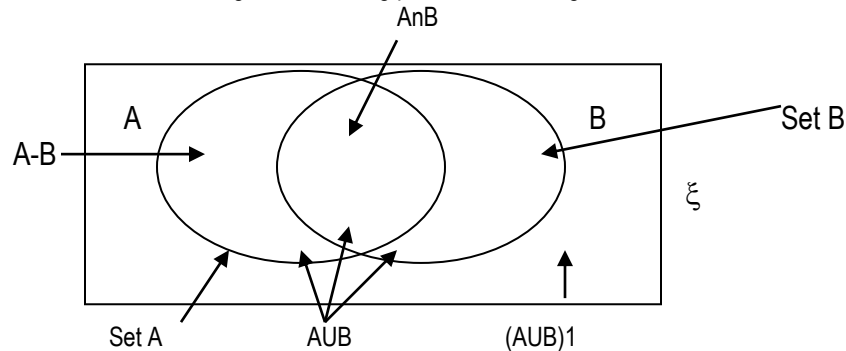


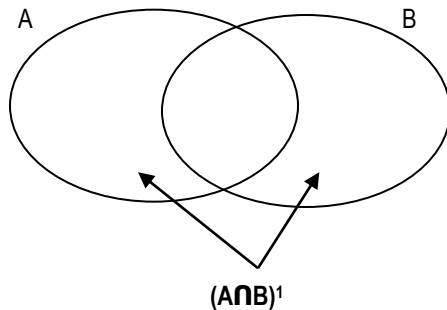
P.7 MATHEMATICS LESSON NOTES TERM I

TOPIC ONE:

TOPIC: SET CONCEPTS
 LESSON 1: REVIEW OF SETS
 SUB TOPIC: Regions/describing points of venn diagram
 CONTENT:



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



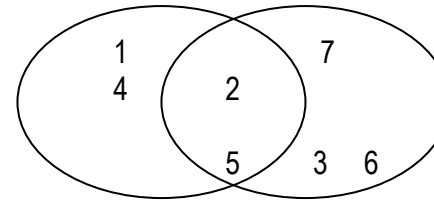
EVALUATION ACTIVITY:

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

Remarks:

LESSON 2:

SUB TOPIC: LISTING ELEMENTS
 CONTENT: Given the venn diagram below:
 A B



List members of the following using the above venn diagram:

- Set B
- Set A'
- $(B \cap A)$
- $(A \cup B)$
- $A - B$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 3:

SUB TOPIC: REPRESENTING SETS ON VENN DIAGRAMS

CONTENT:

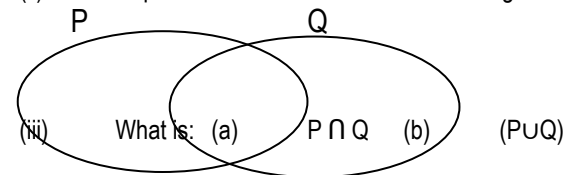
Example:

If $P = \{\text{Factors of 24}\}$

$Q = \{\text{Multiples of 4 less than 25}\}$

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

- Represent the above sets on a venn diagram below:



EVALUATION ACTIVITY:

- Given that set $A = \{\text{Even numbers less than 15}\}$
 $B = \{\text{Composite numbers less than 15}\}$
 - List down the members of the above sets.
 - Represent the above sets on a venn diagram
- Given that $\epsilon = \{\text{whole numbers less than 15}\}$
 $\text{Set } P = \{4, 6, 14, 8, 0, 12, 3, 7\}$

Set $Q = \{1, 3, 5, 7, 9, 11, 13\}$
 Write down the numbers of $P \cap Q$
 Represent the above sets on a venn diagram

Remarks:

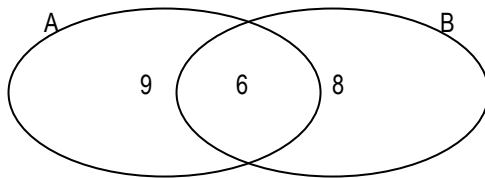
LESSON 4:

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:



- How many pupils eat both apples and beans?
- How many pupils eat beans $n(B) = 6 + 8 = 14$
- How many pupils eat apples?
- How many pupils eat only one type of food?
- Find the number of pupils in the whole class.

EVALUATION ACTIVITY:

A New MK Maths Revised Edition Bk 7 Pg 9 Exercise 1:6 and exercise 1:9 Pg 14

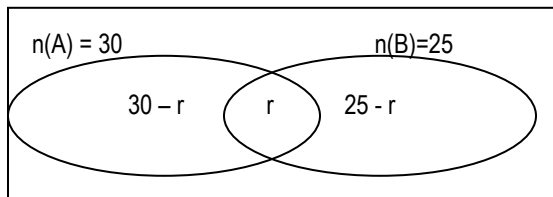
Remarks:

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.



