r² &= 154 \\
   7 &= 14cm \\
   7 \times 22r² &= 154 \times 7 \\
   22 \times 7 &= C = D \\
   r² &= 7 \times 7 \\
   r² &= 49 \\
   r &= 7cm \\
   \end{align*}
   \]

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 19:24 Pg 382

**Remarks:**


**LESSON 26**

**SUB TOPIC:** CIRCLE

**CONTENT:** Finding area when given circumference

**Examples:**

1. Calculate area of a semicircle of radius 10cm (\( \pi = 3.14 \))

   Area = \( \frac{1}{2} R^2 \)
   \[
   = (\frac{1}{2} \times 3.14 \times 10 \times 10) \text{ cm}^2
   \]
   \[
   = 157\text{ cm}^2.
   \]

2. Calculate the area of a sector of a circle of radius 28cm and centre angle 45°.

   Area = \( \frac{1}{4} \times R^2 \)
   \[
   = (\frac{1}{4} \times 22 \times 28 \times 28) \text{ cm}^2
   \]
   \[
   = 154\text{ cm}^2.
   \]

3. Calculate the area of a sector of a circle of radius 28cm and centre angle 450.

   Area = \( \frac{450}{360} \times \frac{1}{4} \times 22 \times 28 \times 28 \text{ cm}^2
   \]
   \[
   = 308\text{ cm}^2
   \]

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 19:22 Pg 381

**Remarks:**


1. Find the area of the shaded parts in the figure below.

   Area of a semi circle = \( \frac{1}{2}\pi r^2 \)
   \[= \frac{1}{2} \times 22 \times 7 \times 7 \times 2\]
   \[= 22 \times 7 \times 7 \]
   \[= 22 \times 2 \times 4\]
   \[= 38 \frac{1}{2} \text{ cm}^2.\]

   Area of a rectangle = L x W
   \[= 12 \times 7\]
   \[= 84 \text{ cm}^2\]

   Area of the shaded part
   \[= 84 \text{ cm}^2 - 38 \frac{1}{2} \text{ cm}^2\]
   \[= 45 \frac{1}{2} \text{ cm}^2.\]

   Area of the outer circle
   \[= \pi r^2\]
   \[= 22 \times 14 \times 14\]
   \[= 22 \times 2 \times 14\]
   \[= 44 \times 14\]
   \[= 616 \text{ cm}^2.\]

   Area of the inner circle
   \[= \pi r^2\]
   \[= 22 \times 7 \times 7\]
   \[= 22 \times 7\]
   \[= 154 \text{ cm}^2.\]

   Area of the shaded part
   \[= 616 \text{ cm}^2 - 154 \text{ cm}^2\]
   \[= 462 \text{ cm}^2.\]
LESSON 30:
SUB TOPIC: application of area of a circle
CONTENT: how many circular plates A can be cut from a card board B

b) Calculate the area of the space left
ref: Mk nk 7 pg 389

LESSON 31
SUB TOPIC: SOLID FIGURES
CONTENT: Surface area of cubes and cuboids
Examples:
1. Find the total surface area of the box 10cm by 5cm by 4cm.

2. Find the total surface of the cube below.

20cm
6cm
8cm
10cm
10cm
8cm

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:33 Pg 394 (New Edition)
Remarks:

LESSON 32:
SUB TOPIC: SOLID FIGURES
CONTENT: Surface area of a triangular prism
Examples:
1. Find the surface area of the figure below.

Part A = \( \frac{1}{2} \times b \times h \)
Part B = \( \frac{1}{2} \times b \times h \)
Part C = L x W
Part D = L x W
Part E = L x W
Total Area = \( 24 \text{cm}^2 \)

Part A = \( \frac{1}{2} \times 8 \times 6 \)
= 24 cm

Part B = \( \frac{1}{2} \times 8 \times 6 \)
= 24 cm

Part C = L x W
= 20 x 8
= 160 cm

Part D = L x W
= 20 x 6
= 120 cm

Part E = L x W
= 20 x 10
= 200 cm

528 cm
LESSON 33:  
SUB TOPIC: SOLID FIGURES  
CONTENT: Cylinder  
Surface area of a cylinder  
Examples:  
\[ \text{Total surface area} = \pi R^2 + \pi R^2 + C \times h \]  
\[ = \pi R^2 + \pi Rh \]  
2. Find the total surface area of a cylinder whose radius is 7cm and height 10cm (Use = \( \frac{22}{7} \))  
\[ 2\pi R^2 + \pi R^2 + 2\pi Rh \]  
\[ 2 \times \frac{22}{7} \times 7 \times 7 + 2 \times \frac{22}{7} \times 7 \times 10 \]  
\[ 44 \times 7 + 44 \times 10 \]  
\[ 308 + 440 = 748 \text{cm}^2 \]
**LESSON 35:**

