TOPIC ONE:

P.7 MATHEMATICS LESSON NOTES TERM I

TOPIC: SET CONCEPTS

LESSON 1:

SUB TOPIC: REVIEW OF SETS

CONTENT: Regions/describing points of venn diagram

Learners will be guided in describing the different regions on venn diagrams.

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:

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 = \{Factors of 24\}
Q= \{Multiples of 4 less than 25\}

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

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

EVALUATION ACTIVITY:
1. Given that set A = \{Even numbers less than 15\}
   B = \{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 \( \mathbb{E} = \{\text{whole numbers less than 15}\} \)
   Set P = \{4, 6, 14, 8, 0, 12, 3, 7\}

Remarks:
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

**Remarks:**

**LESSON 4:**
**SUB TOPIC:** NUMBER OF ELEMENTS ON VENN DIAGRAMS
**CONTENT:**
Example:
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.

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

**Remarks:**

**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.

\[
\begin{align*}
30 - r & \quad r \\
25 - r & \\
\end{align*}
\]

(b) Find \( n(A \cap B) \)
Let the number in \( (A \cap B) \) be \( r \).

30 – \( r + r + 25 - r = 45 \)
30 + 25 + \( r - r - r = 45 \)
55 – \( r = 45 \)
55 – 55 – \( r \) = 45 – 55
- \( r = -10 \)
- \( r = -10 \)
- 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 Exercise 1:6 and exercise 1:9 Pg 14

**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: (\( \emptyset \), \{-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 = \( n^n \) where \( n = \) number of elements in a set.
Number of subsets of set \( Q = 2^3 = 2^2 \times 2 = 8 \)

**EVALUATION ACTIVITY:**
(a) If \( n(K) = 2 \), find number of subsets of \( K \).
Given that a set has 64 subsets. Find the number of members in that set.

(a) If $M = \{d, e\}$ find the number of proper subsets in set $m$.

(b) If set $p$ has 16 proper subsets, find the number of members in that set.

Remarks:

TOPOICAL QUESTIONS ON SET CONCEPTS

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

2. Draw a venn diagram to show that all dogs (D) are animals (A).

3. Given that set $A = \{\text{all prime numbers less than } 20\}$ and $B = \{\text{all factors of } 16\}$.

4. (a) Describe the shaded regions for the following venn diagrams.

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

7. In a class of 40 pupils, 25 like English (E), 15 like Science (S), and 8 do not like any of the 2 subjects.
   (a) Complete the venn diagram.

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.

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) Subsets
    (ii) Proper subsets

TOPIC TWO:

TOPIC: WHOLE NUMBERS

LESSON 1:

SUB 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

Example 2: Write down all 3 digit numerals formed using the digits 7,0,8.

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 15:
SUB TOPIC: PROBABILITY

CONTENT: Probability is a measure of the likelihood of an event.
Probability:
Desired chance
Total chance
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 = 2 + 6
= 2 / 8
= 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 outcome = \(\{H\}\)
\[\therefore \text{Number of expected outcome = 1}\]
Hence Probability = \[n(E)\]
\[n(s.s)\]
\[= \frac{1}{2}\]

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 = \[\frac{n(E)}{n(s.s)}\]
\[= \frac{3}{6}\]

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 = \[
\begin{array}{c}
1^{st} \\
2^{nd}
\end{array}
\begin{array}{cccc}
H & T
\end{array}
\begin{array}{ccc}
H & HH & HT
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\begin{array}{ccc}
\end{array}
\end{array}
\]
### Example

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

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

\[ n(E) = \{2, T, 4, T, 6, T\} \]

\[ n(E) = 3 \]

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

Example:
1. When two dice are tossed once what is the probability that the sum is 8?

\[
\begin{array}{cccccc}
\text{Die B} & 1 & 2 & 3 & 4 & 5 & 6 \\
1 & 1,1 & 1,2 & 1,3 & 1,4 & 1,5 & 1,6 \\
2 & 2,1 & 2,2 & 2,3 & 2,4 & 2,5 & 2,6 \\
3 & 3,1 & 3,2 & 3,3 & 3,4 & 3,5 & 3,6 \\
4 & 4,1 & 4,2 & 4,3 & 4,4 & 4,5 & 4,6 \\
5 & 5,1 & 5,2 & 5,3 & 5,4 & 5,5 & 5,6 \\
6 & 6,1 & 6,2 & 6,3 & 6,4 & 6,5 & 6,6 \\
\end{array}
\]

Possible pairs (out come) = \(\{2, 6, 3, 5, 4, 4, 5, 3, 6, 2\}\)

\[ N(E) = 5 \text{ pairs giving the sum} \]

Sample space = 36

Probability (sum 8) = \[ \frac{5}{36} \]

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

### LESSON 2:

**SUB TOPIC:** 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>H</td>
<td>T</td>
<td>O</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</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

\[ 2602 \]

- Value of 6 = 6 x 100 = 600
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 eighty thousand forty.

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

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 10^3) + (6 x 10^2) + (2 x 10^1) + (4 x 10^0)

LESSON 6:
SUB TOPIC: FINDING THE EXPANDED NUMBERS (SHORT FORM)
CONTENT: Examples:
Write as a single number.
(i) \((6 \times 10,000 + (4 \times 10) + (5 \times 1))\)

Solution:
\((6 \times 10000) + (4 \times 100) + (5 \times 1)\)
\(= 60000 + 400 + 5\)
\(= 60405\)

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

\(= 9000000 + 700000 + 50000 + 1000 + 30 + 8\)
\(= 9000000 + 700000 + 50000 + 1000 + 30 + 8\)
\(= 9000000 + 700000 + 50000 + 1000 + 30 + 8\)
\(= 9750038\)

(iii) \((2 \times 10^5) + (4 \times 10^3) + (6 \times 10^5) + (7 \times 10^2)\)

\(= (2 \times 10 \times 10 \times 10 \times 10 \times 10) + (4 \times 10 \times 10 \times 10) + (6 \times 1) + (7 \times 10 \times 10)\)
\(= 200000 + 40000 + 6 + 700\)
\(= 204706\)

**EVALUATION ACTIVITY:***
A New MK Primary Mathematic Bk 6 Pg 37 Exercises 2:5 (Old Edition) Pg 58
Remarks:

**LESSON 7:**
SUB TOPIC: STANDARD FORM/SCIENTIFIC NOTATION
CONTENT: Writing whole numbers in Scientific notation
Examples:
(i) Write 453 in standard form
\(x 100\)
\(4.53 \times 10 \times 10\)
\(4.53 \times 10^2\)

(ii) Express 650000 in Scientific notation.
\(650,000 = 6.5 \times 100,000\)
\(= 6.5 \times 10 \times 10 \times 10 \times 10 \times 10\)

**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
Remarks:

**LESSON 8:**
SUB TOPIC: Rounding off whole numbers
CONTENT: Examples:
Review – rounding off scale
Round off the following as instructed.
(i) 3864 to the nearest hundred.
\(\text{H - R P V}\)
\(3 \text{ 8 6 4}\)
\(+ \text{ 0}\)
\(= 3900\)

(ii) 214 (nearest tens)
\(\text{Tens - RPV}\)
\(2 \text{ 1 4}\)
\(+ \text{ 0}\)
\(= 210\)

**EVALUATION ACTIVITY:***
A New MK Pupils Bk 6 Pg 161 Exercise 18:1
Macmillan Primary Mathematics Bk 7 Exercise 6 Pg 23
Remarks:

**LESSON 9:**
SUB TOPIC: ROMAN NUMERALS; CONVERTING HINDU ARABIC NUMERALS TO ROMAN NUMERALS
CONTENT:
Revise basic Roman symbols (IXLCDM)
Example
1. What 124 in Roman numerals
\(\text{H T O}\)
\(1 \ 2 \ 4\)
\(\text{ii) 1962}\)
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) CD XCIv
    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?
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:

\[
\begin{array}{cccc}
2 & 3 & 4 \\
\text{ Ones (6\textsuperscript{0})} & \text{Sixes (6\textsuperscript{1})} & \text{Six sices (6\textsuperscript{2})} \\
\hline
(2 \times 6\textsuperscript{2}) + (3 \times 6\textsuperscript{1}) + (4 \times 6\textsuperscript{0}) \\
(2 \times 6 \times 6) + (3 \times 6) + (4 \times 1) \\
12 \times 6 + 18 + 4 \\
72 + 22 \\
94 \text{ ten} \\
\end{array}
\]

(ii) 27 eleven to base nine

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

LESSON 14:
SUB TOPIC: BASES (CHANGING FROM NON DECIMAL BASES TO NON DECIMAL BASES)
CONTENT:
Example:
(i) Change 123 five to base six
Solution:

\[
\begin{array}{cccc}
1 & 2 & 3 \\
\text{One (5\textsuperscript{0})} & \text{Fives (5\textsuperscript{1})} & \text{Five fives (5\textsuperscript{2})} \\
\hline
(1 \times 5\textsuperscript{2}) + (2 \times 5\textsuperscript{1}) + (3 \times 5\textsuperscript{0}) \\
(1 \times 5 \times 5) + (2 \times 5) + (3 \times 1) \\
5 \times 5 + 10 + 3 \\
25 + 10 + 3 \\
35 + 3 \\
38 \text{ ten} \\
\end{array}
\]

38 \text{ ten} \text{ to base six}

\[
\begin{array}{c|c|c}
6 & 3 & 8 \\
\text{rem} 2 \\
6 & 6 \\
\text{rem} 0 \\
6 & 1 & \text{rem} 1 \\
\hline
0 \\
\end{array}
\]

102 \text{ six}
123 \text{ five} = 102 \text{ six}

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

\[
\begin{array}{cccc}
225 & 6 & +434 & 6 \\
\text{225 six} & \text{9} & \text{+434 six} & \text{6} \\
\hline
1103 & 6 \\
\text{1103 six} & \text{7} & \text{+6} & \text{1 r 1} \\
\end{array}
\]

143\text{five} + 11 \text{five} (answer in base ten)
23\text{seven} + 12 \text{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:
\[ \begin{array}{cc}
5 & 6^{15} 10 \\
5 & 6 \times 5 \text{ nine} + 9 + 1 = 10 \\
-2 & 8 \times 5 \text{ nine} + 6 = 15 \\
\hline
3 & 7 5 \text{ nine}
\end{array} \]
(ii) 345 six – 234 six (answer in base six)

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils' Bk 7 Pg 39 exercise 3:3
Remarks: 

LESSON 17:
SUB TOPIC: MULTIPLICATION OF BASES
CONTENT: Example:
(i) 121three \times 2three
\[ \begin{array}{cc}
1 & 2 \times 2 = 4 \\
\hline
4 & 3 = 1 \text{ rem } 1 \\
10 & 1 \times 2 = 2 + 1 \\
\hline
3 & 3 = 1 \text{ rem } 0
\end{array} \]
(ii) 345six \times 14six
\[ \begin{array}{cc}
3 & 5 \times 2 = 20 \\
\hline
20 & 6 = 3 \text{ rem } 2 \\
4 & 4 \times 4 = 16 + 3 \\
21 & 3 \times 12 = 10 + 6 = 3 \text{ rem } 1 \\
3 & 4 \times 5 = 15 + 6 = 2 \text{ rem } 3 \\
\hline
10202 & 6 \text{ six}
\end{array} \]

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

LESSON 18:
SUB TOPIC: DIVISION OF BASES
CONTENT: Examples:
(i) 204five \div 14five
Solution:
\[ \begin{array}{cc}
204 & \text{ five} - \text{ base ten} \\
(2 \times 5^2) + (0 \times 5^1) + (4 \times 5^0) \\
(5 + 4) + 0 + 4 \\
54 & \text{ ten}
\end{array} \]
(ii) 448nine \div 17nine (answer in Septenary base)
\[ \begin{array}{cc}
14 & \text{ five} \\
(1 \times 5^1) + (4 \times 5^0) \\
(1 \times 5) + (4 \times 1) \\
5 + 4 \\
= 9 & \text{ ten} \\
5 & \div 9 \text{ ten} \\
6 & \text{ ten}
\end{array} \]
\[ \begin{array}{cc}
6 & \text{ ten} - \text{ base five} \\
5 & \text{ six} \text{ rem } 1 \\
\hline
5 & \text{ one} \text{ rem } 1 \\
0 & \text{ zero}
\end{array} \]
(ii) 11five
\[ \begin{array}{cc}
448 & \text{ nine} - \text{ Septenary base} \\
(4 \times 9^2) + (4 \times 9^1) + (8 \times 9^0) \\
(36 + 36 + 72 + 8) = 11 \text{ five}
\end{array} \]

EVALUATION ACTIVITY:
LESSON 19: FINDING THE UNKNOWN BASE (MISSING BASE)

SUB TOPIC: FINDING THE UNKNOWN BASE (MISSING BASE)

CONTENT: Examples:

(i) If 44p = 35 nine
   Solution:
   (4 x p) + (4 x p0) = (3 x 9) + (5 x 9)
   (4 x p) + (4 x 1) = (3 x 9) + (5 x 1)
   4p + 4 = 27 + 5
   4p + 4 = 32
   4p + 4 – 4 = 32 – 4
   4p = 28
   4p = 28
   4 p = 7
   P = 7

(ii) 72x = 71 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: ADDITION OF LARGE NUMBERS

CONTENT: Examples:

Add correctly:

(i)  
\[ \begin{array}{c}
615146144 \\
+320005614 \\
935151758
\end{array} \]

(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 23,467
   County B 21,602
   County C 19,466
   County D 25,102

   Total population = 89,547

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

Remarks:

LESSON 2: SUBTRACTION OF LARGE NUMBERS

CONTENT: Examples:

Subtract correctly:

(i)  
\[ \begin{array}{c}
596148320 \\
-239610510 \\
356537810
\end{array} \]

(ii) What is the difference between 3060 and 186?
   \[ \begin{array}{c}
3060 \\
-186
\end{array} \]
   \[ \begin{array}{c}
2874
\end{array} \]

(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: MULTIPLICATION OF LARGE NUMBERS

CONTENT: Examples:

Multiply correctly:

(i)  
\[ \begin{array}{c}
615146144 \\
*320005614 \\
935151758
\end{array} \]

(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 23,467
   County B 21,602
   County C 19,466
   County D 25,102

   Total population = 89,547

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

Remarks:
CONTENT: Examples: Multiply:

(i) \[214032 \times 1324\]

(ii) A store can hold 1973 boxes each containing 34 pairs of shoes. How many pairs of shoes are in the store?

\[1973 \times 34\]

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

LESSON 4:
SUB TOPIC: DIVISION OF LARGE NUMBERS
CONTENT: Examples:

(i) Divide 3816648 by 132

\[
\begin{array}{c}
\underline{132}\hspace{1cm}3\hspace{1cm}8\hspace{1cm}1\hspace{1cm}6\hspace{1cm}6\hspace{1cm}4\hspace{1cm}8 \\
-264 \hspace{1cm}1176 \\
-1056 \hspace{1cm}1206 \\
-1188 \hspace{1cm}184 \\
\hspace{1cm}528 \\
\end{array}
\]

\[= 28914\]

(ii) There are 6315 books to be packed in 15 boxes. How many books should be packed in each box?

\[421\]

LESSON 5:
SUB TOPIC: DISTRIBUTIVE PROPERTY
CONTENT: Examples:

(i) \[(379 \times 27) + (27 \times 21)\]

Re-arrange \[(27 \times 379) + (27 \times 21)\]

\[= 27 \times (379 + 21)\]

\[= 27 \times 400\]

\[= 10800\]

(ii) \[(137 \times 42) - (37 \times 42)\]

\[= (42 \times 137) - (42 \times 37)\]

\[= 42 \times 100\]

\[= 4200\]

ASSOCIATIVE PROPERTY
Example
Use the associative property to workout
\[(5 + 8) + 2 = 5 + (8 + 2) \neq (5 + 2) + 8\] the alteration of the position of the brackets does not change the result
\[13 + 2 = 5 + 10 = 7 + 8\]

\[15 + 15 = 15\]

\[(5 \times 8) \times 2 = 5 \times (8 \times 2) = (5 \times 2) + 8\] The alteration of the position of the brackets does not change the result.
\[40 \times 2 = 5 \times 16 = 10 \times 8\]

\[80 \hspace{1cm} 80 \hspace{1cm} 80\]

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
\[7\]

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

EVALUATION ACTIVITY:
A new MK pri MTC bk 7 exercise 3.3 pg 47 (new edition)
A new MK Pri MTC teacher’s bk 6 extra work to pupils pg 49
Remarks:

LESSON 6:
SUB TOPIC: LAWS OF INDICES IN MULTIPLICATION AND DIVISION
CONTENT:
Examples:
   (i) Evaluate: \(4^2 \times 4^4\)
        Method 1: Using index rule
        \[ 4^{2+4} = 4^6 \]
        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.
        \[ 43 \times 42 = 4 \times 3 \times 4 \times 2 \]
        \[ = 41 \]
        \[ = 4 \]
        Method 2: \(43 \times 42 = 4 \times 4 \times 4 \times 4 \)
        \[ = \frac{4 \times 4}{1} = 4 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 3:8 and 3:9 on Pg 51 & 52.
Remarks: Learners should be helped to prove that any number to power zero is 1.