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

$$\begin{aligned} 30 - r + r + 25 - r &= 45 \\ 30 + 25 + r - r - r &= 45 \\ 55 - r &= 45 \\ 55 - 55 - r &= 45 - 55 \\ -r &= -10 \\ -r &= -10 \\ -1 - 1 & \\ R &= 10 \end{aligned}$$

(ii) A only

Probability of elements in the intersection.

EVALUATION ACTIVITY:

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

Remarks:

LESSON 6:

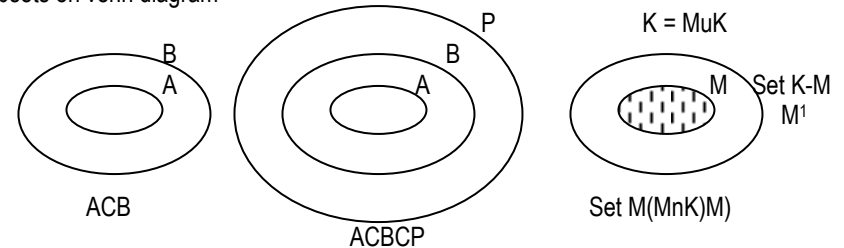
SUB TOPIC: SUBSETS

CONTENT:

Meaning of subsets

Symbol used on subsets

Subsets on venn diagram



Formation of subsets:

If set $x = \{1, 2, 3\}$ List all the subsets of set x .

$\{1\}, \{2\}, \{3\}, \{1, 2\}, \{1, 3\}, \{2, 3\}, \{1, 2, 3\}$

List all the proper subsets of R where $R = \{-3 < n < +1\}$ where n is an integer.

Solution:

$R = \{-2, -1, 0\}$

Proper subsets: $\{\}, \{-2\}, \{-1\}, \{0\}, \{-2, -1\}, \{-2, 0\}, \{-1, 0\}$

Calculation of the number of subsets.

Example: Find the number of set Q where $Q = \{4, 2, 9\}$

Number of subsets $= n^2$ where n = number of elements in a set.

Number of subsets of set $Q = 2^n = 2^3 = 2 \times 2 \times 2 = 8$

EVALUATION ACTIVITY:

- (a) If $n(K) = 2$, find number of subsets of K .

(b) Given that a set has 64 subsets. Find the number of members in that set.

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:

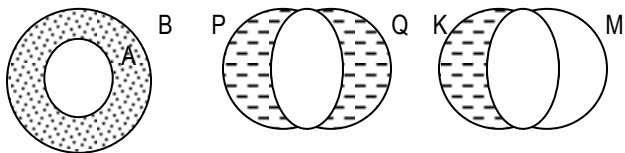
TOPICAL QUESTIONS ON SET CONCEPTS

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

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

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

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



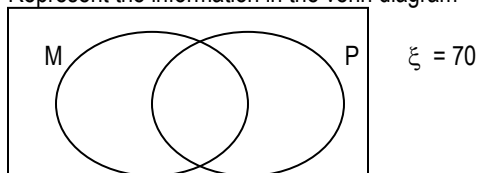
(b) Given that a set has 32 subsets. How many elements has it?

5. In a class of 30 pupils, 10 pupils like History (H) 14 like Geography (G) and 12 do not like either of the subjects.

- (i) Draw a venn diagram to represent this information.
- (ii) How many pupils like both subjects?
- (iii) How many pupils like History?
- (iv) How many pupils like one subject?

6. Seventy children were taken to a clinic for immunization, 45 children were immunized against Measles (M) X children were immunized against Polio (P) 6 children were immunized against measles and Polio. 1 child was not immunized at all.

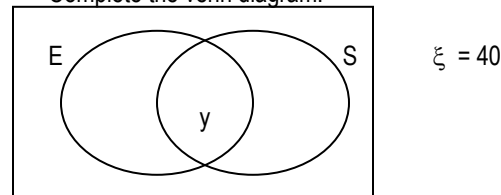
(a) Represent the information in the venn diagram



(b) Find the number of children who were immunized against Polio only.

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

(a) Complete the venn diagram.



(b) Find the value of y .

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

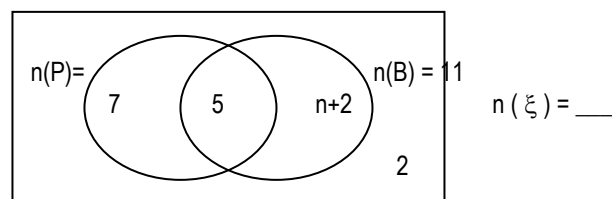
8. In a class of 20 pupils where two languages are spoken, 14 speak Luganda (L), 15 speak Kiswahili (K).

(a) Draw a venn diagram and show the information given.

(b) Find the number of pupils who speak both Luganda and Kiswahili.

(c) Find the number of pupils who speak only one language.