**SUB TOPIC:** SOLID FIGURES

**CONTENT:** Volume of a triangular prism

Examples:
1. Find the volume of the triangular prism in the figure below.

   \[
   \text{Volume} = \text{Base area} \times \text{length} = \frac{1}{2} \times 7 \times 6 = 21 \times 10 = 210 \text{cm}^3
   \]

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics Bk 7 exercise 20:2 Pg 400 (New Edition)

Remarks:
_____________________________________________________________________________
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**LESSON 36:**

**SUB TOPIC:** SOLID FIGURES

**CONTENT:** Volume of a trapezoidal prism

Examples:
1. Find the volume of the trapezoidal prism in the figure below.

   \[
   \text{Volume of the trapezoidal prism} = \frac{1}{2} \times h \times (a + b) \times \text{length} = \frac{1}{2} \times 4 \times (6 + 9) \times 10 = 20 \times 15 = 300 \text{cm}^3
   \]

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics Bk 7 exercise 20:3 Pg 401 (New Edition)

Remarks:
_____________________________________________________________________________
_____________________________________________________

**LESSON 37:**

**SUB TOPIC:** SOLID FIGURES

**CONTENT:** Volume of a cylinder

Examples:
1. A cylindrical tin has a radius of 7cm and a height of 10cm. Calculate its volume.

   \[
   V = \text{base area} \times h = \pi r^2 \times h = 22 \times 7 \times 7 	imes 10 = 154 \times 10 = 1540 \text{C.C}
   \]

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics Bk 7 exercise 20:4 Pg 402 (New Edition)

Remarks:
_____________________________________________________________________________
_____________________________________________________
LESSON 38:

SUB TOPIC: SOLID FIGURES

CONTENT: Volume of a cylinder

Examples:
1. The figure below shows a cylindrical hollow pipe of concrete. Calculate the volume of the concrete.

Volume of outer cylinder
\[ r^2h = \frac{22\times 14 \times 14 \times 20}{7} = \frac{22\times 2 \times 14 \times 20}{7} \]
\[ = 44 \times 280 \times 44 \]
\[ \frac{1120}{\underline{12320} \text{cm}^3} \]

Volume of the inner cylinder
\[ = 22 \times 7 \times 7 \times 20 \]
\[ \frac{154 \times 20}{7} \]
\[ = 3080 \text{cm}^3 \]

Volume of the concrete
\[ = 12320 \text{cm}^3 - 3080 \text{cm}^3 \]
\[ = 9240 \text{cm}^3 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 20:5 Pg 403 (New Edition)

Remarks:
_____________________________________________________________________________
_____________________________________________________________________________

LESSON 39:

SUB TOPIC: SOLID FIGURES

CONTENT: Volume and capacity of cubes and cuboids

Examples:
1. A cube measures 10cm by 10cm by 10cm. How many litres of milk can it hold?

\[ V = \text{base area} \times h \]
\[ = 10 \times 10 \times 10 \]
\[ = 1000 \text{cm}^3 \]

1 litre = 1000cm$^3$

The cube holds 1 litre

2. How much water will the tank below hold?

\[ V = (\text{base area}) \times \text{height} \]
\[ = 400 \times 300 \times 200 \]
\[ = 12000 \times 2 \]
\[ = 24000 \text{ litres} \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 20:4 Pg 404 (New Edition)

Remarks:
_____________________________________________________________________________
LESSON 40

SUB TOPIC: SOLID FIGURES

CONTENT: Volume and capacity of cylinders

Examples:
1. How much water is in this tank now?

   Volume = (base x area) x height
   = \( \pi r^2 \times h \)
   = \( 22 \times 70 \times 100 \)
   = 220 x 7000
   = 1540000cm³

   Capacity = \( \frac{1540000}{1000} \)
   = 1540 litres

2. Find the capacity of this tank.

   V = (base x area) x h
   = \( \pi r^2 \times h \)
   = \( 22 \times 70 \times 100 \)
   = 220 x 7000
   = 1540000cm³

   Total number of cubes = \( \frac{1540000}{1000} \)
   = 1540 litres

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 20:8 Pg 406 (New Edition)
Remarks:

LESSON 42

SUB TOPIC: SOLID FIGURES

CONTENT: Packing cubes or cuboids in boxes

Examples:
1. How many cubes each of 10cm side can be packed in the box?
   Cubes along the sides
   Along length = \( \frac{56}{10} = 56 \text{ cubes} \)
   Along width = \( \frac{42}{10} = 4 \text{ cubes} \)
   Along height = \( \frac{60}{10} = 6 \text{ layers} \)
   Total number of cubes = \( 5 \times 4 \times 6 \)
   = 5 x 4 x 6
   = 20 x 6
   = 120 cubes

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 20:7 Pg 405 (New Edition)
Remarks:

LESSON 41
LESSON 43:

SUB TOPIC: SOLID FIGURES

CONTENT: Volume of a cone

Examples:
1. Given the cone below, the diameter is 14cm height is 15cm. Calculate the volume of the cone.
   \[ V = \frac{1}{3} \pi r^2 h \]
   \[ = \frac{1}{3} \times 22 \times 7 \times 7 \times 15 \]
   \[ = 22 \times 7 \times 3 \]
   \[ = 154 \times 3 \]
   \[ = 462 \text{ cm}^3 \]

LESSON 44:

SUB TOPIC: SOLID FIGURES

CONTENT: Volume of a sphere

Examples:
1. Calculate the volume of a sphere whose radius is 7cm.
   \[ V = \frac{4}{3} \pi r^3 \]
   \[ = \frac{4}{3} \times 3.14 \times 7 \times 7 \times 7 \]
   \[ = 4 \times 3.14 \times 7 \times 7 \times 7 \]
   \[ = 4 \times 1437 \text{ cm}^3 \]
   \[ = 5748 \text{ cm}^3 \]

2. Calculate the volume of a sphere whose radius is 9cm.
   \[ V = \frac{4}{3} \pi r^3 \]
   \[ = \frac{4}{3} \times 3.14 \times 9 \times 9 \times 9 \]
   \[ = 4 \times 3.14 \times 9 \times 9 \times 9 \]
   \[ = 4 \times 1256 \times 81 \times 3 \]
   \[ = 3052.08 \text{ cm}^3 \]

LESSON 46:

SUB TOPIC: mass

CONTENT: converting kg to quintal and tonne

100kg = 1 quintal

Examples: Express 2500kg to tonne
1000kg = 1 tonne
2500kg = 2500kg
1000kg = 2.5 tonnes

Evaluation activity
Macmillan Uganda pp 246
Fountain pp 210-212

QUESTIONS ON MEASURES:

1. How many centimeters are in 0.75 metres?
2. The circumference of a circle is 17.584 cm. Find the radius of the circle (Use $\pi = 3.14$)
3. A cylindrical tank is 7 m high. What is the capacity in litres of the tank if its radius is 7 m?
4. The volume of the figure below is 105 cm$^3$. Find its height.

```
\[ \text{7cm} \]
\[ \text{3cm} \]
\[ \text{7cm} \]
```

5. Find the base area of the figure below.

```
\[ \text{5cm} \]
\[ \text{6cm} \]
```

6. Given that the cylindrical tins B are to be packed into box A.

```
\[ \text{A} \]
\[ \text{60m} \]
\[ \text{50m} \]
\[ \text{35m} \]
\[ \text{10m} \]
\[ \text{7m} \]
\[ \text{B} \]
```

(a) How many tins will be packed in the box?
(b) If container A is a tank full of water, how many full cups of container B can you draw from the tank?
7. Abdul cut out circular plates of diameter 7 cm from a rectangular sheet of metal of length 45 cm and width 35 cm as shown below.

8. A cuboid water tank (A) which is 70 cm long by 35 cm wide by 110 cm high was filled with water. The water from tank A was all poured into the cylindrical tank B of diameter 70 cm

```
\[ \text{Tank A} \]
\[ \text{110cm} \]
\[ \text{70cm} \]
\[ \text{35cm} \]
\[ \text{Tank B} \]
\[ \text{70cm} \]
```

(a) Find the volume of water in tank A when full.
(b) Find the new height of water after it has been poured into tank B. (take $\pi = \frac{22}{7}$)

9. In the triangle below, AB = 12 cm, CE = 10 cm and AC = 16 cm. Find the length of BD in cm.

```
\[ \text{A} \]
\[ \text{B} \]
\[ \text{C} \]
\[ \text{E} \]
\[ \text{D} \]
```

10. The figure ABC below is an isosceles triangle. Use it to answer the questions that follow.

```
\[ \text{A} \]
\[ \text{B} \]
\[ \text{C} \]
\[ \text{(3x+2)cm} \]
\[ \text{(2x+2)cm} \]
```
11. Find the circumference of a circular compound whose radius is 14m (take \( \pi = 22 \)) \( \frac{7}{7} \)

12. In the figure below, \( PQ = QR = 28cm \) use it to answer the questions that follow.

(a) Find the area of triangle PQR.
(b) Find the area of the sector QST
(c) What is the area of the shaded part?

---

**TOPIC 10: ALGEBRA**

**LESSON 1:**

**SUB TOPIC:** FORMING ALGEBRAIC EXPRESSIONS

**CONTENT:**
Forming Algebraic expressions.

Example:
1. \( 3c \) – Three times C or three c.
2. \( ab \) – The product of a and b.
3. \( a + b \) – The sum of a and b.
4. \( 3(x - y) \) – Thrice the difference between x and y.