LESSON 7:
SUB TOPIC: APPLICATION OF INDICES
CONTENT:
Solving multiplication equations.

Finding missing indices by multiplication.
Examples: Solve:
   (i) \(2^x = 3^2\)
       Factorize 32 using 2.
       \[
       \begin{array}{c|c}
       2 & 32 \\
       2 & 16 \\
       2 & 8 \\
       2 & 4 \\
       2 & 2 \\
       1 & 1 \\
       \end{array}
       \]

(ii) \(3^y \times 3 = 81\)
    Factorize 81 using 3.
    \[
    \begin{array}{c|c}
    3 & 81 \\
    3 & 27 \\
    3 & 9 \\
    3 & 3 \\
    3 & 1 \\
    1 & Y + 1 = 4 \\
    \end{array}
    \]
    \[ \therefore Y = 3 \]

(iii) \(2t \times 33 = 108\)
    Factorize 108 using 2 and 3.
    \[
    \begin{array}{c|c}
    2 & 108 \\
    2 & 54 \\
    3 & 27 \\
    3 & 9 \\
    3 & 3 \\
    1 & t = 2 \\
    \end{array}
    \]

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:
(i) \( 2^2 \div 2^1 = 8 \)
Factorize 8 using 2.
\[
\begin{array}{c|c}
2 & 8 \\
2 & 4 \\
2 & 2 \\
\end{array}
\]
\(2^x \div 2^1 = 2 \times 2 \times 2\)
\(2^x \times 2^1 = 2^3\)
\(2^x - 1 = 3\)
\(X - 1 + 1 = 3 + 1\)
\(\therefore X = 4\)

(ii) \(4^x \div 4^1 = 256\)
Factorize 256 using 4.
\[
\begin{array}{c|c}
4 & 256 \\
4 & 64 \\
4 & 16 \\
4 & 4 \\
1 & 2 \\
\end{array}
\]
\(4^x \div 4^1 = 4 \times 4 \times 4 \times 4 \times 4 \times 4\)
\(4^x \div 4^1 = 4^4\)
\(4^x - x = 4^4\)
\(3x - x = 4\)
\(2x = 4\)
\(\therefore x = 2\)

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 = 42 = 4 x 4 = 16
(ii) Find the square root of 4.
\(\sqrt{4} = 2\)

LESSON 8:
SUB TOPIC: CUBE ROOTS
CONTENT:
Example:
Find the cube root of 8.
\(3\sqrt{8} = \sqrt[3]{2 \times 2 \times 2 \times 2 \times 2 \times 2} = 2\)

EVALUATION ACTIVITY:
Remarks:
\[ \sqrt[3]{8} = 2 \times 2 \times 2 = 2 \]

Method 2:

\[ \sqrt[3]{8} = (2^3)^{1/3} = 2 \]

EVALUATION ACTIVITY:

Teachers' collection
Mathematics Revision Hand Book for Primary 5, 6 & 7 Pg 60

Remarks:

_____________________________________________________________________________
______________________________________________________

LESSON 9:

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:

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

A = 121 mm\(^2\)

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

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

Vol of a cube = L\(^3\) = 64m\(^3\)

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

\[ \frac{64}{2} = 32 \]

\[ \frac{32}{2} = 16 \]

\[ \frac{16}{2} = 8 \]

\[ \frac{8}{2} = 4 \]

\[ \frac{4}{2} = 2 \]

\[ \frac{2}{1} = 1 \]

EVALUATION ACTIVITY:

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

Remarks:

_____________________________________________________________________________
______________________________________________________

TOPICAL EXERCISE:

1. Add: 426 + 1519 + 3
2. Subtract 105 from 200
3. Evaluate \(3^4 + 3^2 = \)
4. \(5^3 \times 5^2 \div 5^1\)
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 Idd 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:

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**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 = 3 + 6 +9 = 18
  - Difference between sums = 18-18=0
Since the difference is 0, 73689 is divisible by 11.

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

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**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 I not exactly divisible by 2 i.e. leaves one as a remainder.
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,
Prime numbers:
Numbers with only two factors. One and itself. The first prime number is 2. 2 is the only even/prime number.
e.g. 2, 3, 5, 7, ….

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 4:5 Pg 68
Remarks:
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LESSON 4:
SUB TOPIC: COMPOSITE, TRIANGULAR, SQUARE, CUBE NUMBERS
CONTENT: Definition of:
(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 obtained by multiplying itself once.
Numbers got by adding consecutive odd numbers starting from 1.

\[
\begin{array}{cccccc}
\text{O} & \text{O} & \text{O} & \text{O} & \text{O} & \text{O} \\
\text{O} & \text{O} & \text{O} & \text{O} & \text{O} & \text{O} \\
\text{O} & \text{O} & \text{O} & \text{O} & \text{O} & \text{O} \\
\end{array}
\]

1 1 + 3 1 + 3 + 5 1 + 3 + 5 + 7 \\
1 4 9 16 5 \times 5 = 25 \\

(iv) Cube numbers:
Numbers got by multiplying a number by itself twice.
Eg
\[
\begin{array}{cccc}
1 \times 1 \times 1 &=& 1^3 &=& 1 \\
2 \times 2 \times 2 &=& 2^3 &=& 8 \\
3 \times 3 \times 3 &=& 3^3 &=& 27 \\
4 \times 4 \times 4 &=& 4^3 &=& 64 \\
5 \times 5 \times 5 &=& 5^3 &=& 125 \\
\end{array}
\]

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

LESSON 5:
SUB TOPIC: MULTIPLES, FACTORS
CONTENT: Definition of:
(i) Multiples:
These are numbers which are obtained by multiplying a number by consecutive counting numbers ie. 1 x 2 x 3, etc

Examples:

\[
\begin{array}{cccccccc}
\text{M6} &=& \{6 \times 1, 6 \times 2, 6 \times 3, 6 \times 4, 6 \times 5, 6 \times 6, 6 \times 7, \ldots \} \\
6 & 12 & 18 & 24 & 30 & 36 & 42 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
\text{M8} &=& \{8 \times 1, 8 \times 2, 8 \times 3, 8 \times 4, 8 \times 5, 8 \times 6, 8 \times 7, \ldots \} \\
8 & 16 & 24 & 32 & 40 & 48 & 56 \\
\end{array}
\]

\[
\begin{array}{cccccccc}
\text{M9} &=& \{9 \times 1, 9 \times 2, 9 \times 3, 9 \times 4, 9 \times 5, 9 \times 6, 9 \times 7, \ldots \} \\
9 & 18 & 27 & 36 & 45 & 54 & 63 \\
\end{array}
\]

(ii) 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 ÷ 1 = 6
6 ÷ 2 = 3
6 ÷ 3 = 2
6 ÷ 6 = 1
F_6 = \{1, 2, 3, 6\}
Note F_6 means factors of 6.

Find factors of 9.
1 x 9 = 9
3 x 3 = 9
F_9 = \{1, 3, 9\}
LESSON 6:

SUB TOPIC: L.C.M AND H.C.F
CONTENT:

Examples:

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

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>24</th>
<th>36</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>12</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>6</th>
<th>8</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

= 2

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.

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
3r + 3 = 18
3r = 15
r = 5
3
5 = 7

The numbers are

1st no. = r = 5
2nd No. = r + 1 but r = 5
5 + 1 = 6
3rd No. = r + 2
Where r = 5
5 + 2 = 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>

\[
y + (y + 2) + (y + 4) = 15
\]
\[
y + y = 2 + 4 = 15
\]
\[
y + 6 = 15
\]
\[
y + 6 - 6 = 15 - 6
\]
\[
y = 9
\]
\[
y = 9
\]
\[
y = 9
\]
\[
y = 3
\]

1st No. \( y = 3 \)
2nd No \( y + 2 = y \)
Where \( y = 3 \)
3 + 2 = 5
3rd No. = y + 4
where \( y = 3 \) 3 + 4 = 7
The numbers are 3, 5, and 7

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)
Remarks:

TOPOCAL 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

\( x \)

\( 2^1 \)

\( 2^2 \)

\( 2^3 \)

\( y \)

(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:

TOPIC: FRACTIONS
LESSON 1:
SUB TOPIC: TYPES OF FRACTIONS
CONTENT:
Proper \( \frac{5}{7} \)
Improper \( \frac{7}{5} \)
Mixed numbers \( 2 \frac{1}{2} \)
Expressing improper fractions as mixed numbers.
Examples:
Express as mixed numbers:
\[
14/9 = 9 \sqrt{14} \\
9 + \frac{5}{9}
\]
\[
211 = 14 \sqrt{211} \\
14 + \frac{7}{211}
\]
1
Express as improper fractions:

1. \[ \frac{6\frac{2}{3}}{3} = \frac{6 \times 3 + 2}{3} = \frac{18 + 2}{3} = \frac{20}{3} \]

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:

\[
\frac{0.625}{5} = 0.125 \quad \frac{0.3333}{1} = 0.33... \\
\]

- Changing decimals to fractions:

\[
\frac{0.25}{1} = \frac{25}{100} \quad \frac{0.125}{2} = \frac{125}{1000} \\
\]

EVALUATION ACTIVITY:

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

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. \[ 0.33.... \]
   Let the No. be \( Y \)
   \[ 10Y = 3.33... \]
   \[ 100Y = 33.33... \]
   \[ 100Y - 10Y = 30 \]
   \[ 90Y = 30 \]
   \[ Y = \frac{1}{3} \]

2. \[ 0.45.... \]
   Let the No. be \( t \)
   \[ 100t = 45.45... \]
   \[ 100t - t = 44 \]
   \[ 99t = 44 \]
   \[ t = \frac{4}{11} \]

- Changing decimals to fractions:

\[ 0.1666... \]
Let the No be \( a \)
\[ 10a = 1.666... \]
\[ 100a = 16.666... \]
\[ 100a - 10a = 15 \]
\[ 90a = 15 \]
\[ a = \frac{1}{6} \]
LESSTON 4:  
SUB TOPIC: CHANGING RATIONAL NUMBERS TO DECIMALS
CONTENT: Changing rational numbers to decimals
Examples:
\[
\begin{align*}
1. \quad & \frac{3}{11} = 0.2727 \ldots \\
2. \quad & \frac{1}{12} = 0.0833 \ldots \\
& \text{EVALUATION ACTIVITY:} \\
\text{Macmillan Primary Mathematics Bk 7 exercise 1 Pg 81.}
\]

LESSTON 5:  
SUB TOPIC: OPERATIONS OF FRACTIONS
CONTENT: Addition and subtraction
Examples:
\[
\begin{align*}
1. \quad & \frac{1}{3} + \frac{1}{2} = \frac{2 + 3}{6} = \frac{5}{6} \\
2. \quad & \frac{1}{3} + \frac{1}{5} = \frac{5 + 3}{15} = \frac{8}{15} \\
& \text{Subtract:} \\
1. \quad & \frac{3}{4} - \frac{1}{3} = \frac{9 - 4}{12} = \frac{5}{12} \\
2. \quad & \frac{5}{6} - \frac{1}{5} = \frac{25 - 6}{30} = \frac{19}{30} \\
\text{EVALUATION ACTIVITY:} \\
\text{Macmillan Primary Mathematics Bk 7 exercises 5:2 and 5:3 Pgs 73/74}
\]

LESSTON 6:  
SUB TOPIC: OPERATION ON FRACTIONS
CONTENT: Multiplication of fractions
Examples:
\[
\begin{align*}
1. \quad & \frac{1}{5} \times 3 = \frac{3}{5} \\
2. \quad & \frac{1}{3} \times \frac{3}{4} = \frac{1}{4} \\
& \text{EVALUATION ACTIVITY:} \\
\text{A New MK Primary Mathematics Bk 7 exercises 5:4 and 5:5 Pgs 75/76}
\]

LESSTON 7:  
SUB TOPIC: OPERATION ON FRACTIONS
CONTENT: Division of fractions
Examples:
\[
\begin{align*}
1. \quad & \frac{2}{5} \div 2 = \frac{2}{5} \times \frac{1}{2} = \frac{2}{5} \\
2. \quad & \frac{3}{4} \div \frac{1}{2} = \frac{3 \times 4}{4 \times 2} = \frac{3 \times 4}{4 \times 2} = \frac{3}{2} = \frac{3}{2} \\
& \text{EVALUATION ACTIVITY:} \\
\text{A New MK Primary Mathematics Bk 7 exercises 5:9 and 5:5 Pgs 80}
\]
LESSON 8:

SUB TOPIC: USE OF BODMAS TO SIMPLIFY MIXED FRACTION

CONTENT: Combined operations
Brackets
Of
Division
Multiplication
Addition
Subtraction
Examples:

1. \[ \frac{2}{3} \text{ of } \frac{3}{4} - 1 \]
   \[ \frac{2}{3} \times \frac{3}{4} - 1 \]
   \[ \frac{1}{2} \times \frac{3}{4} - 1 \]
   \[ \frac{1}{6} \]

2. \[ \frac{5}{6} - 1 \]
   \[ \frac{5 - 3}{6 + 4} \text{ ÷ } \frac{3}{4} \]
   \[ \frac{5 - 1}{6 - 1} \]
   \[ \frac{2}{5} \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercises 14:11 Pg 127 (Old Edition)

Remarks:

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

(ii) A, B and C contributed to start a Company. A paid \( \frac{3}{10} \) of the cost and B contributed \( \frac{2}{10} \) of the cost.
   (a) What fraction did C contribute?
   (b) If C contributed shs 30,000 what was their total contribution?
   \[(a) \quad \text{What fraction did C contribute?} \]
   \[(b) \quad \text{If C contributed shs 30,000 what was their total contribution?} \]

(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

Remarks:

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:
   \[ \text{Tap A and B} = \frac{1}{6} + \frac{1}{3} = \frac{1}{6} + \frac{2}{6} = \frac{3}{6} = \frac{1}{2} \]
   In 1 minute the tank will be \( \frac{1}{2} \) filled.
   i.e \( \frac{1}{2} \) (1 part is filled in 1 minute
   \[ \frac{2}{2} \] (2 parts are filled in 2 minutes.
   \[ \frac{2}{2} \]
   \[ \frac{2}{2} \]

   Method 2:
   \[ \text{Product} = \text{Time taken by} + \text{Sum} \]
   \[ \text{The two taps} = \frac{\text{Tap A x tap B}}{\text{Tap A + tap B}} \]
   \[ = \frac{6 \times 3}{6 + 3} \]
   \[ = \frac{18}{9} \]
   \[ = 2 \text{ minutes} \]

EVALUATION ACTIVITY:

MK Bk 7 Pg 79 exercise 4:8

Remarks:

LESSON 11:

SUB TOPIC: APPLICATION OF FRACTIONS

CONTENT: Word problems
Examples:

1. Twaha spent $\frac{1}{3}$ of his money on books and $\frac{1}{6}$ of the remainder on transport.

   (i) What fraction of his money was left?
   