9. Use the venn diagram below.



- (a) Find the value of
- | | |
|---------------------|-------|
| (i) $n(P)$ | 7 |
| (ii) $n(B)$ | 11 |
| (iii) $n(P \cap B)$ | 5 |
| (iv) $n(P - B)$ | 2 |
| (v) $n(B - P)$ | $n+2$ |

10. In a class of 60 pupils, all enjoy eating beans, 33 enjoy eating meat (M), 35 enjoy eating fish (F), If P pupils enjoy all the three while 2 enjoy eating beans only.

- (a) Represent the information on a venn diagram.
- (b) Find the value of P.
- (c) How many pupils enjoy only fish?

14. Given that Set $X = \{a, d, c, d\}$ Find the number of:

- (i) Sub sets
- (ii) Proper subsets

TOPIC TWO:

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: $\frac{\text{Desired chance}}{\text{Total chance}} = \frac{2}{2+6}$
 $= \frac{2}{8} = \frac{2 \div 2}{8 \div 2}$
 $= \frac{1}{4}$

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

EVALUATION ACTIVITY:

A New MK Primary Maths Bk 7 Pg 189 exercise 10:23.

Primary Mathematics for Uganda Pg 57 exercise 1

Remarks:

LESSON 16:

SUB TOPIC: TOSSING A COIN AND A DICE

CONTENT:

Example:

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

Total chance = {H, T}

Number of possible outcomes = 2

Expected out comes = {H}

∴ Number of expected outcome = 1

Hence Probability = $\frac{n(E)}{n(s.s)}$
 $= \frac{1}{2}$

Example 2:

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

Probability space = {all expected out comes}

$n(s.s) = \{1, 2, 3, 4, 5, 6\}$

$n(s.s) = 6$

Expected outcomes = {all desired chances}

$n(E) = \{2, 4, 6\}$

$N(E) = 3$

Probability = $\frac{\text{All expected outcomes (desired chances)}}{\text{All possible outcomes.}}$

Probability = $\frac{n(E)}{n(s.s)}$
 $= \frac{3}{6}$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 17:

SUB TOPIC: CARTESIAN PRODUCTS AND PROBABILITY SPACE

CONTENT: Two coins, die and a coin

Example:

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

Probability space =

1 st	H	T
2 nd	H	HH HT

Coin T TH TT
 $n(s.s) = 4$

Expected outcome = {H H}

$$n(E) = 1$$

$$\text{Probability} = \frac{n(E)}{n(s.s)} = \frac{1}{4}$$

Example II

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

	Coin	
Dice	H	T
1	1, H	T
2	2, H	2, T
3	3, H	3, T
4	4, H	4, T
5	5, H	5, T
6	6, H	6, T

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

$$n(E) = 3$$

Probability space = 12

$$\text{Probability of even and tail} = \frac{3}{12} = \frac{1}{4}$$

EVALUATION ACTIVITY:

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

Primary Mathematics for Uganda Pg 57 exercise 1

Remarks:

LESSON 18:

SUB TOPIC: TOSSING TWO DIES (DIE AND DIE)

CONTENT:

Example:

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

	DIE A					
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

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

$N(E) = 5$ pairs giving the sum

Sample space = 36

Probability (sum 8) = $n(E)$

$$\text{Prob space} = \frac{5}{36}$$

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

EVALUATION ACTIVITY:

MK Bk 7 Pg 191 exercise 10:24

Remarks:

LESSON 2:

SUB TOPIC: PLACE VALUES OF DIGITS IN NUMERALS

CONTENT: The place value chart

- Definition of place value.

Million			Thousands			Units		
H	T	O	H	T	O	H	T	O
2	4	1	0	6	3	1	2	2

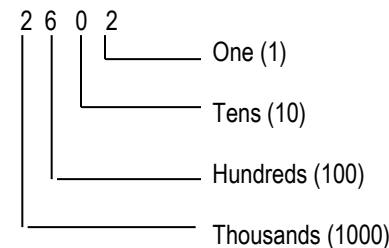
- Identify the place value of each digit in the number above both in word and in figure.

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



$$\text{Value of 6} = 6 \times 100 = 600$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Book 6 (Old Edition)

Exercise 2:1 Pg 23

2:2 Pg 24

Remarks:

LESSON 3:**SUB TOPIC:** READING AND WRITING VALUE IN WORDS TO (100 MILLION)**CONTENT:** Writing in words**Examples:**

(i) Write 20,480 in words.

Thousand	Units
20	480

(ii) Twenty thousand four hundred eighty.

60,808,040

Million	Thousand	Units
60	808	040

Sixty million, eight hundred eight thousand forty.

EVALUATION ACTIVITY:

A New MK Primary Mathematic Bk 7 Exercise 2:2 Pg 22 (New Edition)

Remarks:

LESSON 4:**SUB TOPIC:** READING AND WRITING NUMERALS IN FIGURES**CONTENT:** Examples:

Write in figures:

(i) Fifty seven million four hundred twenty one thousand nine hundred five.