---

**EVALUATION ACTIVITY:**


Remarks:

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**LESSON 2:**

**SUB TOPIC:** COLLECTING AND SIMPLIFYING LIKE TERMS

**CONTENT:**

Examples:
1. \( a + a + a = 3a \)
2. \( 2p + 3p + p = 6p \)
3. \( 2ab + ab + 5ab = 8ab \)
4. \( x + y + x + y + x \\
   x + x + y + y \\
   3x + 2y \)
5. \( 3p - 6f - p + 2f \\
   3p - p + 2f - 6f \\
   2p - 4f \)

**EVALUATION ACTIVITY:**


Remarks:
LESSON 3:

SUB TOPIC: REMOVING BRACKETS

CONTENT:
Remove the brackets and simplify.
Example:
1. \(3(x + y)\)  
2. \(2(a - b)\)  
3. \(3(x + y)\)  
   \(3x + 3y\)  
   \(2a - 2b\)

EVALUATION ACTIVITY:
 Remarks:

LESSON 4:

SUB TOPIC: REMOVING BRACKETS

CONTENT:
Remove the brackets and simplify.
Example:
1. Add: \(x + 4\) to \(x + 1\)  
   \((x + 4) + (x + 1)\)  
   \(x + 4 + x + 1\)  
   \(x + x + 4 + 1\)  
   \(2x + 5\)

2. Subtract \(y + 1\) from \(2y + 3\)  
   \((2y + 3) - (y + 1)\)  
   \(2y + 3 - y - 1\)  
   \(2y - y + 3 - 1\)  
   \(y + 2\)

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 22:11 Pg 434 (New Edition)
 Remarks:

LESSON 5:

SUB TOPIC: SIMPLIFYING FRACTIONAL TERMS

CONTENT:
Simplifying fractional terms
Example:
1. \(\frac{x + x}{2}\)  
2. \(\frac{m - m}{2}\)  
   \(\frac{3x + 2x}{6}\)  
   \(\frac{5m - 2m}{10}\)  
3. \(\frac{P + P}{3}\)  
   = \(\frac{P + P}{1}\)  
   \(\frac{3P + P}{3}\)  
   = \(\frac{4P}{3}\)

EVALUATION ACTIVITY:
 Remarks:
LESSON 6:

SUB TOPIC: REMOVING BRACKETS

CONTENT: removing brackets involving fractions

Example:
1. \( \frac{1}{3} (3a + 9b) \)
   \( (\frac{1}{3} \times 3a) + (\frac{1}{3} \times 9b) \)
   \( a + 3b \)
2. \( \frac{3}{4} (8m 0 12p) \)
   \( (\frac{3}{4} \times 8m) - (\frac{3}{4} \times 12p) \)
   \( 3x - 2m - 3x 3p \)
   \( 6m - 9p \)

EVALUATION ACTIVITY:


Remarks:

LESSON 7:

SUB TOPIC: WORD PROBLEMS ON BRACKETS WITH FRACTIONS

CONTENT: Word problems on brackets with fractions

Example:
1. Half of \((2x + 4y)\) plus a third of \((6x + 9y)\)
   \( \frac{1}{2} (2x + 4y) + \frac{1}{3} (6x + 9y) \)
   \( x + 2y + 2x + 3y \)
   \( 3x + 5y \)
2. Subtract \( \frac{1}{3} \) \((4x - 2y)\) from \( \frac{1}{3} \) \((6x - 9y)\)
   \( \frac{1}{3} x 6x - \frac{1}{3} x 9y - \frac{1}{3} x 4x - \frac{1}{3} x 2y \)
   \( 2x - 3y - 2x + y \)
   \( 2x - 2x - 3y + y \)
   \( 0 - 2y \)
   \( = -2y \)

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:17 Pg 437 (New Edition)

Remarks:

LESSON 8:

SUB TOPIC: MULTIPLICATION OF FRACTIONAL TERMS

CONTENT: multiplying of fractional terms

Example:

Simplify:
1. \( \frac{x \times x}{2 \times 5} \)
2. \( \frac{2m \times 5p}{3 \times 8} \)
   \( = \frac{x^2}{10} \)
   \( = \frac{2m \times 5p}{m \times 5p} \)
   \( = \frac{mp}{mp} \)
   \( = \frac{3}{4} \)
   \( = \frac{12}{12} \)
   \( = \frac{5mp}{5mp} \)
   \( = \frac{0}{12} \)

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:19 Pg 439 (New Edition)

Remarks:

LESSON 9:

SUB TOPIC: SUBSTITUTION

CONTENT: Substituting or replacement of letters with numbers

Example:
1. If \( a = 5, b = 4 \) and \( c = 0 \)
   Find the value of \( a + b + c \)
   \( = 5 + 4 + 0 \)
   \( = 9 \)
   \( = 9 \)
2. Given that \( x = 2 \) and \( y = -2 \)
   Evaluate \( x - y \)
   \( = 2 - (-2) \)
   \( = 2 + 2 \)
   \( = 4 \)