   Fraction spent on books $\frac{1}{3}$
   
   Remained fraction: $1 - \frac{1}{3} = \frac{3}{3} - \frac{1}{3} = \frac{2}{3}$
   
   Fraction spent on transport: $\frac{1}{6} \times \frac{2}{3} = \frac{2}{18} = \frac{1}{9}$
   
   Total fraction spent on transport and books: $\frac{1}{3} + \frac{1}{9} = \frac{3}{9} + \frac{1}{9} = \frac{4}{9}$
   
   Remained fraction $= 1 - \frac{4}{9} = \frac{9}{9} - \frac{4}{9} = \frac{5}{9}$

   (ii) If he was left with shs 15,000= how much did he have at first?
   
   Let the total be $y$.
   
   $\frac{5}{9} \times y = 15,000$
   
   $\frac{5y}{9} = 15,000$
   
   $5 \times \frac{y}{9} = 15,000 \times \frac{5}{9}$
   
   $Y = 3000 \times \frac{9}{5}$
   
   $= \text{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:

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>Tₜ</th>
<th>Hₜ</th>
<th>Tₜₜ</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:

LESSON 12:

SUB TOPIC: reading and writing decimals in words

CONTENT:

Examples:

Write the following decimals in words

232.76

Twenty three and two hundred seventy six thousand

378.01

Three hundred seventy eight and one hundredths

Writing decimals in figures

Thirty six and seventeen hundredths

Thirty six $\frac{36}{100} = 0.36$

Seventeen hundredths $= \frac{17}{100} = 0.17$

$36 + 0.17$
LESSON 13:
SUB TOPIC: EXPANDING DECIMALS USING VALUES AND POWERS/EXPONENTS OF 10
CONTENT:
Expand 486.5729 using:
\((a)\)
Values:
\((4 \times 100) + (8 \times 10) + (6 \times 1) + (5 \times 1) + (7 \times 1) + (2 \times 1) + (9 \times 1)\)
\[400 + 80 + 6 + 5 + 7 + 2 + 9\]
\[486.5729 = 400 + 80 + 6 + 0.5 + 0.07 + 0.002 + 0.0009\]

\((b)\)
\([4 \times 10^2] + [8 \times 10^1] + [6 \times 10^0] + [5 \times 1] + [7 \times 1] + [2 \times 1] + [9 \times 10^{-1}]\)
\(486.5129 = 400 + 80 + 6 + 0.5 + 0.07 + 0.002 + 0.0009\)

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

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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:
A New MK Primary Mathematics Pupils Bk 7 (Old Edition) Pg 92 Exercise 7:12.
Remarks:

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LESSON 16:
SUB TOPIC: ROUNDING OFF DECIMALS
CONTENT:
Example:
Round off the following decimals as instructed:
\(4.78516\) to the nearest thousandths.
Solution:
\(4.785\)


EVALUATION ACTIVITY:
Ref: MTC Revision Hand Book P.6, 6, P.7 Pg 29
Remarks:
4.78516 to the nearest thousandths = 4.885

(ii) 75.634 to the nearest whole number nearest whole number place value = ones

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 17:
SUB TOPIC: DECIMALS
CONTENT: Addition and of decimals
Examples:
1. 3.4 + 0.23
   = 3.4
   + 0.23
   ______
   3.63

2. 5 – 0.03
   = 5.00
   - 0.03
   ______
   4.97

3. 8 – 5.16 + 3.07
   Re-arrange first 8 + 3.07 – 5 – 16
   8.00
   +3.07
   ______
   11.07
   - 5.16
   ______
   5.91

Emphasis on:
(i) arrangement of numbers according to place value.
(ii) re-arrange when two signs are given.

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 7:12 Pg 94 (Old Edition)
Remarks:

LESSON 18
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
   0.36 = \frac{36}{100}
   0.054 = \frac{54}{1000}
   0.07 = \frac{7}{100}
   0.8 = \frac{8}{10}
   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*}
   = 360
   = 54
   = 70
   = 800
   \therefore \text{Order} = 0.8, 0.36, 0.07, 0.054

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

LESSON 19
SUB TOPIC: DECIMALS
CONTENT: Multiplication of decimals
Examples:
1. 27.36 x 6
   = 27.36
   \times 6
   ______
   164.16

2. 11.9 x 0.3
   = 11.9
   \times 0.3
   ______
   3.57
LESSON 20
SUB TOPIC: DECIMALS
CONTENT: Division of decimals
Examples:
1. \(0.72 \div 9\)
   \[
   \frac{72}{100} \div \frac{9}{100} = \frac{72}{9} = 8
   \]
   \[
   \frac{8}{100} = 0.08
   \]
2. \(0.12 \div 0.3\)
   \[
   \frac{12}{100} \div \frac{3}{10} = \frac{12}{3} = 4
   \]
   \[
   \frac{4}{10} = 0.4
   \]

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

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 \(\frac{80}{4} = 20\)
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 2000 = 400
5
3 parts make 400 x 3 = 1200/

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 7:2 Pg 97 Nos 1 - 6 (Old Edition)
Remarks:
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LESSON 24
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:
New MK Primary Mathematics Bk 7 exercise 7:2 Pg 97 Nos 10, 111 & 12
Remarks:
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LESSON 25
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 = 4 x 18 = 4 x 2
9
2nd share = 5 x 18 x 5 x 2
9
= 10
EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 7:3 Pg 99 (Old Edition)
Remarks:
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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
6 parts = 12000 x 6
2
= 12000 x 3
= 36,000=
They shared sh 36,000=

2. Application of ratios
The director of Sir Apollo Kaggwa Schools distributed test books to his schools A:B:C in
a ratio of 2:4:6 respectively. If school C got 60 more books than A, how many books
were distributed altogether?

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

LESSON 27
SUB TOPIC: PROPORTION
CONTENT: Direct proportion
Examples:
1. Two books cost shs 2000= Find the cost of 6 similar books.
2 books cost sh 2000=
1 book costs sh 2000=
3
6 books cost shs 2000 x 6
x= 2 1
2000 x 3
Shs 6000=

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 9:4 Pg 115 (Old Edition)
LESSON 28
SUB TOPIC: PROPORTION
CONTENT: Direct proportion
Examples:
1. \(\frac{2}{3}\) of the books in the book shop are school text books. 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
   Method 2: Let all the books be a 2/3 of a = 240 books = 2a = 240
   \(\vdash\) 3 parts make 240 x 3
   \(\vdash\) a = 120 x 3
   = 360 books

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 7:5 Pg 102 (New Edition)
Remarks:

LECTON 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
   = \(\frac{9}{12}\) x 4 days
   \(\vdash\) = 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:
\(35\% = \frac{35}{100}\)
\(= \frac{35}{100} \div 5\)
\(= \frac{7}{20}\)
Changing percentages into decimals:
25% as a decimal
112% as a decimal
\(25\% = \frac{25}{100}\)
\(= \frac{25}{100} \div 5\)
\(= \frac{5}{20}\)
Changing percentages to decimals:
25% as a decimal
112% as a decimal
\(= \frac{25}{100}\)
\(= \frac{112}{100}\)
\(= 0.25\)
\(= 1.12\)
Changing decimals to percentages:
0.2 = \(\frac{2}{10}\)
1.5 as a percentage
\(= \frac{2}{10} \times \frac{15}{10}\)
LESSON 33
SUB TOPIC: CHANGING PERCENTAGES TO RATIOS AND VISE-VERSA
CONTENT: Changing percentage to ratios

Examples:

1. Express the following as ratios:
   - 5% = \( \frac{1}{20} \)
   - \( \frac{1}{3} \)

2. Express as a percentage:
   - \( \frac{4}{5} = 80\% \)
   - \( \frac{1}{1} = 100\% \)
   - \( \frac{1}{3} = 33\frac{1}{3}\% \)

Remarks:
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LESSON 34
SUB TOPIC: PERCENTAGES
CONTENT: Finding percentages of quantities

Examples:

1. Find 40% of 150
   - 40 x 150
   - = 60 x 200 hectares
   - = 60 x 2 hectares
   - = 120 hectares

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
   - = 60 x 100
   - = 60 x 200 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% of a number = 40
   - \( \frac{20}{100} \times x = 40 \)
   - \( \frac{20}{100} \times 5 \times 40 \)
   - \( \frac{20}{100} \times x = 40 \times 5 \)
   - \( x = 200 \)
   - \( x = 200 \)
   - = 40 x 5 = 200

Remarks:
_____________________________________________________________________________
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LESSON 35
SUB TOPIC: FINDING THE REMAINING PERCENTAGES
CONTENT: Examples

1. If 40% of a class is absent, what percentage is present?
   - What percentage is 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%
   - \( \frac{35 + 10}{100} \)
   - = 45%
   - Percentage for posho = 100% - 45%

Remarks:
_____________________________________________________________________________
_____________________________________________________________________________
3. Expressing quantities and percentages:

Examples:

(i) Write 20 as a percentage of 80.
Fraction = \( \frac{20}{80} \)
= \( \frac{1}{4} \)
= \( \frac{20 \times 100}{80} \)
= 25% 

(ii) Amos got 12 out of 25 in a Maths test. Express his mark as a percent.
Fraction = \( \frac{12}{25} \)
= \( \frac{4}{4} \) \( \times \) 100% 
Percentage = \( \frac{12 \times 100}{25} \)
= 48% 

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 8:7 and 8:8 Pg 109 - 110 (New Edition)
Remarks:

LESSON 37
SUB TOPIC: PERCENTAGES
CONTENT: Application of percentages
Examples:

1. Nanyonjo earns shs 12,000. She spends 75% and saves the rest.
   (i) How much does she spend?
   Solution:
   \[ 75\% \times 12,000 = \frac{75 \times 12000}{100} \]
   = 9,000 

   (ii) How much does she save?
   (100% - 75%) of 12,000 Or 12,000 = 25% of 12,000
   = 9,000 

LESSON 38
SUB TOPIC: PERCENTAGE INCREASE AND DECRIEASE
CONTENT: Percentage increase
Examples:

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

2. Increase 800 pupils by 12 ½ %:
   New number = 100% + 12 ½ % of old number
   = 112 ½ % of 800 pupils
   = 225 ½ x 800 pupils
   = 225 \( \div \) 100 \( \times \) 800
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**  
   **New amount:** \( \frac{110}{100} \times \frac{120}{100} \times 4800 = 6336 \)  

**EVALUATION ACTIVITY:**
New MK Primary Mathematics Bk 7 exercise 8:7 and 8:8 Pg 109 - 110 (New Edition)  
**Remarks:**

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**LESSON 39**
**SUB TOPIC:** PERCENTAGE DECREASE  
**CONTENT:**

1. **Decrease shs 1,500 by 10%**
   - New amount as percentage:  
     \( 100\% - 10\% = 90\% \)  
   - New amount: 90% of 1500/=  
     \( = \frac{90}{100} \times 1500 = 1350/= \)  

2. **Decrease 720 dollars by 33 \( \frac{1}{3} \)%**
   - New percentage = 100% - 33 \( \frac{1}{3} \)% = 66 2/3%  
   - New amount: 66 \( \frac{2}{3} \)% of 720 dollars  
     \( = \frac{200}{3} \times 720 \)  
     \( = \frac{200}{3} \times \frac{720}{1} = 240 \)  
     \( = \frac{200}{3} \times \frac{720}{1} = 2 \times 240 \)  
     \( = 480 \) 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  
**Remarks:**

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**LESSON 40**
**SUB TOPIC:** FINDING THE ORIGINAL NUMBER AFTER %AGE INCREASE  
**CONTENT:**

1. **Percentage after increase:**

2. **What amount of money when increased by 20% becomes 1440?**
   - Let the amount be \( x \).
   - New amount = \( (100\% + 20) \) of \( x \)  
   - \( 120\% \times x = 1440 \)  
   - \( 120 \times x = 1440 \)  
   - \( \frac{100}{10} \times x = 1440 \times 10 \)  
   - \( 12x = 14400 \)  
   - \( \frac{12}{12} = \frac{14400}{12} \)  
   - \( X = 1200 \)  

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

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**LESSON 41**
**SUB TOPIC:** FINDING THE ORIGINAL NUMBER AFTER THE DECREASE  
**CONTENT:**

1. **A worker’s salary was decreased by 35% to shs 1560.**
   - Let the old salary be \( x \).
   - New salary = \( (100\% - 35\%) \) of \( x \)  
   - \( 1560 = \frac{65}{100} \times x \)  
   - Method II: Percentage after decrease  
     \( 100\% - 35\% = 65\% \)  
     \( 1560 \times 100 = 65 \times 100 \)  
     \( 65\% \) of the salary = 1560
120 x 20 = x
100% of salary = 24 x 100
240 = x = 2,400=

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

LESSON 42
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:
   = $60 \times 100$
   = $60 \times \frac{100}{480}$
   = $\frac{60}{8} \times 100$
   = 100%
   = 12 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}
   = \frac{48}{5} \times 100
   = 20%

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 = Selling price – Cost price
   = 20,000
   Percentage profit:
   = \frac{20,000 \times 100}{100,000}
   = 20%

   Percentage loss:
   Purchase price = 120,000
   Selling price = $100,000
   Loss = Purchase price – Selling price
   = $20,000
   Percentage loss:
   = \frac{20,000 \times 100}{120,000}
   = \frac{100}{6} \times 100%
   = 16 \frac{2}{3}%

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

100% represents = (21,000 x 100)

120% represents = shs 21,000
1% represents = 21,000

By selling his cow at shs 34,000, Obala made a loss of 15%. How much did the cow cost?
Loss = 15%
CP = 100%
SP = 100% - 15%
85% of CP = 34,000
CP = 400 x 100=
Cost price = 40,000=

Kakeeto bought three bags of soya beans at shs. 21,000 each. If each bag weighed 70kg and sold each kg at shs 250.
(a) Calculate his percentage gain or loss.
(b) At what price must he sell each kg in order to make a profit of 20%?

LESSON 46
SUB TOPIC: DISCOUNT
CONTENT: Meaning of discount, Finding discount

Example:
1. The market price of a shirt was shs 1500. After a discount, a customer paid shs 1200. How much was the discount?
Discount = Marked price – cash price
= 1500/= - 1200/= = 300/= Express the discount as a percentage
Percentage discount = discount x 100%
1500
= 300 x 100%
1500
= 20%

2. The marked price of a bicycle is shs 60,000. A customer is offered a discount of 15%
How much money does the customer pay?
Discount = 15% of marked price
Amount paid = 100% - 15% = 95%
15 x 60,000
= 9000=
51,000=

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
Lesson 48

SUB TOPIC: FINDING MARKED PRICE AND SELLING PRICE WHEN GIVEN DISCOUNT (%ge DISCOUNT & AMOUNT DISCOUNT)

CONTENT:

Example:
1. Kamya was given a discount 17% of the marked price which amounted to 8500/=.
   Calculate the marked price and selling price.

   Solution:
   \[ \text{%age discount} = 17\% \times \frac{500 \times 100}{8500} \]
   \[\text{Marked price} = 100\% \times 8500 \]
   \[\text{But} \quad 17\% \times 8500 = 8\% \times 50,000 \]
   \[100\% \times (8500 \times 100) = 83 \times 50,000 \]
   \[\frac{100\% \times 8500}{17} = \frac{83 \times 50,000}{17} = \frac{8,150}{17} = 450,000/= \]
   \[\text{Or} \quad 50,000 - 8500 \]

LESSON 49

SUB TOPIC: COMMISSION

CONTENT:

Meaning of commission
Finding commission

Example:
1. A Salesman is paid a salary of 10,000 he sold worth shs 6500. How much money did he get altogether?

   Solution:
   Salary = 10,000
   Commission = 10\% of 6500 = \frac{10 \times 6500}{100} = 650
   = shs 10,650
   Amount he got altogether = 10,000 + 650

LESSON 50

SUB TOPIC: SIMPLE INTEREST

CONTENT:

Review the following:
- Terms used
- Simple interest = Time (T)
- Principal (P) amount = 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
   \[= 40,000 \times 5 \times 0.025 \]
   \[= 40,000 \times 5 \times \frac{5}{200} \]
   \[= 40,000 \times 5 \times \frac{5}{200} = 450,000 \]
   \[\text{Amount} = \text{Shs} (40,000 + 450) \]
   \[= \text{Shs} 40,050 \]

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

Remarks:
LESSON 51

SUB TOPIC: FINDING THE PERCENTAGE RATE

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

Solution:

\[
\begin{align*}
\text{Method 1:} & \\
PTR &= SI \\
30,000 \times 9 \times R &= shs 1,125 \\
1 &= \frac{1125}{30,000} \times 9 \\
12 &= \frac{1125}{30,000} \times 9 \\
150 &= 1125 \\
30,000 \times 9 &= 1125 \\
12 \times 100 &= 300 \times \frac{3}{4} \\
6 &= 375 \times 75 \\
25 \times 9R &= 1125 \\
25 \times 9 &= 1125 \\
5 &= 75 \times 4 \\
\end{align*}
\]

\[R = 5\%\]

The rate is 5%.