Solution:

57 million = 57,000,000

421 thousand + 421,000

905

905

57,421,905

(ii) A quarter of a million

A million = 1,000,000

 $\frac{1}{4}$ of 1,000,000 $\frac{1 \times 1,000,000}{4}$

= 250,000

EVALUATION ACTIVITY:

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

Remarks:

LESSON 5:**SUB TOPIC:** EXPANDED NOTATION**CONTENT:** Expanding numerals using:

- Place values
- Values
- Powers of ten/exponents

Examples:

Expand: 5624 using:

Place values: $5624 = (5 \times 1000) + (6 \times 100) + (2 \times 10) + (4 \times 1)$ Values: $5624 = 5000 + 600 + 20 + 4$ Powers: $5624 = (5 \times 10^3) + (6 \times 10^2) + (2 \times 10^1) + (4 \times 10^0)$

10^3	10^2	10^1	10^0
5	6	2	4

EVALUATION ACTIVITY:

A New MK Primary Mathematic Bk 6 Pg 37 Exercise 2:4

Mathematics Revision Hand book P.5 – P.7 Pg 27

Remarks:

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:

$$(6 \times 10000) + (4 \times 100) + (5 \times 1)$$

$$= 60,000 + 400 + 5$$

$$= 60000$$

$$400$$

$$+ \quad 5$$

$$\hline 60405$$

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

$$= 9\,000\,000$$

$$700\,000$$

$$50\,000$$

$$1\,000$$

$$30$$

$$8$$

$$\hline 9\,750\,038$$

(iii) $(2 \times 10^5) + (4 \times 10^3) + (6 \times 10^0) + (7 \times 10^2)$

$$= (2 \times 10 \times 10 \times 10 \times 10 \times 10) + (4 \times 10 \times 10 \times 10) + (6 \times 1) + (7 \times 10 \times 10)$$

$$= 200,000 + 4000 + 6 + 700$$

$$= 200\,000$$

$$4000$$

$$700$$

$$6$$

$$\hline 204706$$

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

$\times 100$

$$4.53 \times 10 \times 10$$

$$4.53 \times 10^2$$

(ii) Express 650000 in Scientific notation.

$$650,000 = 6.5 \times 100,000$$

$$= 6.5 \times 10 \times 10 \times 10 \times 10 \times 10$$

$$= 6.5 \times 10^5$$

Finding numbers expressed in standard form.

EVALUATION ACTIVITY:

A New MK Primary Mathematic Bk 6 Pg 60 (Old Edition)

Macmillan Primary Mathematics Bk 7 Pg 56 Exercise 10 Pg 58 Exercise 11

LESSON 8:

SUB TOPIC: ROUNDING OFF WHOLE NUMBERS

CONTENT: Examples:

Review – rounding off scale

Round off the following as instructed.

(i) 3864 to the nearest hundred.

H - R P V

$$3\,8\cancel{6}\cancel{4}$$

$$+ \quad \swarrow$$

$$\hline 3\,9\,0\,0$$

(ii) 214 (nearest tens)

Tens - RPV

$$2\,1\,4$$

$$+ \quad \swarrow$$

$$\hline 2\,1\,0$$

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

H	T	O
1	2	4

ii) 1962

$$\begin{array}{r}
 100 \quad 20 \quad 4 \\
 100 + 20 + 4 \\
 100 = C \\
 20 = XX \\
 4 = IV \\
 = CXXIV
 \end{array}$$

$$\begin{array}{r}
 1000+900+ 60 +2 \\
 1000 = M \\
 900 = CM \\
 60 = LX \\
 2 = II \\
 = MCMLXII
 \end{array}$$

$$\begin{array}{r}
 \text{(iii)} \quad 6000 \\
 \text{(iv)} \quad 7000
 \end{array}$$

EVALUATION ACTIVITY:

Macmillan Pri MTC pupils bk 7 pg 16 exercise 1

A New MK Primary Mathematic Bk 7 pg 23

Remarks:**LESSON 10:****SUB TOPIC:** ROMAN NUMERALS (CONVERSION OF ROMAN NUMERALS TO HINDU ARABIC)**CONTENT:** Example

Write the following numbers in Hindu Arabic numerals

(i) $MXLV$
 $M + XL + V$
 $M - 1000$
 $XL - 40$
 $V - 5$

(ii) $MXLV = 1045$
 $CD XCiv$
 $CD + XC + iv$
 $CD - 400$
 $XC - 90$
 $Iv - 4$

(iii) $CDXCIV = 494$
 A temple had MDCCLXIV written on top of it showing the year it was built. Which year is this in Hindu Arabic

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7 Pg 24 Exercise 2:6

Macmillan Primary Maths Pupils' Bk 7 Pg 16 exercise 1.

LESSON 11:**SUB TOPIC:** OPERATION ON ROMAN NUMERALS**CONTENT:** Example

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

Solution:

CCXLIII – Hindu Arabic

CC + XL + III

CC - 200

XL - 40

III - 3

243

DCLXXV

DC + LXX + V

600 + 70 + 5

675

$$243 + 675 = 918$$

918 – Roman numerals

900 + 10 + 8

900 = CM

10 = X

8 = VIII 918 = CMXVIII

Find the difference between MMCMLX and MCDXL answer in Hindu Arabic numerals.