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:4 Pg 429 (New Edition)
LESSON 10:
SUB TOPIC: SUBSTITUTION
CONTENT: Substitution involving brackets

Example:
1. Given that \(a = 3\), \(b = 4\) and \(c = 5\)
   \[
   \begin{align*}
   &= 3 \times a \times 3 \times b \\
   &= 3 \times 3 \times 3 \times 4 \\
   &= 9 + 12 \\
   &= 21
   \end{align*}
   \]
2. What is \(c (b-a)\)
   \[
   \begin{align*}
   &= 5(4 - 3) \\
   &= 5(1) \\
   &= 5 \times 1 \\
   &= 5
   \end{align*}
   \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 22:12 Pg 434 (New Edition)
Remarks:

LESSON 11:
SUB TOPIC: SUBSTITUTION
CONTENT: Substitution involving fractions

Example:
1. Given \(a = \frac{3}{4}\) and \(b = \frac{1}{3}\)
   \[
   \begin{align*}
   \text{Find the value of } a + b \\
   (a) + (b) \\
   \frac{3}{4} + \frac{1}{3} \\
   
   &= \frac{9}{12} + \frac{4}{12} \\
   &= \frac{13}{12}
   \end{align*}
   \]
2. If \(a = \frac{1}{2}\), \(c = \frac{2}{3}\) and \(d = \frac{1}{4}\)
   \[
   \begin{align*}
   \text{Evaluate } ac + d \\
   ac + d \\
   \frac{a \times c}{d} \\
   
   &= \frac{\frac{1}{2} \times \frac{2}{3}}{\frac{1}{4}} \\
   &= \frac{1 \times 2}{3 \times 4} \\
   &= \frac{2}{12} \\
   &= \frac{1}{6}
   \end{align*}
   \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 22:20 Pg 440 (New Edition)
Remarks:

LESSON 12:
SUB TOPIC: ADDITION AND SUBTRACTION WITH POWERS
CONTENT: Addition and subtraction with powers

Example:
1. \(2^2 + 2^4\)
   \[
   \begin{align*}
   &= 2 \times 2 + 2 \times 2 \times 2 \times 2 \\
   &= 20
   \end{align*}
   \]
2. \(p^2 + p^2\)
   \[
   \begin{align*}
   &= p^2 + p^2 \\
   &= 2p^2
   \end{align*}
   \]
3. \(3m^3 + 4m^3\)
   \[
   \begin{align*}
   &= 7m^3
   \end{align*}
   \]
4. \(3p^3 - p^3\)
   \[
   \begin{align*}
   &= 2p^3
   \end{align*}
   \]
5. \(4m^3 - m^3\)
   \[
   \begin{align*}
   &= 3m^3
   \end{align*}
   \]

EVALUATION ACTIVITY:
Remarks:
LESSON 13:

SUB TOPIC: MULTIPLICATION OF POWERS

CONTENT: Multiplication of powers

Example: Simplify

1. \(4^3 \times 4^2\) or \(4^3 \times 4^2\)
   
   \[\begin{array}{c|c|c}
   & 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 \\
   4 & 4 & 4
   \end{array}\]

   Or \(X^3 \times x^2\)

   \(X^3 + x^2\) = \(4^5\)

2. \(x^3 \times x^2\)
   
   \[\begin{array}{c|c|c}
   & x \times x \times x \times x \times x
   & 4
   \end{array}\]

   \(x^5\)

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:23 Pg 442 (New Edition)

Remarks:

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LESSON 14:

SUB TOPIC: DIVISION OF POWERS

CONTENT: Division of powers

Example: Simplify

1. \(3^4 \div 3^2\) or \(3^4 \div 3^2\)
   
   \[\begin{array}{c|c|c}
   & 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \\
   3 & 3 & 3
   \end{array}\]

   \(3^2\)

   \(= 9\)

   Or \(3^4 \div 3^2\)

   \(= 3^2\)

   \(= 9\)

   Either \(3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3\)

   \(3 \times 3\)

   \(= 9\)

   Or \(p^8 \div p^2\)

   \(= 3^2\)

   \(= 9\)

   \(p \times p \times p \times p \times p \times p \times p \times p \times p \times p \times p \times p\)

   \(= 9\)

   \(p \times p \times p \times p \times p \times p \times p \times p \times p \times p \times p \times p\)

   \(= 9\)

   \(p^8\)

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:23 Pg 442 (New Edition)

Remarks:

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LESSON 15:

SUB TOPIC: SUBSTITUTION

CONTENT: Substitution involving powers

Example: If \(m = 2\), what is the value of \(m^6\)?

\[M^6 = m \times m \times m \times m \times m \times m\]

\[= 2 \times 2 \times 2 \times 2 \times 2 \times 2\]

\[= 4 \times 4 \times 4\]

\[= 16 \times 4\]

\[= 64\]

If \(y = 2\), what is the value of \(3y^2\)?