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

Remarks:

LESSON 52

SUB TOPIC: CALCULATING PRINCIPAL

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

Solution:

\[
\begin{align*}
\text{P x T x R} &= SI \\
15P &= 6000 \\
15 &= 6000 \\
100 &= 40,000 \\
P &= 48,000 \\
480 \times 15T &= 5400 \\
R &= 15\% \text{ per year} \\
7200T &= 5400 \\
SI &= 5400 \\
7200 &= 5400 \times T \\
P &= 48,000 \\
9 \times 12 &= 48,000 \times 15T \\
100 &= 7200 \times T \\
\end{align*}
\]

The time is 3 years.

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 142 exercise 9:4
TOPICAL EXERCISE ON FRACTIONS

1. Name the types of fractions and give an example on each.
2. Divide: 2/3 ÷ 1/3
3. Simplify: ½ - ¼ - 1/3
4. Salim’s bicycle got spoilt after he had covered a distance of 20km which was ¼ 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: ¼ + 3/5
7. Simplify: ½ - ¼ - 1/3
8. Otim had 30km still to cover after traveling 3/5 of the journey. How was the journey?
9. In Sir Apollo Schools, ¾ 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?
10. A farmer has the following animals:
    Chicken = 30
    Goats = 35
    Sheep = 15
    Rabbits = 10
    What percentage of the total animals are rabbits.
11. Mugisha bought about at shs 200,000 and sold it as shs 180,000 what was his percentage loss?
12. 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?
13. Fatuma had shs 5,000 if she used 10% of her money to buy soap what was her balance?

TOPIC 9: INTEGERS

LESSON 1: OPPOSITES/INVERSES/ADDITIVE INVERSES

CONTENT:
Examples: -2 + 2

-2 + 2 = 0

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 ....

Fractions (Percentages) Topical questions:

1. Express 2:5 as a percentage.
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.

LESSON 2: ORDERING INTEGERS ON A NUMBERLINE

The number line:

Example 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

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

LESSON 3: ADDITION OF INTEGERS USING A NUMBERLINE

Example 1. +5 + +3 = +8

Example 3. -4 + -3 = -7

LESSON 4: SUBTRACTION OF INTEGERS USING A NUMBERLINE

Example 1. -8 = -8
2. Arrange in descending order/decreasing order the following integers:
-6, 0 +7, -3, +4
Solution: +7, +4, 0, -3, -6
Example 1.  

\[ +5 - 3 = +8 \]

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

2.  

\[ +7 - 3 = +4 \]

EVALUATION ACTIVITY:  

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.

\[ a \quad b \]

\[ +3 \quad +5 \]

Subtraction means moving backwards.  
The arrow shows the answer.

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

Remarks:

LESSON 6:

SUB TOPIC:  
SUBTRACTING INTEGERS WITHOUT NUMBER LINES

CONTENT:
Example 1.  

\[ +8 - 7 \]

\[ = +1 \]

2.  

\[ -8 + 3 \]

\[ = -11 \]

3.  

\[ -5 - 2 \]

\[ = -3 \]

EVALUATION ACTIVITY:  
A New MK Primary Mathematics 2000 Bk 7 exercise 19:2 Pg 356 (New Edition)

Remarks:

LESSON 7:

SUB TOPIC:  
ADDING INTEGERS WITHOUT USING A NUMBERLINE

CONTENT:
Example 1.  

1. \[ +7 + 2 \]

\[ +ve \times +ve = +ve \]

\[ = +7 + 2 \]

\[ = +9 \]

2. \[ +7 + 2 \]

\[ +ve \times +ve = +ve \]

\[ = +7 + 2 \]

\[ = +9 \]

3. \[ -7 + 2 \]

\[ +ve \times -ve = -ve \]

\[ = -6 + 2 \]

\[ = +2 - 5 \]

\[ = -3 \]

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
From 0 make 2 jumps of +3
+2 x +3 = +6
2. +2 x -3
From 0 make 2 jumps of -3
+2x -3 = -6
3. -2 x -3
Standing at -2 facing in the –ve direction, make two jumps of 3 backwards. How far are
you from -2 to the final point and which direction.

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 ÷ -2 = +8
Check: -16 ÷ -2 = +8
Also -16 = +8 x -2
-16 = +8 x -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?

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 19:6Pg 352 (New Edition)
Remarks:
Date of birth
The man lived from -30 to +76
The Scientist lived from +76 - 30 = 76 + 30
106 years

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 Pg 362 - 363 (New Edition)
Remarks:
_____________________________________________________________________________
____________________________________
_____________________________________________________________________________

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 ÷ 9 = 1 rem 4

∴ 6 + 7 = 4 (finite 9)

(ii) 8 + 6 + 3 = ___ (finite 13)

(8 + 6) + 3
14 + 3
17 ÷ 13 = 1 rem 4

∴ 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 13
SUB TOPIC: MULTIPLICATION USING THE FINITE SYSTEM
CONTENT: Examples:
(i) 5 x 7 = ____ (finite 9)

= 5 x 7
= 35
= 35 ÷ 9
3 rem 8

∴ 5 x 7 = 8 (finite 9)

(ii) 2² = ___ (finite 7)

= 2 x 2
= 4 x 2
= 8 7
= 1 rem 1

∴ 2² = 1 (finite 7)

(iii) 4 (5 x 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) \[ x - 4 = 3 \pmod{7} \]
\[ x - 4 + 4 = 3 + 4 \pmod{7} \]
\[ x = 7 \pmod{7} \]
\[ x = 1 \text{ rem } 0 \pmod{7} \]
\[ x = 0 \pmod{7} \]

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

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

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

**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 \( 2 \div 5 = \) \( \text{___ (Mod 7)} \)

Solution:

\[ 2 \div 5 = \) \( \text{___ (mod 7)} \]
\[ = 2 + 7 \pmod{5} \]
\[ = 9 \div 5 = \) \( \text{___ (mod 7)} \]
\[ = 9 + 7 \pmod{5} \]
\[ = 16 \div 5 = \) \( \text{___ (mod 7)} \]
\[ = 16 + 7 \pmod{5} \]
\[ = 23 \div 5 = \) \( \text{___ (mod 7)} \]
\[ = 23 + 7 \pmod{5} \]
\[ = 30 \div 5 = 6 \text{ rem } 0 \pmod{7} \]
\[ \therefore 2 \div 5 = 6 \pmod{7} \]

**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.

Example:

Today is Thursday, what day of the week will it be 82 days from today?

Solution:

Thursday stands for 4
\[ 4 + 8 = \) \( \text{___ (finite 7)} \]
\[ 86 = \) \( \text{___ (finite 7)} \]
\[ 86 \div 7 = \) \( \text{___ (finite 7)} \]
\[ 12 \text{ rem } 2 \]
\[ 2 \text{ stands for Tuesday} \]
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 = (finite 7)
85 ÷ 7 = 12 rem 1
85 = 1 (fin 7)
2 – 1 = __ (finite 7)
2 – 1 = 1 (finite 7)
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 2)
2139 = ___(finite 12)

- 84
99 = 33 stands for March
- 96
3
So the month will be March.

(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)

- 28
346
- 24
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 Pag 54 – 55 exercise 4:6
Remarks:
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

LESSON 18
SUB TOPIC: APPLICATIONS OF THE FINITE SYSTEM 12
CONTENT: The 12 hour clock
Example:
(i) It is 7:00 am. What time will it be after nine hours from now?
Solution:
7 + 9 = ___ (fin 12)
16 = ___ (fin 12)
16 ÷ 12 = 1 rem 4
It will be 4:00pm
(It will change to pm if the quotient is an odd number)

(ii) It is 11:00 pm what time will it be nineteen hours from now?

Example:
(i)
Solution:
11 + 19 = __ (fin 12)
30 = __ (fin 12)
30 ÷ 12 = 2 rem 6
It will be 6:00pm
(it will remain in pm since the quotient is an even number.)

EVALUATION ACTIVITY:
A New MK Primary Maths Pupils Bk 7 Pg 55-56 exercise 4:7

LESSON 19
SUB TOPIC: APPLICATION OF FINITE 24 IN 24 HOUR CLOCK SYSTEM
CONTENT: Example:
(i) It is 5:00pm 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

24
1340
120
140
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
Remarks:

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 ) = 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:

TOPICAL 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

11. What numeral has been expanded to give:
(2 x 10 ) + (6 x 1) + ( x 1/10) + (2 x 1/100) + (5 x 1/1000)
12. Round off to the nearest hundred thousandths 0.422563.
13. Round off 43,256 to the nearest ten thousands.
14. Solve for the unknown: if 44x = 35 nine.
15. Simplify 2 − 4 = ___ (finite 5)
16. Solve (i) y − 5 = 4 (finite 5)

(ii) 2(x − 2) = 3 (finite 6)
17. Divide 15 = ___ (finite 6)
18. Today is Tuesday. What day of the week will it be after 46 days
19. Today is Friday. What day of the week was it 37 days ago?
20. A Plane left Entebbe airport at 1100 hours and arrived at New Park after 27 hours. At what time did it arrive. (Give your answer in 24 hour clock).

21. How many objects are there in 2 grosses?

22. Express LXXIX into Hindu Arabic Numerals.

23. Evaluate $33 \equiv ____$ (mode 7)

24. (a) Express 1534 in standard form
(b) Express 0.006 in scientific notation

**TOPIC 6:**

**GRAPHS AND INTERPRETATION OF INFORMATION**

**LESSON 1:**

**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>Books</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.

**LESSON 2:**

**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:

- **New Vision**
- **Monitor**
- **Orumuri**
- **Rupni**
- **Red Pepper**

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Copies Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Vision</td>
<td>14</td>
</tr>
<tr>
<td>Monitor</td>
<td>12</td>
</tr>
<tr>
<td>Orumuri</td>
<td>10</td>
</tr>
<tr>
<td>Rupni</td>
<td>8</td>
</tr>
<tr>
<td>Red Pepper</td>
<td>6</td>
</tr>
</tbody>
</table>

(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 10:1 Pg 146

Remarks:

**LESSON 2:**

**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:

- **New Vision**
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- **Orumuri**
- **Rupni**
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<tr>
<td>Red Pepper</td>
<td>6</td>
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</tbody>
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(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.

<table>
<thead>
<tr>
<th>Points scored</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>9</td>
<td>5</td>
</tr>
</tbody>
</table>

Frequency table:

<table>
<thead>
<tr>
<th>No</th>
<th>Tallies</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:

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 149 exercise 10:3
Remarks:

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>Max Temp</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.

![Temperature Graph](image)

1. Minimum temperature
2. Maximum temperature
3. What was the highest temperature of the week?
4. Which day was the minimum temperature?
5. What was the median for the maximum temperature?

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 10:11 Pg 165

Remarks:

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**LESSON 6:**

**SUB TOPIC:** TRAVEL GRAPHS

**CONTENT:**

A travel graph is one which shows the distance traveled and time taken.

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 Mpigi.

![Travel Graph](image)

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 all 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 Ocen arrive at Mpigi before Amon?
10. How long did Ocen take to cover 30km?

**EVALUATION ACTIVITY:**

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

Remarks:

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**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
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.

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.

X = o
x = 1
x = 3
2x + y = 10
2x + y = 10
2x + y = 10
2x0 + y = 10
2x1 + y = 10
2x3 + y = 10
0 + y = 10
2 + y = 10
6 + y = 10
Y = 10
2 – 2 + y = 10 – 2
6 – 6 + y = 10 – 6

X = 2
2x + y = 10
(2 x 2) + y = 10
2 + y = 10
4 + y = 10
4 – 4 + y = 10 – 4
Y = 6
EVALUATION ACTIVITY:
1. \( Y = 2x - 1 \) Complete the table.

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

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

<table>
<thead>
<tr>
<th>X</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>1/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>-2</td>
<td>-8</td>
<td>0</td>
<td>-2</td>
<td>-5</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>X</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

Remarks:
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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, 0), (0, 1), (1, 2), (2, 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
\( Y = x \)

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

\( Y = x + 1 \)

\(-2 = -3 + 1\)

\(-1 = -2 + 1\)

\(0 = -1 + 1\)

\(1 = 0 + 1\)

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:
_____________________________________________________________________________
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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=.

(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

Food

Others
(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
CONTENT:
Example:
1. Mukasa was given 12,000= for his pocket money and spent it as shown on the pie chart below.
   (a) Find the value of x in degrees.
   (b) How much does he spend on each item?

   ![Pie Chart](image)

   - Savings: 2x
   - Books: x
   - Others: 4x
   - Sugar

2. With unknown percentage. A circle graph shows the expenditure and savings of a family which earns 96,000= How much is spent on a car and rent?

   ![Pie Chart](image)

   - Rent: (3x-10)%
   - Savings

   Food: (x+10)%
   Car: (x+20)%
   Others: (2x+10)%

EVALUATION ACTIVITY:
MK Bk 7 195 exercise 12:12
Remarks:

LESSON 14:
SUB TOPIC: CONSTRUCTION OF PIE CHARTS
CONTENT:
Example:
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 19:
SUB TOPIC: STATISTICS
CONTENT: Mode, medium, range and mean

Example:
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>
<tbody>
<tr>
<td>Number of teams</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

(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 os 4 years joined the group. Find the average age of the 5 boys.

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

Total age of 4 boys
\begin{align*}
&= \text{Mean age x number of boys} \\
&= 12 \times 4 \\
&= 48
\end{align*}

Mean age of 5 boys
\begin{align*}
&= \frac{\text{Sum of ages}}{\text{Number of boys}} \\
&= \frac{48 + 4}{5} \\
&= \frac{52}{5} \\
&= 10 \frac{2}{5}
\end{align*}

The mean age of the 5 boys = 10 \frac{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.

EVALUATION ACTIVITY:

Macmillan Primary Maths Bk 7 Pg 148 exercise 12

Remarks:

_____________________________________________________________________________

TOPICAL 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 FOOT BALL TEAM CAN WIN, DRAW OR LOSE A March. What is the probability that it will win a March?
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></td>
<td>3</td>
<td></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 ½ and 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?
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) \( AB = 7.5 \)cm
   (ii) \( DE = 8.3 \)cm
   (iii) \( TB = 3.2 \)cm

3. Construct the following line segments:

   (a) What was the average mark scored?

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Trial exercise Pg 287 (New Edition)
LESSON 2:

SUB TOPIC: LINES (BISECTING LINES)

CONTENT: Steps to follow

Dropping perpendicular lines given points.
Drop a perpendicular line from point X to meet line AB.

Remarks:

LESSON 4:

SUB TOPIC: MEASURING AND DRAWING ANGLES

CONTENT: Measure the size of angles below.