EVALUATION ACTIVITY:

Teacher designs his or her own suitable activity.

Remarks:**LESSON 12:****SUB TOPIC:** BASES (CHNAGING FROM DECIMAL BASES TO NON-DECIMAL BASES)**CONTENT:**

Review the following:

- Name of bases and digits used.
- Place values of bases.

Example:

Change 25 to base seven

Solution:

7	25	rem 4	↑
7	3	rem 3	

25 = 34 seven

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:

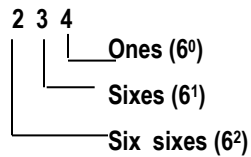
SUB TOPIC: BASES (CHANGING FROM NON DECIMAL BASES TO DECIMAL BASES)

CONTENT:

Example:

(i) Change 234 six to base ten

Solution:



$$\begin{aligned} &(2 \times 6^2) + (3 \times 6^1) + (4 \times 6^0) \\ &(2 \times 6 \times 6) + (3 \times 6) + (4 \times 1) \\ &12 \times 6 + 18 + 4 \\ &72 + 22 \\ &94 \text{ ten} \end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils' Bk 6 Pg 40 exercise 5:10

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:

$$\begin{aligned} &123_{\text{five}} \text{ base ten} \\ &123 \end{aligned}$$

One (5^0)

Fives (5^1)

Five fives (5^2)

$$\begin{aligned} &(1 \times 52) + (2 \times 51) + (3 \times 50) \\ &(1 \times 5 \times 5) + (2 \times 5) + (3 \times 1) \\ &(5 \times 5) + 10 + 3 \\ &25 + 10 + 3 \\ &35 + 3 \\ &38_{\text{ten}} \end{aligned}$$

38 ten to base six

6	38	rem 2
6	6	rem 0
6	1	rem 1
	0	

102_{six}

123_{five} = 102_{six}

(ii) 2t eleven to base nine

EVALUATION ACTIVITY:

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

Remarks:

LESSON 15:

SUB TOPIC: BASES (OPERATION ON BASES – ADDITION)

CONTENT:

Example:

$$\begin{array}{r} 225_{\text{six}} \\ + 434_{\text{six}} \\ \hline 1103_{\text{six}} \end{array} \qquad \begin{array}{l} 9 \div 6 = 1 \text{ r } 3 \\ 6 \div 6 = 1 \text{ r } 0 \\ 7 \div 6 = 1 \text{ r } 1 \end{array}$$

143_{five} + 11_{five} (answer in base ten)

23_{seven} + 12_{six} (answer in base five)

EVALUATION ACTIVITY:

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

Remarks:

LESSON 16:**SUB TOPIC: BASES (SUBTRACTION OF BASES)****CONTENT:** Examples:

(I) $671_{\text{nine}} - 285_{\text{nine}}$
 Solution:

$$\begin{array}{r} 56^{15} 10 \\ {}^5 67^6 4_{\text{nine}} \\ - 285_{\text{nine}} \\ \hline 375_{\text{nine}} \end{array}$$

$9 + 1 = 10$
 $9 + 6 = 15$

(II) $345_{\text{six}} - 234_{\text{six}}$ (answer in base six)

EVALUATION ACTIVITY:

A New MK Old Edition Pupils Bk 7 Pg 39 exercise 3:3

Remarks:**LESSON 17:****SUB TOPIC: MULTIPPLICATION OF BASES****CONTENT:** Example:

(i) $121_{\text{three}} \times 2 = 2$

$$\begin{array}{r} 121_{\text{three}} \\ \times 2_{\text{three}} \\ \hline 1012_{\text{three}} \end{array}$$

$2 \times 2 = 4$
 $4 \div 3 = 1 \text{ rem } 1$
 $1 \times 2 = 2 + 1$
 $3 \div 3 = 1 \text{ rem } 0$

(ii) $345_{\text{six}} \times 14_{\text{six}}$

$$\begin{array}{r} 345_{\text{six}} \\ \times 14_{\text{six}} \\ \hline 21312 \\ 345 \\ \hline 10202_{\text{six}} \end{array}$$

$5 \times 2 = 20$
 $20 \div 6 = 3 \text{ rem } 2$
 $4 \times 4 = 16 + 3$
 $10 \div 6 = 3 \text{ rem } 1$
 $3 \times 4 = 12 + 3$
 $15 \div 6 = 2 \text{ rem } 3$

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) $204_{\text{five}} \div 14_{\text{five}}$
 Solution:
 $204_{\text{five}} - \text{base ten}$
 $(2 \times 52) + (0 \times 51) + (4 \times 50)$
 $(2 \times 5 \times 5) + (0 \times 5) + (4 \times 1) + (10 \times 5) + 0 + 4$
 $50 + 4$
 54_{ten}

14_{five}
 $(1 \times 51) + (4 \times 50)$
 $(1 \times 5) + (4 \times 1)$
 $5 + 4$
 $= 9_{\text{ten}}$
 $5 \div 9_{\text{ten}}$
 6_{ten}

6ten – base five

5	6	rem 1
5	1	rem 1
	0	

11 five

(ii) $448_{\text{nine}} \div 17_{\text{nine}}$ (answer in Septenary base)

EVALUATION ACTIVITY:

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

Remarks: First change to base ten then divide and convert to base five.