\[3y^2 = 3 \times y \times y\]

\[= 3 \times 2 \times 2\]

\[= 3 \times 4\]

\[= 12\]

If \(m = 4\), \(n = 3\) and \(p = 2\), what is \(n^3 \times m^2\)

\[= n \times n \times n \times m \times m\]

\[= 3 \times 3 \times 3 \times 4 \times 4\]

\[= 27 \times 16\]

\[= 54\]

M \(p\)

\[= 4 \times 2 \to \frac{4 \times 2}{8}\]

\[= 27 \times 2\]

\[= 54\]

EVALUATION ACTIVITY:


Remarks:

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A New MK Primary Mathematics 2000 Bk 7 exercise 22:23 Pg 442 (New Edition)

Remarks:
LESSON 16:

SUB TOPIC: REVISION OF SIMPLE EQUATIONS

CONTENT: Solving simple equations.

Example: Solve

1. \( x + 5 = 13 \)
   \[ x + 5 - 5 = 13 - 5 \]
   \[ x = 8 \]

2. \( 2x + 6 = 18 \)
   \[ 2x + 6 - 6 = 18 - 6 \]
   \[ 2x = 12 \]
   \[ 2 \times \frac{2x}{2} = 12 \]
   \[ x = 6 \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Pg 452 - 456 (New Edition)

Remarks:

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LESSON 17:

SUB TOPIC: SOLVING EQUATIONS

CONTENT: Equations involving fractions

Example: Solve

1. \( \frac{1}{2} p = 6 \)
   \[ \text{Use of LCM} \]
   \[ \frac{1}{2} p = 6 \]
   \[ 2 \times \frac{1}{2} p = 6 \times 2 \]
   \[ \frac{2}{2} p = 12 \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:44 Pg 457 (New Edition)

Remarks:

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LESSON 18:

SUB TOPIC: SOLVING EQUATIONS

CONTENT: Equations involving fractions

Example: Solve

1. \( 0.4P + 0.5 = 2.1 \)
   \[ 4P + 5 = 21 \]
   \[ 10 \times 4P + 5 \times 10 = 21 \times 10 \times 10 \]
   \[ 4P + 5 \times 10 = 21 \]
   \[ 4P = 16 \]
   \[ P = 4 \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:44 Pg 457 (New Edition)

Remarks:

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LESSON 19:

SUB TOPIC: SOLVING EQUATIONS

CONTENT: Equations involving fractions

Example: Solve

1. \( \frac{2p - p}{3} = 5 \)
2. \( \frac{3x + 7 - 3x}{4} = 10 \)

\( \frac{3}{1} \times \frac{2p - p}{3} = \frac{5 \times 3}{1} \)
\( \frac{3}{1} = \frac{1}{1} \)
\( 2p - 3p = 15 \)
\( -p = 15 \)
\( P = -15 \)

\( \frac{9x}{9} = 12 \)
\( X = 1 \frac{1}{3} \)

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:4 Pg 459 (New Edition)

Remarks:

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LESSON 20:

SUB TOPIC: SOLVING EQUATIONS

CONTENT: Equations involving fractions

Example: Solve

1. \( \frac{m + 1}{3} + \frac{m}{4} = 2 \) (observation of three items)
2. \( \frac{3x + 1}{4} = \frac{x + 2}{2} \)

\( \frac{3}{4} \times m + 1 + \frac{m}{4} \times 12 = 2 \times 12 \)
\( \frac{3}{4} = \frac{2}{2} \)
\( 4(m + 1) + m \times 3 = 2 \times 12 \)
\( 4m + 4 + 3m = 24 \)
\( 4m + 3m + 4 = 24 \)
\( 7m + 4 = 24 - 4 \)

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:50 Pg 462 (New Edition)

Remarks:

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LESSON 22:

SUB TOPIC: \textbf{SOLVING EQUATIONS}

CONTENT: Solving Equations involving squares

Example: Solve

1. \( \frac{1}{2} P^2 = 8 \)
2. \( \frac{1}{4} x^2 = 16 \)

\begin{align*}
2 \times \frac{1}{2} P^2 &= 8 \times 2 \\
4 \times \frac{1}{4} x^2 &= 16 \times 4 \\
P &= \sqrt[2]{16} \\
x^2 &= 64 \\
\sqrt{x^2} &= \sqrt{64} \\
P &= 4 \\
x &= 8
\end{align*}

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:47 Pg 461 & 460 (New Edition)

Remarks:

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LESSON 22:

SUB TOPIC: \textbf{SOLVING EQUATIONS}

CONTENT: Word problems on equations

Example: Baker bought 2kg of sugar at shs. 3p and 1kg of salt at sh (p + 200). Find P if Baker paid shs 3700. The cost of 2kg of sugar is shs (2 \times 3p) = 6p. The cost of 1kg of salt is sh (p + 200)