(i) \( M = 56^0 \)  
(ii) \( t = 148^0 \)  
(iii) \( y = 247^0 \)

Draw the following angles:
(a) \( 40^0 \)  
(ii) \( 53^0 \)  
(iii) \( 107^0 \)  
(iv) \( 235^0 \)

EVALUATION ACTIVITY:


Remarks:

LESSON 4:

SUB TOPIC: CONSTRUCTING ANGLES

CONTENT: Review bisecting angles

1. Construct the following angles:
(a) \( 60^0 \)  
(b) \( 300^0 \)  
(c) \( 750^0 \)  
\( 60^0, 30^0, 15^0, 75^0, 150^0, 120^0, 165^0 \)

2. (a) \( 90^0 \)  
(b) \( 45^0 \)  
(Use the very method to construct \( 90^0, 45^0, 135^0, 75^0, 22 \frac{1}{4}^0 \))

EVALUATION ACTIVITY:


Remarks:

LESSON 6:

SUB TOPIC: CONSTRUCTING REFLEX ANGLES

CONTENT: Construct an angle of \( 210^0 \)
EVALUATION ACTIVITY:
Construct the following angels:
1. $225^\circ$
2. $195^\circ$
3. $240^\circ$
4. $270^\circ$
Remarks:

LESSON 7:
SUB TOPIC: CONSTRUCTING TRIANGLES 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

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7
Remarks:

LESSON 8:
SUB TOPIC: ANGLES
CONTENT: Complementary angles
- An angle with $90^\circ$ is called a right angle.
- Any two angles that add up to $90^\circ$ are complementary angles.
Examples:
1. What is the complement of $30^\circ$?
   Let the complement be $x$
   $X + 30^\circ = 90^\circ$
   $X + 30 - 30 = 90 - 30$
   $X = 60$
2. Find the complement of $(x + 40)^\circ$
   Comp of $(x + 40)^\circ$
   $= 90 - (x + 40)^\circ$
   $= 90 - x + 40^\circ$
   $= 90 - 40^\circ - x$
   $(50 - x)^\circ$
3. What angle is $\frac{1}{2}$ of its complement?
   Let $Y$ represent the complement
   $Y$ is $\frac{1}{2}$ of $(90 - y)^\circ$
   $Y = \frac{1}{2} (90 - y)$
   $2y = (90 - Y) \times 2$
   $2y = 90 - y$
   $2y + y = 90$
3y = 90
3
3
Y = 30°

EVALUATION ACTIVITY:
Remarks:
_____________________________________________________________________________
______________________________________________________

LESSON 9
SUB TOPIC: 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.
   X + y = 180°
   48 + y = 180
   y = 132°
2. What angle is ¼ of its supplement?
   X = ¼(180° – x)
   X = (180° – x)
   4x = (180° – x) × 4
   4x = 180° – x
   4x + x = 180° – x + x
   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 Pag 204 (New Edition)
Remarks:
_____________________________________________________________________________
______________________________________________________

LESSON 10
SUB TOPIC: ANGLES ON PARALLEL LINES
CONTENT: Properties of angles on parallel lines
Illustration:

Examples:
(i) X = 35° (Alt, int S)
   2Y = 108° (co.int S)
   3x = 120° (co.etx S)
   Y = 54°
   x = 40°
(ii) 120°
   3x
   2y
   108
   X
   35°
   (iii)

(iii) 6x – 20° = 2x + 80°
   4x = 100°
   4
   100
   4
   25°
   X
   20°
   10
   70°
   3x + x° + 70° = 360°
   7x° + 3x° + 70° = 360°
   S at a point
   10x + 70° = 360°
   10x + 70° = 70° = 360° – 70°
   10x = 270°
   10x = 270°
   10
   27°
   X = 27°

EVALUATION ACTIVITY:
Mathematics Revision Handbook Bk 5 – 7 Pg 209 - 120

LESSON 11
SUB TOPIC: ANGLES ON PARALLEL LINES

CONTENT: More about angles on parallel lines

Examples:
1. Find the value of x.

\[ \begin{align*} 
50^\circ & \quad m \quad 140^\circ \\
& \quad n \quad 140^\circ \\
\end{align*} \]

Draw imaginary lines and rename the S.

M = 50° (Alt. int \( \angle \))
N = 140° (Co. int. \( \angle \))
N+ 140° – 140° = 180° – 140°

N = 40°

A       B                C         D
1
30° \( \angle \)ABF = \( \angle \)BFG (Allt. Int. \( \angle \))
X + 72° = 130°
7x
Exterior angles of triangles
Find the value of x
2x + 3x + 7x = 360°
(sum of ext. \( \angle \)s of any polygon)
12x = 360°
12x = 30°

Y = 70

Interior and exterior angles of a triangle
Find the value of y.
Y + 60° = 140° (2 int. \( \angle \) = 1 opp ext )
Y + 60° – 60° = 140° – 60°
Y = 80°

EVALUATION ACTIVITY:

Remarks:

_____________________________________________________________________________
______________________________________________________
_______________________

LESSON 12
SUB TOPIC: ANGLES OF TRIANGLES

CONTENT: Types of triangles and their angle properties.

Equilateral
All \( \angle \)s are equal

Isosceles
Base \( \angle \)s are equal \( P \neq r \neq q \)

Scalene

Right \( d \) scalene \( P = 90 \)

Equilateral
\( \angle y = 900 \) \( m = 45 \)

Examples:

\[ \begin{align*} 
50^\circ & \quad Y \quad 60^\circ \\
\end{align*} \]

Interior angle sum of a triangle
Y + 50° + 60° = 180° (sum of a triangle)
Y + 110° = 180°
Y + 110° – 110° = 180° – 100°

Y = 70

Interior and exterior angles of a triangle
Find the value of y.
Y + 60° = 140° (2 int. \( \angle \) = 1 opp ext )
Y + 60° – 60° = 140° – 60°
Y = 80°

EVALUATION ACTIVITY:

Remarks:

_____________________________________________________________________________
______________________________________________________
_______________________

LESSON 13
SUB TOPIC: ANGLES OF QUADRILATERALS

CONTENT: Angle properties of quadrilaterals

The interior angle sum of a quadrilateral is 360°.

Example:
(i)
\[ \begin{align*} 
X + 112° + 90° + 89° = 360° \\
X + 291° = 360° \\
X + 291° – 291° = 360° – 291° \\
X = 69° \\
\end{align*} \]

(ii)
\[ \begin{align*} 
q = 110° \text{ (vert. opp } \angle \text{)} \\
X + x + 110° = 180° \text{ (int } \angle \text{ sum) } \\
2x + 110° = 180° \text{ of } \angle \ \\
2x + 110° – 110° = 180° – 110° \\
x = 70° \\
2 \times 70° \\
x = 35° \\
\end{align*} \]

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

Remarks:
LESSON 14:

SUB TOPIC: PROPERTIES OF REGULAR POLYGONS

CONTENT:

- 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:

1. \[2x + x + 10^\circ + 3x + x = 360^\circ\]
2. \[7x + 10^\circ = 360^\circ\]
3. \[7x + 10^\circ = 10^\circ = 360^\circ - 10^\circ\]

\[7x = \frac{360^\circ}{7}\]

\[x = 50^\circ\]

- \[X + 10^\circ\]
- \[2x\]
- \[X + 10^\circ\]

\[X + 4x + x + 10^\circ + x + 60^\circ = 360^\circ\]

\[7x + 70^\circ = 360^\circ\]

\[7x + 70^\circ - 70^\circ = 360^\circ - 70^\circ\]

\[7x = 270^\circ\]

\[7 = 7\]

\[X = 30^\circ\]

EVALUATION ACTIVITY:

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

Remarks:

LESSON 15

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:
   \[\text{All ext } S = 360^\circ\]
   \[\text{Each ext angle } = 30^\circ\]
   \[\text{Number of sides } = \text{All ext angles}\]
   \[\text{Each ext angle}\]

2. The interior angle of a regular polygon is 144. Name the polygon.
   Let the ext angle be \(x\).
   \[144^\circ / x\]
   \[\text{No of sides } = \text{All ext angles}\]
   \[\text{Each ext angle}\]

3. The interior angle of a regular polygon is \(90^\circ\) more than the exterior angle.
   (a) Calculate the exterior angle
   (b) How many sides has the polygon?
   Solution:
   Let the ext. angle be \(x\)
   \[\text{ext. angle } = 45^\circ\]
   \[\text{Int angle } x + 90^\circ\]
   \[\text{Ext. angle } x\]
   \[\text{No of sides } = \text{All ext angles}\]
   \[\text{Each ext angle}\]
   \[\text{Ext. angle } x\]
   \[\text{X } + 90^\circ + x = 180^\circ\]
   \[\text{X } + 90^\circ - 90^\circ = 180^\circ - 90^\circ\]
   \[\text{X } = 360^\circ\]
   \[\text{X } = 45^\circ\]
   \[\text{Number of sides} = 8\]

EVALUATION ACTIVITY:

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

Remarks:

LESSON 16:

SUB TOPIC: ANGLES OF POLYGONS

CONTENT:

Triangulation

Triangulation is forming triangles in a polygon.

Examples:

- Quadrilateral
- Pentagon
- Hexagon
<table>
<thead>
<tr>
<th>Polygon</th>
<th>Number of sides</th>
<th>Number of triangles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadrilateral</td>
<td>4</td>
<td>4 – 2 = 2 triangles</td>
</tr>
<tr>
<td>Pentagon</td>
<td>5</td>
<td>5 – 2 = 3 triangles</td>
</tr>
<tr>
<td>Hexagon</td>
<td>6</td>
<td>6 – 2 = 4 triangles</td>
</tr>
<tr>
<td>Septagon</td>
<td>7</td>
<td>7 – 2 = 5 triangles</td>
</tr>
</tbody>
</table>

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 – 2 + 2 = 10 + 2 
   = n = 12 sides

EVALUATION ACTIVITY:

Remarks:

LESSON 17

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 x 5 
   = 540°.
2. Calculate the interior angle sum of a regular polygon with 7 sides.
   Solution:
   Int angle sum = 180 (n-2) 


180 (7 – 2) 
= 180 x 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 x 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 7 Pg 252 - 257 (New Edition) Exercise 12:16/12:17/12:18
Remarks:

LESSON 18:

SUB TOPIC: MORE ABOUT INTERIOR ANGLE SUM OF POLYGONS
CONTENT: Examples

1. Find the value of x in the figure.
   Solution:
   Sum of int S of triangle = 180°
   X + 20° + 2x + 2x + 10 = 180°
   5x + 30° = 180°
   5x + 30° – 30° = 180° – 30°
   5x = 150°
   5x = 150°
   5 = 30°

2. Find the value of y.
   Solution:
   2y + y + 10 + 2y + 10 + 90° = 360°
   2y + y + 2y + 10 + 10 + 90° = 360°
   5y + 110 = 360°
   5y + 110 – 110 = 360° – 110
   5y = 250°
   5 = 50°
LESSON 19
SUB TOPIC: CIRCUMSCRIBING AND INScribing TRIANGLES
CONTENT: A triangle PQR is equilateral. Each side measures 5cm using a ruler and a pair of compasses only, draw a circle around the triangle.

Steps for circumscribing:
- Construct a triangle PQR of side 5cm.
- Bisect any 2 of the sides.
- Identify the centre of the circle as the meeting point of the 2 bisectors.
- Draw a circle around touching the vertices of the triangle.

Inscribing:
Steps:
- Construct a triangle
- Bisect any 2 of the angles.
- Identify the centre of the circle as the meeting point of the circle.
- Draw the circle inside touching all the sides of the triangle.

LESSON 20
SUB TOPIC: CONSTRUCTION OF REGULAR POLYGONS OF GIVEN RADII 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.

LESSON 21
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:
A New MK Primary Mathematics 2000 Bk 7 Pg 314 - 315 (New Edition)
Remarks:

EVALUATION ACTIVITY:
Remarks:

EVALUATION ACTIVITY:
Maths Revision Hand Book Pupils Bo 5, 6, and 7 Pg 264
Remarks:
LESSON 22
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 23
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 (b) 1 ½ turn  (c) What angle does a minute hand turn in:

1 rotation = 360°  1 turn = 360°  hand turn in:
3 rotations = 3600 x 3  1 ½ turn = 1 ½ x 3600  (i) 10 minutes
= 1080°  3/2 x 360  Complete turn of a minute
3 x 180°  hand is 60 minutes
= 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:

LESSON 24
SUB TOPIC: ORDINARY BEARING (DIRECTION)

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

Example:
In which direction will 1 face if 1 turned anti clock wise through an angle of 1350 from South.

Solution:
I will face NE direction.

- State the angle made through the following turns.

- A boy was facing North. He turned clockwise to face SW. what angle did he make?
$45^\circ + 45^\circ + 45^\circ + 45^\circ + 45^\circ = 225^\circ$

From North to SW clockwise he turned through $225^\circ$.

**LESSON 25**

**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 26**

**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:**

Example:
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.

Bearing of P from O is 045°.

Bearing of B from A is 080°

Bearing of A from B is 180° + 80° = 260°

Point P is N 70° E opp. to Q (S 70°W)
Point R is N 30° W opp. to M (S 30° E)

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

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 of Q from P?
   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° = 330°

LESSON 19

SUB TOPIC: DIRECTION AND BEARING

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

<table>
<thead>
<tr>
<th>Bearing</th>
<th>Opposite bearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>000° or 360°</td>
</tr>
<tr>
<td>East</td>
<td>090°</td>
</tr>
<tr>
<td>South</td>
<td>180°</td>
</tr>
<tr>
<td>West</td>
<td>270°</td>
</tr>
<tr>
<td>NE</td>
<td>045°</td>
</tr>
<tr>
<td>NW</td>
<td>315°</td>
</tr>
</tbody>
</table>

Direction of P from O is N65° E
Bearing is 065°

Direction is S60W
Bearing is 60° + 180° = 240°

**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 ¼ 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**
**TOPIC:** MEASURES
**LESSON 1:** 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

   Change 60 minutes to hours
   1 hour = 60 minutes
   \( 1 \text{ hr.} \)
   \( 60 \sqrt{60} \)
   = 1 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
Example
1. Write 0436 hrs in the 12-hour clock
   Solution: 0436
   -0000
   4:36 = 4:36am

2. Write 2310 hrs in the 12-hour clock time
   Solution: 2340
   -1200
   11:40 = 11:40pm

**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 15hrs
2. A party started at 2000hrs and ended at 11:30. How long did the party last? (Express 11:30pm in 24 hr-clock)

\[ 11:30 \text{pm} \]

Then subtract

\[ 2330 \text{hrs} - 2000 \text{hrs} \]

\[ 3 \text{hrs}:30\text{minutes} \]

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>8:30 am</th>
<th>9:10 am</th>
<th>9:50 am</th>
<th>10:30 am</th>
<th>11:10 am</th>
<th>11:50 am</th>
<th>12:30 pm</th>
<th>2:00 pm</th>
<th>2:40 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>To</td>
<td>9:10 am</td>
<td>9:50 am</td>
<td>10:30 am</td>
<td>11:10 am</td>
<td>11:50 am</td>
<td>12:30 pm</td>
<td>2:00 pm</td>
<td>2:40 pm</td>
<td>3:20 am</td>
</tr>
<tr>
<td>Mon</td>
<td>MTC</td>
<td>Eng</td>
<td>PAPE</td>
<td>PAPE</td>
<td>R.E</td>
<td>PAPE</td>
<td>MDD</td>
<td>PAPE</td>
<td>MDD</td>
</tr>
<tr>
<td>Tue.</td>
<td>Sci</td>
<td>MTC</td>
<td>R.E</td>
<td>R.E</td>
<td>Eng</td>
<td>SST</td>
<td>SST</td>
<td>SST</td>
<td>SST</td>
</tr>
<tr>
<td>Wed.</td>
<td>SST</td>
<td>Eng</td>
<td>IPS</td>
<td>Sci</td>
<td>Sci</td>
<td>Eng</td>
<td>Eng</td>
<td>Eng</td>
<td>Eng</td>
</tr>
<tr>
<td>Thur</td>
<td>Eng</td>
<td>Sci</td>
<td>MTC</td>
<td>MTC</td>
<td>LLag</td>
<td>R.E</td>
<td>MTC</td>
<td>IPS</td>
<td>IPS</td>
</tr>
<tr>
<td>Fri</td>
<td>MTC</td>
<td>MTC</td>
<td>Swah</td>
<td>Eng</td>
<td>Sci</td>
<td>IPS</td>
<td>IPS</td>
<td>IPS</td>
<td>IPS</td>
</tr>
</tbody>
</table>

(i) How long does each lesson last?

\[ 9:10 \text{am} - 8:30 \text{am} = 40 \text{ minutes} \]

Each lesson lasts for 40 minutes

(ii) At what time does break end?

\[ 7:45 \text{am} \]

(iii) For how long do the pupils take studying Science the whole week?

\[ 5 \times 40 \text{ minutes} = 200 \text{ minutes} \]

\[ 3 \text{ rem 20 minutes} \]

\[ 60 + 20 = 80 \text{ minutes} \]

\[ 3 \text{ hours and 20 minutes} \]

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></td>
<td></td>
</tr>
<tr>
<td>Iganga</td>
<td>7:30am</td>
<td>7:45am</td>
</tr>
<tr>
<td>Jinja</td>
<td>8:35am</td>
<td>8:50am</td>
</tr>
<tr>
<td>Kampala</td>
<td>10:50am</td>
<td></td>
</tr>
</tbody>
</table>

(i) How long did the taxi take to move from Tororo to Iganga?
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 taxi's stopover in Jinja?
Subtract 8:50am - 8:35am

\[ 0:15 \]

It was 15 minutes.