LESSON 19:

SUB TOPIC: FINDING THE UNKNOWN BASE (MISSING BASE)

CONTENT: Examples:

- (i) If $44p = 35$ nine
 Solution:
 $(4 \times p) + (4 \times p_0) = (3 \times 9^1) + (5 \times 9^0)$
 $(4 \times p) + (4 \times 1) = (3 \times 9) + (5 \times 1)$
 $4p + 4 = 27 + 5$
 $4p + 4 = 32$
 $4p + 4 - 4 = 32 - 4$
 $4p + 0 = 28$
 $\frac{4p}{4} = \frac{28}{4}$
 $P = 7$

- (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:

TOPIC: OPERATION ON NUMBERS

LESSON 1:

SUB TOPIC: ADDITION OF LARGE NUMBERS

CONTENT: Examples:

Add correctly:

- (i)
$$\begin{array}{r} 615\ 146\ 144 \\ + 320\ 005\ 614 \\ \hline 935\ 151\ 758 \end{array}$$

- (ii) The population in four countries of a district shows that county A is 23,467, county B is 21 602, county C is 19466 and county D is 25 102. What is the total population in the district?

County A	23467
County B	21602

County C	19466
County D	25012

89 547

Emphasis on place value arrangement and re-grouping.

EVALUATION ACTIVITY:

A New MK Bk 7 exercise 3:1 Pg 45

Primary School Mathematics Bo 7 exercise 2 Pg 11.

Remarks:

LESSON 2:

SUB TOPIC: SUBTRACTION OF LARGE NUMBERS

CONTENT: Examples:

Subtract correctly:

- (i)
$$\begin{array}{r} 596\ 148\ 320 \\ - 239\ 610\ 510 \\ \hline \end{array}$$

356 537 810

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

$$\begin{array}{r} 3\ 0\ 6\ 0 \\ - 186 \\ \hline \end{array}$$

2874

- (iii) Emphasis on place value arrangement and regrouping.

EVALUATION ACTIVITY:

A New MK Bk 7 exercise 3:1 Pg 45

Primary School Mathematics Bk 7 exercise 2 Pg 11.

Remarks:

LESSON 3:

SUB TOPIC: MULTIPLICATION OF LARGE NUMBERS

CONTENT: Examples: Multiply:

(i) $214\ 032 \times 1324$

$$\begin{array}{r} 214032 \\ \times 1324 \\ \hline \end{array}$$

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

$$\begin{array}{r} 1973 \\ \times 34 \\ \hline \end{array}$$

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

$$\begin{array}{r} 18914 \\ 132 \overline{) 3816648} \\ \underline{-264} \\ 1176 \\ \underline{-1056} \\ 1206 \\ \underline{-1188} \\ 184 \\ \underline{-132} \\ 528 \\ \underline{-528} \\ 0 \end{array}$$

= 28914

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

$$\begin{array}{r} 421 \\ 15 \overline{) 6315} \\ \underline{60} \\ 31 \end{array}$$

$$\begin{array}{r} -30 \\ 15 \\ \hline -15 \end{array}$$

EVALUATION ACTIVITY:

A New MK Bk 7 exercise 3:2 Pg 46

Remarks:

LESSON 5:

SUB TOPIC: DISTRIBUTIVE PROPERTY

CONTENT: Examples:

Use the distributive property to work out:

$$\begin{aligned} \text{(i)} \quad & (379 \times 27) + (27 \times 21) \\ & \text{Re-arrange } (27 \times 379) + (27 \times 21) \\ & = 27 \times (379 + 21) \\ & = 27 \times (400) \\ & = 27 \times 400 \\ & = 10800 \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad & (137 \times 42) - (37 \times 42) \\ & (137 \times 42) - (37 \times 42) \\ & = (42 \times 137) - (42 \times 37) \\ & = 42 \times (137 - 37) \\ & = 42 \times 100 \\ & = 4200 \end{aligned}$$

ASSOCIATIVE PROPERTY

Example

Use the associative property to workout

$$\begin{aligned} (5+8)+2 &= 5+(8+2) = (5+2)+8 \text{ the alteration of the position of the brackets does not change the} \\ 13+2 &= 5+10 = 7+8 \quad \text{result} \\ 15+15 &= 15 \end{aligned}$$

$$\begin{aligned} (5 \times 8) \times 2 &= 5 \times (8 \times 2) = (5 \times 2) \times 8 \text{ The alteration of the position of the brackets does not change the} \\ 40 \times 2 &= 5 \times 16 = 10 \times 8 \quad \text{result.} \end{aligned}$$

$$80 \quad 80 = 80$$

Conclusion : the associative property holds for both addition and multiplication.