Total cost: 6p + p + 200 = 3700

\begin{align*}
7p + 200 &= 3700 \\
7p + 200 - 200 &= 3700 - 200 \\
7p &= 3500 \\
7p &= \frac{3500}{7} \\
P &= \text{shs} 500
\end{align*}

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:51 Pg 464 (New Edition)

Remarks:

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TOPICAL EXERCISE ON ALGEBRA

1. Solve: \( x + \frac{1}{4} x = 5 \)
2. Find the value of \( \frac{5a}{2} \) when \( a = 3 \) and \( m = 6 \).
3. Solve for \( b = \frac{3}{5} (2b - 3) = 3 \)
4. Zahara's mother bought 8 books at shs \((x - 150)\) each and 2 Mathematical sets at \((x + 100)\) each. She spent shs 5300 altogether. Find the amount of money spent on books.
5. If \( \frac{1}{6}x = 1 \) find the value of \( x \).
6. Solve \( 2x + 2 = \frac{x + 3}{2} \)
7. What is the value of \( \frac{bc - d}{C^2} \) when \( b = 8 \), \( c = 3 \) and \( d = 6 \)?
8. Solve: \( x - 1 = 2x + 5 \)
9. Simplify: \((3x + 5) - (x + 1)\)
10. Solve: \( \frac{1}{2} (3y - 2) = \frac{2}{3} (2y + 3) \)
11. Tom has three daughters: Amanda, Brenda and Kate. Brenda is 2 years younger than Amanda, Kate's age is \( \frac{1}{2} \) that of Brenda. The total age of the three girls is 27 years. How old is Kate?
12. Find the value of \( y \) in \( 2y + \frac{2}{3} t = 12 \). Given that \( t = \frac{3}{4} \).
13. Solve: \( 3(p - 4) - 2(3p - 1) = 2p - 15 \)
14. Simplify: \((4p - 3q) - (2q + p)\)
15. Solve: \( \frac{12}{2} + 2 = 6 \)
16. The area of the trapezium is 50cm\(^2\). Find the value of \( t \).
17. Factorise completely: \( 2xy - 4x \).
18. Given that \( a = \frac{1}{5}, b = \frac{1}{3} \) and \( c = \frac{1}{4} \) Find the value of \( b + 2c + 3a \).
19. Subtract \( 2x - 4 \) from \( 5x - 4 \).
20. Given that \( x = 2y + 1 \), complete the table.

\begin{tabular}{|c|c|c|c|}
\hline
\( x \) & \( 1 \) & \( ... \) & \( 5 \) \\
\( y \) & \( ... \) & \( 1 \) & \( ... \) & \( 3 \) \\
\hline
\end{tabular}
LESSON 11:

SUB TOPIC: SOLUTION SETS

CONTENT:

Examples:

1. Write down the integers for the following inequalities.
   (i) \( x > 8 \)
       \[ X = \{9, 10, 11, 12, 13, \ldots\} \text{ (infinite set)} \]
   (ii) \( x < -3 \)
       \[ X = \{-4, -5, -6, -7, -8, \ldots\} \text{ (infinite set)} \]

   Showing solution sets on a number line.
   (i) \( x > 8 \)
       \[ -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad +1 \quad +2 \quad +3 \quad +4 \quad +5 \quad +6 \quad +7 \quad +8 \quad +9 \quad +10. \]
   (ii) \( x < -3 \)
       \[ -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad +1 \quad +2 \quad +3 \quad +4 \quad +5 \quad +6 \quad +7 \quad +8 \quad +9 \quad +10. \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Exercise 6:1 Pg 71 (New Edition)

Remarks:

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LESSON 12:

SUB TOPIC: REPRESENTING OF FINITE SOLUTION SETS ON ANUMBER LINE

CONTENT:

Example

1. \(-2 < x < 6\) Find and show the solution set on a number line

   \[ -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad +1 \quad +2 \quad +3 \quad +4 \quad +5 \quad +6 \quad +7 \quad +8 \quad +9 \quad +10. \]
   \[ X = \{-1, 0, +1, +2, +3, +4, +5\} \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Exercise 6:2 Pg 72 (New Edition)

Remarks:

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LESSON 13:

SUB TOPIC: SOLVING INEQUALITIES AND WRITING THEIR SOLUTION SETS

CONTENT:

Examples:

1. \(4x > 20\)
   \[ \begin{align*}
   4x & > 20 \\
   x & > 5 \\
   \end{align*} \]
   Solution set: \(\{6, 7, 8, 9, 10, \ldots\}\)

2. \(-4x > 20\)
   \[ \begin{align*}
   -4x & < 20 \\
   x & < -5 \\
   \end{align*} \]
   (the inequality sign changes when multiplied/divided by \(-ve \) integer)
   \[ x = \{-6, -7, -8, -9, \ldots\} \]