(iii) How long did the taxi take to move from Iganga to Kampala?
Subtract 10:50am - 7:45am

\[ 3:15 \]

It took 3 hours and 15 minutes

EVALUATION ACTIVITY:
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>12:00 mid night</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></th>
<th>Mty</th>
<th>BJK</th>
<th>Kla</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>1000</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td>1100</td>
<td>1000</td>
<td>JNJ</td>
</tr>
<tr>
<td>2600</td>
<td>2100</td>
<td>2000</td>
<td>1000</td>
</tr>
<tr>
<td>3600</td>
<td>3100</td>
<td>3000</td>
<td>2000</td>
</tr>
</tbody>
</table>

(a) How long does the train take to move from Mityana to Kampala?
Solution: 12:30am - 11:00pm
1:30pm
1 hour and 30 minutes

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

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</td>
<td>06:00</td>
</tr>
<tr>
<td>Bukoba</td>
<td>Arr</td>
<td>Wed</td>
<td>09:15</td>
</tr>
<tr>
<td>Mwanza</td>
<td>Arr</td>
<td>Wed</td>
<td>09:55</td>
</tr>
<tr>
<td>Mwanza</td>
<td>Dep</td>
<td>Wed</td>
<td>15:55</td>
</tr>
<tr>
<td>Musoma</td>
<td>Arr</td>
<td>Thurs</td>
<td>02:00</td>
</tr>
<tr>
<td>Musoma</td>
<td>Dep</td>
<td>Thurs</td>
<td>04:00</td>
</tr>
<tr>
<td>Kisumu Peir</td>
<td>Arr</td>
<td>Thurs</td>
<td>14:00</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

(ii) How long does the steamer take to move from Mwanza to Musoma?
Time moved on Wednesday + time moved on Thursday
24:00 – 19:55 = 4:05
It takes 4 hours and 5 minutes.

(iii) How much does it cost one to move from Mwanza to Kisumu Pier?
Mwanza to Musoma = 3000
Musoma to Kisumu Pier = +5000

8000
One pays shs 8000 from Mwanza to Kisumu Pier

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

LESSON 9
SUB TOPIC: TIME
CONTENT: Air timetables
Example
1. Below is part of Uganda Airlines timetable for daily flights between Entebbe, Soroti and Kasese. Use it to answer the questions which follow:
From | To | Flight | Departure | Arrival
--- | --- | --- | --- | ---
Entebbe | Soroti | QU 740 | 07:00 hours | 08:00 hours
 | QU 758 | 17:00 hours | 18:00
Entebbe | Kasese | QU 702 | 07:00 hours | 08:15 hours
 | QU 730 | 21:00 hours | 22:15 hours
Kasese | Entebbe | QU 703 | 07:00 hours | 08:15 hours
 | QU 731 | 21:45 hours | 23:00 hours
Soroti | Entebbe | QU 741 | 08:30 hours | 09:30 hours
 | QU 759 | 18:30 hours | 19:30 hours

(a) How long does the flight from Entebbe to Soroti take?
Subtract 0800 - 0700 = 1:00

(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?
24:00 + 0700 = 01:45

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 21:10 Pg 421 (New Edition)
Remarks:
_____________________________________________________________________________
______________________________________________________

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 – 8:15 am</td>
<td>News</td>
<td>Aisha Nambedha</td>
</tr>
<tr>
<td>8:15 am – 10:15 am</td>
<td>Healthy tips</td>
<td>Apio Olga</td>
</tr>
<tr>
<td>10:15am – 10:30am</td>
<td>News</td>
<td>Muwanga Kisolo</td>
</tr>
</tbody>
</table>

10:30am – 11:30 am | Educational Programme | Birungi Apuuli
11:30am – 11:45am | News | Muwanga Kisolo
11:45 am – 12:30pm | Farmers' platform | Iriko Tasiko

(i) How many programmes are covered from 8:00am up to 12:30pm?
Six programme 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?
10:15 am - 8:15 am = 2:00

EVALUATION ACTIVITY:
Remarks:
___________________________________________________________
______________________________________________________

MK NCDC bk 6 pg 116
Remarks:

Lesson 11:

Subtopic: average speed
Content: finding total distance and time taken
Calculating average speed for the whole journey
a) The HM travelled from home to school at 60km/hr for 2 hrs. He returned at a speed of 40km/hr. calculate his average speed for the whole journey.

TOPICAL QUESTIONS ON TIME

1. Namayanja arrives at Kampala at 11:20pm and leaves at 2:00am 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. 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.
7. 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?
8. 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.
9. Express 90km/hr as m/sec.
10. Convert 10m/second to km/hour
11. A motorist covered 140km between 11:25 am and 2:55pm. Find his average speed.
12. It takes a car industry 1 hour 10 minutes 20 seconds to assemble a car. How long will it take to assemble 50 cars?

EVALUATION ACTIVITY:
Remarks:

LESSON 2: REVIEW (LOWER WORK)
SUBTOPIC: MONEY
CONTENT: SHOPPING:

Example: Twaha bought the following items from a shop:
- 3½ of beans at Shs. 1400 per kg.
- 1½ Kg of salt at Shs. 1000 per Kg
- 4 bars of soap at Shs. 1500 per hour.

(a) If Twaha was given a discount of 20% on his total expenditure, how much was the discount?

(b) How much did Twaha pay?

EVALUATION ACTIVITY:
Teacher’s collection.

Remarks:

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.

Remarks:

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. 1800 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. 12500?

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 = 99 + 1 = 100 notes

Total number of notes = 99 + 1 = 100 notes

EVALUATION ACTIVITY:
1. Amos has paper notes numbered from A/P 004300 to A/P 004399. How many paper notes does Amos have?
   (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 726601 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 98,000 of 1000 shillings denominations are inserted in the machine, what number will be recorded on the machine?

6. Francis has the following money:

- 5,000 shilling notes numbered AC 502830 to ACX 502839
- 1,000 shilling notes numbered CU 412389 to CU 412387
- 10,000 shilling notes numbered SM 301422 to SM 301437

How much money does he have altogether?

7. How many 500 coins are equivalent to a ten thousand shilling note?

Remarks:

LESSON 6:

SUB TOPIC: COMPARISON OF CURRENCIES

CONTENT: Bills

Example

Other country | Uganda shilling
--- | ---
Kenya shillings (Ksh 1) equivalent to | Ushs 20
Tanzania shilling (TZ sh) | Ush 2.2
USA dollar (US$ 1) | Ushs 1050
Great Britain pound (£ 1) | Ushs 1650
Rwanda francs (RF 1) | Ushs 2.5

1. A trader sold maize to Kenya for K shs 150,000. How much money did he get in Uganda money?

Ksh 1 equivalent to U sh 20
K sh 150,000 \times Ushs 20 = 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 \times 20 | Ush 66,000
= U sh 3,300 |
TZ sh = Ush 2.2 | Ushs 99,000
TZ shs 30,000 = Ush 22 \times 30,000

LESSON 8

SUB TOPIC: ADVERTISEMENT

CONTENT:

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?
LEARNING ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 291-293 (New Edition)

Remarks:

LESSON 9

SUB TOPIC: RADIO ANNOUNCEMENTS

CONTENT:
(i) Death, accidents, 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 announcement 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:

LESSON 10

SUB TOPIC: POSTAGE CHARGES

CONTENT:
Letters and printed papers

Example
The Uganda posts and Telecommunication transports letters and newspapers for people and charges them accordingly.
1. Letters: For the first 20 grams sh 50
    Each additional 50grams sh 30.

2. Printed papers: For the first 50 grams sh 50
    Each additional 50 grams sh 20
   (a) How much does it cost to post a letter weighing 120 grams?
      First 20 grams = shs 50
      Additional grams = 120 – 20
      = 100
      Additional 20 grams = \frac{100}{20} = 5
      = 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 = sh 50
      Additional grams = (300 – 5)
      = 250g
      Additional 50g = 250
      = 50
      = 5
      = 5 x 20 = 100
      Total cost of 1 printed paper = 100 + 50 = 150

Remarks:
Total cost of 2 printed papers = 150 \times 2 = 300 \\
Total cost of posting letters and printed papers = 400 + 300 = 700

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

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**TERM III**

**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>106</th>
<th>105</th>
<th>104</th>
<th>103</th>
<th>102</th>
<th>101</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Km</td>
<td>Hm</td>
<td>Dm</td>
<td>Metre</td>
<td>Dm</td>
<td>Cm</td>
<td>Mm</td>
</tr>
<tr>
<td>Kg</td>
<td>Hg</td>
<td>Dg</td>
<td>Gram</td>
<td>Dg</td>
<td>Cg</td>
<td>Mg</td>
</tr>
<tr>
<td>Kl</td>
<td>Hl</td>
<td>Dl</td>
<td>Litre</td>
<td>Dl</td>
<td>Cl</td>
<td>Ml</td>
</tr>
</tbody>
</table>

2. Conversion of metric units.  
   (a) Change 7m to millimeter  
   \[ 1m = 1000m \]  
   \[ 7m = (7 \times 1000m) \]  
   \[ = 7000mm \]

3. Change 800m to km  
   \[ 1km = 1000m \]  
   \[ 1m = \frac{1}{1000km} \]  
   \[ 800m = 1 \times 800 \]  
   \[ 1000 \]  
   \[ = \frac{8}{10} = 0.8km \]

**EVALUATION ACTIVITY:**  
A New MK Primary Mathematics Bk 7 exercise 18:2 and 18:1 Pg 344  
Remarks:

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**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
72

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
Remark:

LESSON 3:
SUB TOPIC:  METRIC SYSTEM
CONTENT:  Multiplication and division of metric units
Examples:
1. Multiply 7cm  9mm by 4.
   Cm mm
   7  9  316mm
   X  4  31cm  6mm
      or 31.6cm
   31  6

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
   = 2400m
   2400
   60  = 40 pieces

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 347-350
Remarks:

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)

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 Pg 346
Remarks:

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
    from the first pole to the 10th pole.
(c)  (d) Solution:
    (e)  a) Relating numbers of poles to number of spaces.
    (f)
By counting we have ten poles bt 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)m
= 2(18)
= 36m

No. of poles = Perimeter
= 36m

2m
= 18 poles

**ACTIVITY:**

1. When sprinting, Ivan athlete covers 180cm 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 20m 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:**

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**Lesson 7:**

**SUB TOPIC:** TRiangle

**CONTENT:** Area of a triangle

**Examples:**

1. Find the area of triangle ABC

![Triangle ABC with sides AB = 10cm, BC = 8cm, CA = 12cm]

A = ½ x b x h
= ½ x 12 x 8
= 6 x 8
A = 48cm².

**EVALUATION ACTIVITY:**

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

**Remarks:**

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

\[ \frac{1}{2} \times b \times h = \frac{1}{2} \times 12 \times 6 \]

\[ 6h = 48 \]

\[ \frac{6h}{6} = \frac{48}{6} \]

\[ h = 8 \text{cm} \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:2 and 18:1 Pg 352
Remarks:
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

LESSON 8
SUB TOPIC: TRANGLE
CONTENT: Application of Pythagoras theorem in a triangle.
Examples:
1. Find the value of x and the area of the figure below.

\[ a^2 + b^2 = c^2 \]
\[ 4^2 + x^2 = 5^2 \]
\[ 4 \times 4 + x^2 = 5 \times 5 \]
\[ 16 + x^2 = 25 \]
\[ 16 - 16 + x^2 = 25 - 16 \]
\[ x^2 = 9 \]

\[ \sqrt{x^2} = \sqrt{9} \]
\[ x = 3 \text{cm} \]

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

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

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.

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

2. Area of the triangle
\[ A = b \times h \]
\[ = 11 \times 6 \]
\[ = 66 \text{cm}^2 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:4 Pg 354
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.
   \[ A = s \times s \]
   \[ s^2 = 49 \text{cm}^2 \]
   \[ s = \sqrt{49} \text{cm} \]

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

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)?
   \[
   \begin{array}{c}
   \text{Floor A} \\
   6 \text{m} \\
   8 \text{m}
   \end{array} 
   \hspace{1cm}
   \begin{array}{c}
   \text{Mat B} \\
   1.5 \text{m} \\
   2 \text{m}
   \end{array}
   \]

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?
   \[
   \begin{array}{c}
   \text{90cm} \\
   \text{60cm}
   \end{array} 
   \hspace{1cm} 
   \begin{array}{c}
   \text{70cm} \\
   \text{50cm}
   \end{array} 
   \]
   Area of the table top
   \[ A = L \times W \]
   \[ = 90 \times 60 \]
   \[ = 5400 \text{cm}^2 \]
   Area of the cloth
   \[ A = L \times W \]
   \[ = 70 \times 50 \]
   \[ = 3500 \text{cm}^2 \]
   Uncovered area
   \[ = 5400 \text{cm}^2 - 3500 \text{cm}^2 \]
   \[ = 1900 \text{cm}^2 \]
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, 
  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 15:
SUB TOPIC: AREA OF QUADRILATERAL
CONTENT: Area of a kite.

Example: OPQR is a kite Calculate its area.

Method II
Area of a kite

Method II (using triangles)

Example:

Method I
Area of a kite

Method I
Area = $\frac{1}{2} \times b \times h$
EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:10 Pg 361
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 160cm\(^2\). 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 = \( \frac{1}{2} \times 20 \times d_2 \)

160 = 10d
10 = 16
Second diagonal = 16cm
X = \( \frac{d_2}{2} = \frac{16}{2} = 8cm \)

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:11 Pg 362
Remarks:

LESSON 17
SUB TOPIC: AREA OF QUADRILATERAL
CONTENT: Finding the area of a trapezium

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 = \( \frac{1}{2} ah + \frac{1}{2} bh \)

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

\[ \pi = \frac{C}{D} \]

Meaning of pie (\(\pi\))
\(\pi\) (pi) = (Ration = Circumference to diameter.
Example: \( Pi = \frac{C}{D} \)
\[ \pi = \frac{C}{D} \]
**LESSON 19**

**SUB TOPIC:** CIRCLE

**CONTENT:** Finding circumference when given radius

Examples:

1. Find the circumference of a circle whose radius is:
   - (a) 7 cm
     - \( C = 2\pi r \)
     - \( = 2 \times \frac{22}{7} \times 7 \)
     - \( = 2 \times 22 \)
     - \( = 44 \text{ cm} \)
   - (b) 10 cm
     - \( C = 2\pi r \)
     - \( = 2 \times \frac{22}{7} \times 10 \)
     - \( = 2 \times 314 \times 10 \)
     - \( = 628 \)
     - \( \text{ or } 62.8 \text{ cm} \)

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 19:15 Pg 370

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 44 cm.
   - \( C = 2\pi r \)
   - \( = 2 \times \frac{22}{7} \times r \)
   - \( = \frac{44}{7} \times r \)
   - \( = \frac{44}{7} \times \frac{7}{44} \)
   - \( r = 7 \text{ cm} \)

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 19:19 Pg 375

Remarks:

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**LESSON 21**

**SUB TOPIC:** CIRCLE

**CONTENT:** Finding the perimeter of shapes using pi \( \pi \)

Examples:

1. Find the perimeter of a shape with diameter 28 cm and radius 14 cm.
   - \( P = \frac{1}{6} \pi D + D \)
   - \( = \frac{1}{6} \times \frac{22}{7} \times 28 + 28 \)
   - \( = \frac{1}{6} \times 228 + 28 \)
   - \( = 38 + 28 \)
   - \( = 66 \text{ cm} \)

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics Bk 7 exercise 19:16 Pg 371

Remarks:

________________________________________________________________________________
7
= 22cm
Perimeter of the figure = 22cm + 22cm + 44cm
= 44cm + 44cm
= 88cm

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 \times 35}{7}
   = 22 \times 5
   = 110cm
   1km = 100,000cm
   4.4km = 44 \times 10000
   = 22 \times 5 \times \frac{10}{100000}
   = 110cm
   1 revolution = 110cm
   \frac{440000}{110} = \frac{4000}{10}

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 = 352000
   = 88cm
   C = \pi D
   \frac{22D}{7} = 88cm
   7 \times 22D = 88 \times 7
   22 \times 7 = 22
   \therefore D = 4 \times 7 = 28cm

EVALUATION ACTIVITY:

LESSON 23

SUB TOPIC: CIRCLES

CONTENT: Area of a circle (given Radius)

Formular of the area of a circle.