Commutative property

Example

$$4+3 = 3+4 \text{ What you start with does not affect the result}$$

$$7 \quad 7$$

$$4 \times 3 = 3 \times 4 \text{ (What you start with does not affect the result)}$$

$$12 = 12$$

Conclusion: The commutative property holds for both addition and multiplication

Given that $t*y = ty+y$

Find;

- i) $2*3$
- 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: 4^2+4 using index rule
 $= 4^6$

Method 2: Using expanded form $4^2 \times 4^4$
 $= 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4$
 $= 4^6$

- (ii) Work out: $43 \div 42$
 Method 1: Using the index rule.
 $43 \div 42$
 $= 4^{3-2}$
 $= 4^1$
 $= 4$

Method 2: $43 \div 42 = 4 \times 4 \times 4$
 $= \frac{4 \times 4}{1} = 4$

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.

2	32	$2^x = 2 \times 2 \times 2 \times 2 \times 2$ $2^x = 2^5$ $\therefore X = 5$
2	16	
2	4	
2	2	
	1	

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

3	81	$3^y \times 3^1 = 3 \times 3 \times 3 \times 3$ $3^y \times 3^1 = 3^4$ $3^{y+1} = 3^4$ $Y + 1 = 4$ $Y - 1 = 4 - 1$ $\therefore Y = 3$
3	27	
3	9	
3	3	
	1	

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

2	108	$2^t \times 3^3 = 2 \times 2 \times 3 \times 3 \times 3$ $2^t \times 3^3 = 2^2 \times 3^3$ $2^t \times 3^3 \div 3^3 = 2^2 \times 3^3 \div 3^3$ $2^t = 2^2$ $t = 2$
2	54	
3	27	
3	9	
3	3	
	1	

EVALUATION ACTIVITY:

Mathematics Bk 7 exercise 3:10 Pg 53

Remarks:

LESSON 8:**SUB TOPIC: APPLICATION OF INDICES****CONTENT:** Finding missing indices by division

Examples: Solve:

(i) $2^x \div 2^1 = 8$

Factorize 8 using 2.

$$\begin{array}{r|l} 2 & 8 \\ 2 & 4 \\ 2 & 2 \\ \hline & 1 \end{array}$$

$2^x \times 2^1 = 2 \times 2 \times 2$

$2^x \times 2^1 = 2^3$

$2^{x-1} = 2^3$

$x - 1 = 3$

$x - 1 + 1 = 3 + 1$

$\therefore x = 4$

(ii) $4^{3x} \div 4^x = 256$

Factorise 256 using 4.

$$\begin{array}{r|l} 4 & 256 \\ 4 & 64 \\ 4 & 16 \\ 4 & 4 \\ \hline & 1 \end{array}$$

$4^{3x} \div 4^x = 4 \times 4 \times 4 \times 4 \times 4$

$4^{3x} \div 4^x = 4^4$

$4^{3x-x} = 4^4$

$3x - x = 4$

$2x = 4$

$\frac{2x}{2} = \frac{4}{2}$

$2 \quad 2$

$\therefore x = 2$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 3:11 Pg 54

Remarks:**LESSON 7:****SUB TOPIC: SQUARE NUMBERS AND SQUARE ROOTS****CONTENT:**

Examples:

(i) Find the square of 4.

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

(ii) Find the square root of 4.

$$4 = \begin{array}{r|l} 2 & 4 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 2 \\ \hline & 1 \end{array} = \sqrt{2 \times 2} = 2$$

(iii) Find the square root of $7\frac{1}{9}$

First change it to improper fraction: $\frac{(7 \times 9) + 1}{9}$

$$\frac{63 + 1}{9} = \frac{64}{9}$$

$$\begin{array}{r|l} 2 & 64 \\ 2 & 32 \\ 2 & 8 \\ 2 & 4 \\ 2 & 2 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 3 & 9 \\ 3 & 3 \\ \hline & 1 \end{array}$$

Therefore $\frac{64}{9} = \frac{8}{3}$
 $= 2\frac{2}{3}$

$$\begin{array}{l} 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \\ 2 \times 2 \times 2 = 8 \end{array}$$

3

(iv) Find the square root of 0.36

EVALUATION ACTIVITY:

A New MK Pupils Bk 6 (Old Edition) Pg 90 – 92 exercise 9:23, 9:24, 9:25 & 9:26

Remarks:**LESSON 8:****SUB TOPIC: CUBE ROOTS****CONTENT:**

Example:

Find the cube root of 8.