3. \(3x + 6 < 9\)
   \[ \begin{align*}
   3x + 6 & < 9 - 6 \\
   3x & < 3 \\
   x & < 1 \\
   \end{align*} \]
   Solution set: \(x = \{0, 1, 2, 3, \ldots\}\)
LESSON 14:

SUB TOPIC: SOLVING INEQUALITIES INVOLVING FRACTIONS

CONTENT:
Examples:

1. Solve \( \frac{x}{3} > 1 \)
   \( 3 \times \frac{x}{3} > 1 \times 3 \)
   \( x > 3 \)
   Solution set \( x = \{4, 5, 6, 7, \ldots\} \)

2. \( \frac{1x - 5}{7} > -4 \)
   \( 7 \times \frac{1x - 5}{7} > 7 \times -4 \)
   \( 1x - 5 > -28 \)
   \( 1x > 5 \)
   \( 7 \times 1x > 5 \times 7 \)
   \( x > 7 \)
   Solution set: \( x \in \{8, 9, 10, 11, \ldots\} \)

LESSON 15:

SUB TOPIC: SOLVING INEQUALITIES WITH THREE TERMS

CONTENT:
Examples:

1. Solve \( 8 > 2x > 2 \)
   \( \frac{8}{2} > \frac{2x}{2} > \frac{2}{2} \)
   \( 4 > x > 1 \)

2. \( 12 < 3x < 24 \)
   \( \frac{12}{3} < \frac{3x}{3} < \frac{24}{3} \)
   \( 4 < x < 8 \)

3. Solve \( 13 > 3x - 2 > 4 \)
   \( 13 + 2 > 3x - 2 + 2 > 4 + 2 \)
   \( 15 > 3x > 6 \)
   \( 5 > x > 2 \)

Solution set: \( x = \{2, 3, 4, 5\} \)
LESSON 29
SUB TOPIC: INEQUALITIES INVOLVING BRACKETS
CONTENT:
1. Solve \(2(x+1) \leq 4\)
2. Solve \(3(2x+3) < 18\)
Ref: Mk bk 7 pg 449

LESSON 17
SUB TOPIC: APPLICATION OF INEQUALITIES
CONTENT: the Headteacher's car can accommodate maximumly 5 passengers. Using letter X write an inequality for the above given statement

TOPIC: INTEGERS:
TOPICAL QUESTIONS:
1. Use >, < or = to compare the following pairs of integers.
   (i) -2 > 0
   (ii) -1 < -3
   (iii) -6 = -6
   (iv) 8 > 8
   (v) 5 < -5
   (vi) -7 < 7
2. Arrange the following integers in ascending order (increasing order) -8, 2, -1, 5, -3, +7
3. Arrange the integers below in descending order. 0, -7, +4, -6, +1
4. Add the following integers.
   (i) +1 + 7
   (ii) +8 + -2
   (iii) +18 + -18
   (iv) -3 + +9
   (v) +4 + +5
5. Subtract the following integers.
   (i) +4 - -2
   (ii) +7 - -4
   (iii) -3 - +7
   (iv) -3 - -11
   (v) 8 - +8
6. Subtract +6 - -4 on a number line
7. Multiply:
   (i) +4 x -2
   (ii) -6 x -3
8. Divide:
   (i) -9 ÷ -3
   (ii) 27 ÷ -9
9. Evaluate: -2 x 8
   -4
10. Flavia was born in 2BC and she died in 38AD after her birthday. How old was she when she died.
11. John left a balance of shs 1,000 with the milk vendor. He then bought 5 litres of milk from the milk vendor. How much did he pay to meet his bill?
12. Iganga FC arrived at Nakivubo Football stadium 15 minutes before the start of the football match. The team left the stadium 15 minutes after the end of the first half of the match. How long was the team I the stadium?
13. In an examination you are awarded 7 marks of every correct answer and 3 marks deducted for every wrong answer. A candidate had 9 questions correct and 5 questions wrong. What mark did the candidate score?
14. A clock which loses 7 minutes shows 5:36pm. What is the real time?

TOPIC: SOLUTION SETS:
TOPICAL QUESTIONS:
1. Use >, < or = to compare the pairs of integers below.
   (i) 5 > 8
   (ii) -3 < -8
   (iii) -7 = -7
   (iv) 9 > 1
   (v) 0 < -1
   (vi) 17 > +17
2. Find the solution set for the following inequalities:
   (i) \(x > 3\)
   (ii) \(x < -5\)
   (iii) \(x \leq 2\)
3. Write down the inequality shown on the number line below.
4. Solve and give the solutions et for x.
   (i) -3x < -9
   (ii) -30 < 6x
   (iii) \(3x + 2 \leq 11\)
   (iv) \(4x - 5 \leq 19\)
5. Solve and find the solution set for y.
   \(\frac{1}{3}y + 4 < 6\)
6. Solve the inequality below:
   \(8 > 2x \geq -4\)