\pi R^2

Area of a rectangle = L x W
Area of a circle = \frac{1}{2} C x r
= \frac{1}{2} \pi r x r
= \pi r^2

Examples:
1. Find the area of a circle whose radius is 14cm ( \pi = \frac{22}{7} )
   Area of a circle = \pi r^2
   = \frac{22 \times 14 \times 14}{7}
   = 44 \times 14
   = 616cm^2

2. A circular table cloth has a radius of 20cm. Calculate the area. ( \pi = 3.14 )
   Area of a circle = \pi R^2
   = (3.14 \times 20 \times 20) cm^2
   = (3.14 \times 400) cm^2
   = 1256cm^2

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:21 Pg 380 (New Edition)
LESSON 24
SUB TOPIC: CIRCLES
CONTENT: Calculating area of circles given diameter.
Examples:
1. Find the area of a circle whose diameter is 8cm ($\pi = 3.14$)
   - Diameter = 8cm
   - Radius = \( \frac{8}{2} = 4cm \)
   - Area = $\pi r^2 = (3.14 \times 4 \times 4)cm^2 = 50.24cm^2$
2. Find the area of a circle whose diameter is 28cm ($\pi = \frac{22}{7}$)
   - Diameter = 28cm
   - Radius = \( \frac{28}{2} = 14cm \)
   - Area = $\pi r^2 = \left( \frac{22}{7} \times 14 \times 14 \right) cm^2 = 616cm^2$

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:22 Pg 381
Remarks:
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LESSON 25
SUB TOPIC: CIRCLES
CONTENT: Find the radius, diameter, circumference when given the area.
Examples:
1. The area of a circle is 154cm$^2$. Find its:
   - (a) radius 
     \[ A = \pi r^2 \]
     \[ r^2 = \frac{154}{\pi} \]
     \[ r = \sqrt{\frac{154}{\pi}} \]
   - (b) diameter 
     \[ D = 2r \]
     \[ D = 2 \times \sqrt{\frac{154}{\pi}} \]
   - (c) circumference 
     \[ C = 2\pi r \]
     \[ C = 2 \times \frac{154}{\pi} \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:24 Pg 382
Remarks:
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LESSON 27
SUB TOPIC: CIRCLE
CONTENT: Finding area when given circumference
Examples:
1. Find the area of a circle whose circumference is 44cm
   - $C = 2\pi r$
   - $A = \pi r^2$
   \[ 2\pi r = 44 \]
   \[ r = \frac{44}{2\pi} \]
   \[ A = \pi \left( \frac{44}{2\pi} \right)^2 \]
   \[ A = 154 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:24 Pg 382
Remarks:
CONTENT:

Area of parts of a circle

½ R²
¼ R²

Circular shaded part is semi circle
¼ a circle it is a quadrant
sector of a circle

Examples:
1. Calculate area of a semicircle of radius 10cm (π = 3.14)
   Area = ½ R²
   = (1/2 x 3.14 x 10 x 10) cm²
   = (3.14 x 5 x 10)
   = 157 cm².

2. Calculate the area of a sector of a circle of radius 28cm and centre angle 45°.
   Area = ¼ x R²
   = (1 x 22 x 14 x 14) cm².
   = (¼ x 22 x 14 x 14) = 154 cm²

3. Calculate the area of a sector of a circle of radius 28cm and centre angle 450.
   Area = (45 x 2 x 2 x 28) cm²
   = 11 x 28 = 308 cm²

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:26 Pg 385 (New Edition)
Remarks:

LESSON 29:

SUB TOPIC: CIRCLE

CONTENT: Shaded region

Examples:
1. Find the area of the shaded parts in the figure below.
   Area of a semi circle = ½π r²
   = ½ x 22 x 7 x 7 x 2
   = 11 x 7 = 77 x 2
   = 2 x 2 = 4
   = 38 ½ cm².

2. Area of the outer circle = π r²
   = 22 x 14 x 7
   = 22 x 2 x 14
   = 44 x 14

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:25 Pg 384
Remarks:
Area of the inner circle = \( \pi r^2 \)

\[ = \frac{22}{7} \times 7 \times 7 \]

\[ = \frac{154}{7} \]

\[ = 154 \text{cm}^2. \]

Area of the shaded part = 616cm\(^2\)

\[ = 22 \times 7 \times 7 - \frac{154}{7} \]

\[ = 22 \times 7 \]

\[ = 462 \text{cm}^2. \]

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:27 and 19:28 Pg 386 (New Edition)

Remarks:

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LESSON 30:

SUB TOPIC: application of area of a circle

CONTENT: how many circular plates A can be cut from a card board B

\[ \text{A} \]

\[ \text{B} \]

\[ \text{C} \]

\[ \text{D} \]

\[ \text{E} \]

b) Calculate the area of the space left
ref: Mk nk 7 pg 389

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:33 Pg 394 (New Edition)

Remarks:

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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.

\[ \text{Total surface area} \]

2. Find the total surface of the cube below.

A cube has 6 faces.

\[ \text{Total surface are} = \text{Area of one face} \times 6 \]

\[ \text{A} = 6 \times 10 \times 10 \]

\[ = 60 \times 10 \]

\[ = 600 \text{cm}^2. \]

LESSON 32:

SUB TOPIC: SOLID FIGURES

CONTENT: Surface area of a triangular prism

Examples:

1. Find the surface area of the figure below.

The main parts of a triangular prism

\[ \text{Part A} = \frac{1}{2} \times b \times h \]

\[ = \frac{1}{2} \times 8 \times 6 \]

\[ = 24 \text{cm}^2. \]

\[ \text{Part B} = \frac{1}{2} \times b \times h \]

\[ = \frac{1}{2} \times 8 \times 6 \]

\[ = 24 \text{cm}^2. \]

\[ \text{Part C} = \text{L} \times \text{W} \]

\[ = 160 \text{cm}^2. \]
Part D = L x W
20 x 6 = 20 x 10
120cm²

Part E = L x W
24cm²

Total Area = 24cm²

2R² + 2RH
2 x 22 x 7 x 7 + 2 x 22 x 7 x 10
160cm²
120cm²
200cm²
200cm²

44 x 7 + 44 x 10
308 + 440 = 748cm²

528cm²

EVALUATION ACTIVITY:
New MK Primary Mathematics Bk 7 exercise 19:34 Pg 368 (New Edition)
Remarks:
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LESSON 33:
SUB TOPIC: SOLID FIGURES
CONTENT:
Cylinder
Surface area of a cylinder

Examples:

\[ V = \text{base area} \times \text{height} \]

Circular end

\[ R \]

Rectangular Sheet

Top

Curved surface

Bottom

Circular end

Total surface area = \( R^2 + R^2 + C \times h \)

= \( \pi R^2 + \pi rh \)

2. Find the total surface area of a cylinder whose radius is 7cm and height 10cm (Use = \( \frac{22}{7} \))

\[ \pi R^2 + \pi R^2 + 2\pi Rh \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 19:35 Pg 398 (New Edition)
Remarks:
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LESSON 34:
SUB TOPIC: SOLID FIGURES
CONTENT: Volume of cubes and cuboids
Examples:

1. Find the volume of the cuboid below.

\[ V = \text{base area} \times \text{height} \]

= 4 cm 

\[ = 20 \times 5 \times 4 \]

\[ = 100 \times 4 \]

\[ = 400 \text{cm}^3 \]

2. Find the volume of the cube below.

\[ V = \text{base area} \times \text{height} \]

\[ = 10 \times 10 \times 10 \]

\[ = 100 \times 10 \]

\[ = 1000 \text{cm}^3 \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 20:1 Pg 399 (New Edition)
Remarks:
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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.
   \[
   \text{Volume} = \text{Base area} \times \text{length} \\
   = \frac{1}{2} \times 7 \times 6 \times 40 \\
   = 21 \times 10 \\
   = 210 \text{ cm}^3
   \]

EVALUATION ACTIVITY:
A New MK Primary Mathematics Bk 7 exercise 20:2 Pg 400 (New Edition)
Remarks:

LESSON 36:
SUB TOPIC: SOLID FIGURES
CONTENT: Volume of a trapezoidal prism
Examples:
1. Find the volume of the figure below.
   \[
   \text{Volume of the trapezoidal prism} = \frac{1}{2} h (a + b) l \\
   = \frac{1}{2} \times 4 \times (6 + 9) \times 10 \\
   = 2 \times 10 \times 15 \\
   = 300 \text{ cm}^3
   \]

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 7 cm and a height of 10 cm. Calculate its volume.
   \[
   V = \pi r^2 h \\
   = \frac{22}{7} \times 7 \times 7 \times 10 \\
   = \frac{22}{7} \times 7 \times 10 \\
   = 154 \times 10 \\
   = 1540 \text{ cm}^3
   \]

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.
   \[
   \text{Volume of outer cylinder} = \pi r^2 h \\
   = \frac{22}{7} \times 14 \times 14 \times 20 \\
   = \frac{22}{7} \times 2 \times 14 \times 20 \\
   = 44 \times 280 \times 44 \\
   = 1120
   \]

EVALUATION ACTIVITY:
Volume of the inner cylinder = \( \pi r^2 h \)
= \( \frac{22 \times 7 \times 7 \times 20}{7} \)
= \( 22 \times 7 \times 20 \)
= \( 154 \times 20 \)
= \( 3080 \text{ cm}^3 \)

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 20:4 Pg 404 (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?

\[ V = \text{base area} \times h \]
\[ = 10 \times 10 \times 10 \]
\[ = 100 \times 10 \]
\[ = 1000 \text{ cm}^3 \]

1 litre = 1000 cm\(^3\)

the cube holds 1 litre

2. How much water will the tank below hold?

\[ V = (\text{base area}) \times h \]
\[ = 400 \times 300 \times 200 \]

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?

\[ V = (\text{base x area}) \times h \]
\[ = \frac{\pi r^2}{7} \times h \]
\[ = \frac{22 \times 70 \times 100}{7} \]
\[ = 22 \times 10 \times 7000 \]
\[ = 1540000 \text{ cm}^3 \]

1 litre = 1000 cm\(^3\)

Capacity = \( \frac{1540000}{1000} \)
= 1540 litres

2. Find the capacity of this tank.

\[ V = (\text{base x area}) \times h \]
\[ = \frac{\pi D^2}{7} \times h \]
\[ = \frac{22 \times 350 \times 350 \times 800}{7} \]
\[ = 22 \times 50 \times 350 \times 800 \]
\[ = 308000 \text{ litres} \]
LESSON 41

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 the length = 56 = 5 cubes
   Along the width = 42 = 4 cubes
   Along the height = 60 = 6 layers
   Total number of cubes = 5 x 4 x 6 = 20 x 6 = 120 cubes

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 20:8 Pg 406 (New Edition)

Remarks:

LESSON 46

SUB TOPIC: mass

CONTENT: converting kg to quintal and tonne

Examples: Express 2500kg to tonne
1000kg = 1 tonne
2500kg = 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 17.584cm. Find the radius of the circle (Use = \(\pi\)3.14)
3. A cylindrical tank is 7m high. What is the capacity in litres of the tank if its radius is 7m?
4. The volume of the figure below is 105cm\(^3\). Find its height.

5. Find the base area of the figure below.
6. Given that the cylindrical tins B are to be packed into box A.

(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 7cm from a rectangular sheet of metal of length 45cm and width 35cm as shown below.

(a) How many circular plates did he cut out from the rectangular sheet?
(b) Find the area of the unused sheet after cutting out the circular plates. (take \( \pi = \frac{22}{7} \))

8. A cuboid water tank (A) which is 70cm long by 35cm wide by 110cm high was filled with water. The water from tank A was all poured into the cylindrical tank B of diameter 70cm

(a) Find the volume of water in tank A when fill.
(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 = 12cm, CE = 10cm and AC = 16cm. Find the length of BD in cm.

10. The figure ABC below is an isosceles triangle. Use it to answer the questions that follow.

(a) Find the value of x.
(b) Find the area of triangle ABC
(c) Calculate the perimeter of the triangle.

11. Find the circumference of a circular compound whose radius is 14m (take \( \pi = \frac{22}{7} \))

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. \(a \cdot b\) – 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:


**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. \(x + y + x + y + x\)
   \(x + x + x + y + y\)
   \(3x + 2y\)
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. \(3x + 3y\)
4. \(2a - 2b\)

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics 2000 Bk 7 exercise 22:11 Pg 434 (New Edition)

Remarks:


**LESSON 4:**

**SUB TOPIC:** REMOVING BRACKETS

**CONTENT:**

Remove the brackets and simplify.

Example:
1. Add: \(x + 4\) to \(x + 1\)
   \((x + 4) + (x + 1)\)
   \(x + 4 + x + 1\)
   \(2x + 5\)

2. Subtract \(y + 1\) from \(2y + 3\)
   \((2y + 3) - (y + 1)\)
   \(2y + 3 - y - 1\)
   \(2y + 2\)

3. \(x - 4\) to \(3x - 5\)
   \((x - 4) + (3x - 5)\)
   \(x - 4 + 3x - 5\)
   \(4x - 9\)

4. Subtract \(3p - 1\) from \(5p - 3\)
   \((5p - 3) - 3p - 1\)
   \(5p - 3 - 3p + 1\)
   \(2p - 2\)

**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. \(\frac{x}{2} + \frac{x}{3}\)
2. \(\frac{m}{2} - \frac{m}{5}\)
3. \(\frac{3m}{5} - \frac{2m}{10}\)

3. \(\frac{5x}{7}\)
4. \(\frac{3m}{10}\)

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics 2000 Bk 7 exercise 22:11 Pg 434 (New Edition)

Remarks:
\[
\begin{align*}
\frac{3}{3} & = \frac{1}{3} + \frac{3}{3} \\
& = \frac{3}{3} + \frac{3}{3} \\
& = \frac{4}{3}
\end{align*}
\]

**EVALUATION ACTIVITY:**

**Remarks:**

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**LESSON 6:**
**SUB TOPIC:** REMOVING BRACKETS

**CONTENT:** removing brackets involving fractions

**Example:**
1. \(\frac{1}{3} (3a + 9b)\) \(\quad\) \(\frac{1}{3} (1/3 \times 3a + (1/3 \times b))\) \(\quad\) \(a + 3b\)
2. \(\frac{1}{2} (8m - 12p)\) \(\quad\) \(a - (3/4 \times 8m) - (3/4 \times 12p)\)

**EVALUATION ACTIVITY:**

**Remarks:**

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**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 \((6x + 9y)\)
   \(\frac{1}{2} (2x + 4y) + \frac{1}{3} (6x + 9y)\)
   \(\frac{1}{2} \times \frac{1}{3} x 6x + \frac{1}{3} \times 9y\)
   \(x + 2y + 2x + 3y\)
   \(x + 2x + 2y + 3y\)
   \(3x + 5y\)
2. Subtract \(\frac{1}{2} (4x - 2y)\) from \(\frac{1}{3} (6x - 9y)\)
   \(\frac{1}{3} \times 6x - \frac{1}{3} \times 9y - \frac{1}{2} \times 4x - \frac{1}{2} \times 2y\)
   \(2x - 3y - 2x + y\)
   \(2x - 2x - 3y + y\)
   \(0 - 2y\)
   \(-2y\)

**EVALUATION ACTIVITY:**

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A New MK Primary Mathematics 2000 Bk 7 exercise 22:17 Pg 437 (New Edition)

**Remarks:**

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**LESSON 8:**
**SUB TOPIC:** MULTIPLICATION OF FRACTIONAL TERMS

**CONTENT:** multiplying of fractional terms

**Example:**
1. \(\frac{x \times x}{2 \times 5}\) \(\quad\) \(\frac{m \times 5p}{3 \times 8}\)
2. \(\frac{2m \times 5p}{3 \times 8}\) \(\quad\) \(\frac{5mp}{10}\)

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:19 Pg 439 (New Edition)

**Remarks:**

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**LESSON 9:**
**SUB TOPIC:** SUBSTITUTION

**CONTENT:** Substituting or replacement of letters with numbers

**Example:**
1. If \(a = 5\), \(b = 4\) and \(c = 0\)
   \(\text{Find the value of } a + b + c\)
   \(= 5 + 4 + 0\)
   \(= 9\)
2. Given that \(x = 2\) and \(y = -2\)
   \(\text{Evaluate } x - y\)
   \(= (x) - (y)\)
   \(= 2 + 2\)

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:4 Pg 429 (New Edition)

**Remarks:**

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LESSON 10:
SUB TOPIC: SUBSTITUTION
CONTENT: Substitution involving brackets
Example:
1. Given that a = 3, b = 4 and c = 5
   = 3 x a x 3 x b
   = 3 x 3 x 3 x 4
   = 9 + 12
   = 21
2. What is c (b-a)
   = 5(4 – 3)
   = 5(1)
   = 5 x 1
   = 5

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 22:12 Pg 434 (New Edition)
Remarks:
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LESSON 11:
SUB TOPIC: SUBSTITUTION
CONTENT: Substitution involving fractions
Example:
1. Given a = ¾ b = 1/3
   Find the value of a + b
   (a) + (b)
   ¾ + 1/3
   9 + 4
   12
   = 1 + 1
   12
   = 7
   12
2. If a = ½, c = 2/3 and d = ¼
   Evaluate ac + d
   a x c + d
   ½ x 2/3 + ¼
   ¼

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 22:20 Pg 440 (New Edition)
Remarks:
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LESSON 12:
SUB TOPIC: ADDITION AND SUBTRACTION WITH POWERS

CONTENT: Addition and subtraction with powers
Example:
1. $2^2 + 2^4$
   $2 \times 2 + (2 \times 2 \times 2 \times 2)$
   = $2^2 + 2^2$
   = $2 \times 2^2$
   = 20
2. $p^2 + p^2$
   $p^2 + p^2$
   = $2 \times p^2$
   = $2 \times p^2$
   = $2 \times p^2$
   = $2 \times p^2$
3. $3m^3 + 4m^3$
   $3m^3 + 4m^3$
   = $7m^3$
   = $7m^3$
   = $7m^3$
   = $7m^3$
4. $4m^3 - m^3$
   $4m^3 - m^3$
   = $3m^3$
   = $3m^3$
   = $3m^3$
   = $3m^3$
5. $4m^3 - m^3$

EVALUATION ACTIVITY:
A New MK Primary Mathematics 2000 Bk 7 exercise 22:20 Pg 441 (New Edition)
Remarks:
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LESSON 13:
SUB TOPIC: MULTIPLICATION OF POWERS
CONTENT: Multiplication of powers
Example:
Simplify
1. $4^3 \times 4^2$
   $4 \times 4 \times 4 \times 4 \times 4$
   = $4^8$
2. $x^3 \times x^2$
   $x \times x \times x \times x \times x \times x \times x \times x \times x$
   = $x^{12}$

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. $3^4 \div 3^2$
   $3^4 \div 3^2$
   = $3^{4-2}$
2. $p^8 \div p^2$
   $p^{8-2}$
   = $p^6$
Either \(3 \times 3 \times 3 \times 3\) or \(3^{4.2}\) or \(p^2 \div p^2\)

\[\begin{align*}
3 \times 3 &= 3^2 \\
p \times p \times p \times p \times p \times p \times p &= p^8
\end{align*}\]

\(3 \times 3 \times 3 = 9\)

\[\begin{align*}
P \times p &= 9 \\
p \times p \times p \times p \times p \times p &= p^8
\end{align*}\]

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:23 Pg 442 (New Edition)
Remarks:

**LESSON 15:**
**SUB TOPIC:** Substitution involving powers
**CONTENT:** Substitution involving powers

**Example:**
1. If \(m = 2\), what is the value of \(m^2\)?
   \[
   M^2 = m \times m \times m \times m \times m = 2 \times 2 \times 2 \times 2 \times 2 = 16 \times 4 = 64
   \]
2. If \(y = 2\), what is the value of \(3y^2\)?
   \[
   3y^2 = 3 \times y \times y = 3 \times 2 \times 2 = 3 \times 4 = 12
   \]
3. If \(m = 4\), \(n = 3\) and \(p = 2\), what is \(n^3 \times m^2\)?
   \[
   n \times n \times n \times m \times m = 3 \times 3 \times 3 \times 4 \times 4 = 27 \times 16
   \]
   \[
   M \times p = 4 \times 2 = 8
   \]
   \[
   = 27 \times 2 = 54
   \]

**EVALUATION ACTIVITY:**
Remarks:

**LESSON 16:**
**SUB TOPIC:** Revision of Simple Equations
**CONTENT:** Solving simple equations.

**Example:**
1. \(x + 5 = 13\)
   \[
   X + 5 - 5 = 13 - 5
   \]
   \[
   X = 8
   \]
2. \(y - 3 = 5\)
   \[
   y - 3 + 3 = 5 + 3
   \]
   \[
   y = 8
   \]

2. \(2x + 6 = 18\)
4. \(3a - 8 = 7\)
   \[
   2x + 6 - 6 = 18 - 6
   \]
   \[
   2x = 12
   \]
   \[
   2x = 12
   \]
   \[
   3a = 15
   \]
   \[
   2 \times 2
   \]
   \[
   2 \times 3
   \]
   \[
   X = 6
   \]
   \[
   a = 5
   \]

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics 2000 Bk 7 Pg 452 - 456 (New Edition)
Remarks:

**LESSON 17:**
**SUB TOPIC:** Solving Equations
**CONTENT:** Equations involving fractions

**Example:**
1. \(\frac{1}{2}p = 6\)
   \[
   \frac{1}{2}p = \frac{6}{2}
   \]
   \[
   \frac{1}{3}t + 2 = \frac{15}{3}
   \]
   \[
   \frac{13t}{3} = \frac{15}{1}
   \]
   \[
   = 12
   \]
   \[
   13t + 6 = 45
   \]
   \[
   13 + 6 - 6 = 45 - 6
   \]
   \[
   13t = 39
   \]
   \[
   \frac{13t}{3} = \frac{39}{3}
   \]
   \[
   T = 13
   \]

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:44 Pg 457 (New Edition)
Remarks:

**LESSON 18:**
**SUB TOPIC:** Solving Equations
**CONTENT:** Equations involving fractions

**Example:**
1. \(0.4P + 0.5 = 2.1\)
   \[
   4P + 5 = 21
   \]
   \[
   10 \times 4P + 5 \times 10 = \frac{21 \times 10}{10}
   \]
   \[
   10 \times 4P + 5 \times 10 = 210
   \]
   \[
   10 \times 4P + 5 \times 10 = \frac{210}{10}
   \]
   \[
   10 \times 4P + 5 \times 10 = 21 (LCM)
   \]
   \[
   10 \times 4P + 5 \times 10 = \frac{210}{10}
   \]
   \[
   10 \times 4P + 5 \times 10 = \frac{210}{10}
   \]
   \[
   T = \frac{13}{2}
   \]
   \[
   T = \frac{13}{2}
   \]
   \[
   T = \frac{13}{2}
   \]
   \[
   T = \frac{13}{2}
   \]
### Lesson 19: Solving Equations
**Content:** Equations involving fractions

**Example:**
1. \(2p - p = 5\)
   - \(\frac{2p - p}{3} = 5\)
   - \(\frac{3x + 7 - 3x}{10} = \frac{1}{1} - 4\)
   - \(\frac{12x + 28 - 3x}{40} = \frac{1}{1} \times 3\)
   - \(\frac{12x - 3x + 28}{40} = \frac{1}{1} \times 1\)
   - \(\frac{9x}{12} = 15\)
   - \(\frac{9x}{12} = 15\)
   - \(p = -15\)
   - \(X = 1\frac{1}{3}\)

**Evaluative Activity:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:44 Pg 457 (New Edition)

### Lesson 20: Solving Equations
**Content:** Equations involving fractions

**Example:**
1. \(\frac{m + 1 + m}{3} = 2\) (observation of three items)
2. \(\frac{m + 1 + m}{4} = 2\) (LCM)
3. \(\frac{12 \times m + 1 + m}{3} = 2 \times 12\)
4. \(\frac{4(m + 1) + m}{3} = 2 \times 12\)

**Evaluative Activity:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:49 Pg 461 (New Edition)

### Lesson 21: Solving Equations
**Content:** Equations involving fractions

**Example:**
1. \(\frac{(3x + 1)}{4} = \frac{(x + 2)}{2}\)
2. \(\frac{3x - 1}{4} = \frac{7x + 1}{2}\)
3. \(\frac{3x + 1}{2} = \frac{2(x + 3)}{6}\)
4. \(\frac{3x - 2x}{2} = \frac{2x + 3}{4}\)
5. \(\frac{2}{3} = \frac{2x}{2}\)

**Evaluative Activity:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:50 Pg 462 (New Edition)

### Lesson 22: Solving Equations
**Content:** Solving Equations involving squares

**Example:**
1. \(\frac{1}{2} P^2 = 8\)
2. \(\frac{1}{4} x^2 = 16\)

**Evaluative Activity:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:50 Pg 462 (New Edition)
\[ P^2 = 16 \]
\[ \sqrt{P^2} = \sqrt{16} \]
\[ P = 4 \]
\[ x^2 = 64 \]
\[ \sqrt{x^2} = \sqrt{64} \]
\[ x = 8 \]

**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:** SOLVING EQUATIONS
**CONTENT:** Word problems on equations

Example:
1. 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 \(6p + p + 200 = 3700\)
   - \(7p + 200 = 3700\)
   - \(7p + 200 - 200 = 3700 - 200\)
   - \(7p = 3500\)
   - \(p = \frac{3500}{7}\)
   - \(P = \text{shs} 500\)

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics 2000 Bk 7 exercise 22:51 Pg 464 (New Edition)

**Remarks:**

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**LESSON 12:**
**SUB TOPIC:** REPRESENTING OF FINITE SOLUTION SETS ON A NUMBER LINE
**CONTENT:**

Example:
1. \(-2 < x < 6\)
   - Find and show the solution set on a number line
   - Solution: \((-2, -1, 0, +1, +2, +3, +4, +5)\)

2. Give the solution set and the inequality shown on the number line.
   - Solution: \(-4 < x < +6\)
   - \(X = \{-1, 0, +1, +2, +3, +4, +5\}\)

**EVALUATION ACTIVITY:**
A New MK Primary Mathematics 2000 Bk 7 Exercise 6:1 Pg 71 (New Edition)

**Remarks:**

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**LESSON 13:**
**SUB TOPIC:** SOLVING INEQUALITIES AND WRITING THEIR SOLUTION SETS
**CONTENT:**

Examples:
1. \(4X > 20\)
4X > 20  
4  4  
X > 5  
Solution set: {6, 7, 8, 9, 10….}

2.  
-4X > 20  
-4x < 20  (the inequality sign changes when multiplied/divided by –ve integer)  
-4  -4  
X < -5  
Solution set: x = {-6, -7, -8, -9, ....}  

3.  
3x + 6 < 9  
3x + 6 – 6 < 9 – 6  
3x < 3  
3  3  
X < 1  
Solution set: x = {0, 1, 2, 3, ....}

**EVALUATION ACTIVITY:**  
A New MK Primary Mathematics 2000 Bk 7 Exercise 6:3 and 6:4 Pg 74 (New Edition)  
Remarks:

**LESSON 14:**  
**SUB TOPIC:** SOLVING INEQUALITIES INVOLVING FRACTIONS  
**CONTENT:**  
Examples:  

1. Solve \( x > \frac{1}{3} \)  
\[ 3x > 1 \times 3 \]  
\[ x > 3 \]  
Solution set x = {4, 5, 6, 7, ....}  

2. \( 1x – 5 > -4 \)  
\[ \frac{1}{7}x – 5 + 5 > -4 + 5 \]  
\[ 7 \]  
\[ 1x > 1 \]  
\[ 7 \]  
\[ 7 \times 1x > 1 \times 7 \]  
\[ 7 \]  
\[ x > 7 \]  
Solution set: x +{8, 9, 10, 11, ....}  

**EVALUATION ACTIVITY:**  
A New MK Primary Mathematics 2000 Bk 7 Exercise 6:5 Pg 76 (New Edition)  
Remarks:

**LESSON 15:**  
**SUB TOPIC:** SOLVING INEQUALITIES WITH THREE TERMS  
**CONTENT:**  
Examples:  

1. Solve \( 8 > 2x > 2 \)  
\[ \frac{8}{2} > 2x > \frac{2}{2} \]  
\[ 4 > x > 1 \]  
Solution set: x = {2, 3}  

2. \( 12 < 3x < 24 \)  
\[ \frac{12}{3} < 3x < \frac{24}{3} \]  
\[ 4 < x < 8 \]  
Solution set: x = {2, 3, 4, 5, 6, 7}  

3. Solve \( 13 > 3x – 2 > 4 \)  
\[ 13 + 2 > 3x – 2 + 2 > 4 + 2 \]  
\[ 15 > 3x > 6 \]  
\[ \frac{15}{3} > x > 2 \]  
Solution set: x = {2, 3, 4, 5, 6, 7}  

**EVALUATION ACTIVITY:**  
A New MK Primary Mathematics 2000 Bk 7 Exercise 6:6 Pg 77 (New Edition)  
Remarks:

**LESSON 29**
SUB TOPIC: INEQUALITIES INVOLVING BRACKETS
CONTENT:
1. Solve 2(x+1) < 4
2. Solve 3(2x+3) < 18
Ref: Mk bk 7 pg 449

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, -3, +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 a 45 minutes first half of the match. How long was the team in 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 ≤ 2
   (iv) x ≥ 2  (v) x < 4

3. Write down the inequality shown on the number line below.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10.

4. Solve and give the solutions et for x.
   (i) -3x < -9  (ii) -30 < 6x
   (iii) 3x + 2 < 11  (iv) 4x - 5 < 19

5. Solve and find the solution set for y.
   (i) 1y + 4 < 6
   (ii) 3

6. Solve the inequality below:
   8 > 2x ≥ -4

**TOPICAL EXERCISE ON ALGEBRA**

1. Solve: x + 1/4 x = 5

2. Find the value of 5a - (m - a) when a = 3 and m = 6.

3. Solve for b = 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 1/6x = 1 1/6 find the value of x.

6. Solve $2x + 2 = \frac{x + 3}{2}$
7. What is the value of \(bc - d\) when \(b = 8\), \(c = 3\) and \(d = 6\)?

8. Solve: \(x - 1 = 2x + 5\)

9. Simplify: \((3x + 5) - (x + 1)\)

10. Solve: \(\frac{1}{3}(3y - 2) = \frac{2}{3}(2y + 3)\)

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 \(t = \frac{5}{2}\).

13. Solve: \(3(p - 4) - 2(3p - 1) = 2p - 15\)

14. Simplify: \((4p - 3q) - (2q + p)\)

15. Solve: \(12 + 2 = \frac{6}{x}\)

16. The area of the trapezium is 50cm\(^2\). Find the value of \(t\).

**Lesson 11:**

17. Factorise completely: \(2xy - 4x\).

18. Given that \(a = \frac{1}{2}\), \(b = \frac{1}{3}\) 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.

<table>
<thead>
<tr>
<th>(x)</th>
<th>1</th>
<th>…….</th>
<th>5</th>
<th>……</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>(y)</td>
<td>…</td>
<td>1</td>
<td>…….</td>
<td>3</td>
<td>……</td>
</tr>
</tbody>
</table>