$\sqrt[3]{8}$

$$\begin{array}{r|l} 2 & 8 \\ 2 & 4 \\ 2 & 2 \\ \hline & 1 \end{array}$$

$$^3\sqrt{8} = 2 \times 2 \times 2 = 2$$

Method 2:

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

$$2^{(3 \times 1/3)} = 2^1 = 2$$

EVALUATION ACTIVITY:

Teachers' collection

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

Remarks:

LESSON 9:

SUB TOPIC: APPLICATION OF SQUARE AND CUBIC NUMBERS

CONTENT:

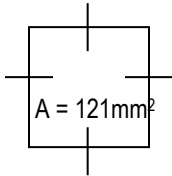
Example:

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

Sketch:

$$\text{Area of a square} = S^2$$

$$S^2 = 121 \text{ mm}^2$$



$$\sqrt{S^2} = \sqrt{121 \text{ mm}^2}$$

$$\sqrt{S \times S} = \sqrt{11 \text{ mm} \times 11 \text{ mm}}$$

$$S = 11 \text{ mm}$$

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

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

$$3 L^3 = 3 \times 64 \text{ m}^3$$

2	64
2	32
2	16
2	8
2	4
2	2
2	1

$$64 = 2^6$$

$$= 2^6 \times 1/3$$

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

$$L = 4 \text{ m}$$

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 $3^x \div 3^2 = 27$
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 ldd day. How many remained?
8. At a party, 4848 people were served with sodas each. How many crates of soda were bought if each crate contains 24 bottles?
9. Work out (a) $2.5 \times 13 + 2.5 \times 7$
(b) $4.5 \times 75 - 4.5 \times 25$
10. What number must be added to 54068 to give 60000?

TOPIC 4: PATTERNS AND SEQUENCES

LESSON 1:

SUB TOPIC: DIVISIBILITY TESTS

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

Divisibility for 2.

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

Test for 3:

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

Test for 4:

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

Test for five (5):

A number is divisible by 5 if the last digit in the ones place is either 0 or 5. eg 360 or 805.

EVALUATION ACTIVITY:

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

Remarks:

LESSON 2:

SUB TOPIC: DIVISIBILITY TESTS

CONTENT: Divisibility tests for numbers 6 to 10.

Test for 6:

A number is divisible by 6 if it is divisible by 2 and 3. In other words a number is divisible by 6 if it is even and the sum of its digits is divisible by 3.

Example:

618 is divisible by 6 since it is an even number and the sum of its digits $6 + 1 + 8 = 15$ is divisible by 3.

738 is divisible by 6 since it is an even number and the sum of its digits $7 + 3 + 8 = 18$ is divisible by 3. Therefore 738 is divisible by 6.

Test for 7:

When the last digit of a number is doubled and the result is subtracted from the number formed by the remaining digits, the outcome is divisible by 7.

Example: Take the number 861. the last digit is 1 and the number formed by the remaining digits is 86, double 1 to give $(1 \times 2) = 2$

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.

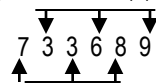
Test for 10:

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: 

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, 733689 is divisible by 11.

EVALUATION ACTIVITY:

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

Remarks:

LESSON 3:

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

CONTENT: Definition of:

(i) Whole numbers:

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

(ii) Natural numbers:

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

(iii) Odd numbers:

Any number which is not exactly divisible by 2 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,

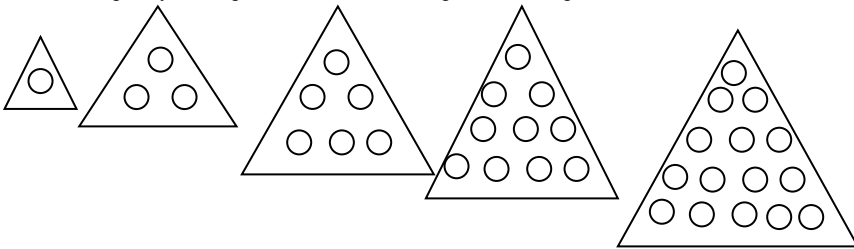
- (v) **Prime numbers:**
Numbers with only two factors. One and itself. The first prime number is 2. 2 is the only even/prime number.
eg 2, 3, 5, 7,

EVALUATION ACTIVITY:

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

Remarks:**LESSON 4:****SUB TOPIC: COMPOSITE, TRIANGULAR, SQUARE, CUBE NUMBERS****CONTENT:** 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.

1	1 + 3	1 + 3 + 5	1 + 3 + 5 + 7	1 + 3 + 5 + 7 + 9	
1	4	9	16	25	
					$1 \times 1 = 1$ $2 \times 2 = 4$ $3 \times 3 = 9$ $4 \times 4 = 16$ $5 \times 5 = 25$

- (iv) **Cube numbers:**
Numbers got by multiplying a number by itself twice.

Eg

$1 \times 1 \times 1 =$	$1^3 =$	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

(v)

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. $1 \times 2 \times 3$, etc

Examples:

(i) $M6 = \{6 \times 1, 6 \times 2, 6 \times 3, 6 \times 4, 6 \times 5, 6 \times 6, 6 \times 7, \dots\}$
 6 12 18 24 30 36 42

(ii) $M8 = \{8 \times 1, 8 \times 2, 8 \times 3, 8 \times 4, 8 \times 5, 8 \times 6, 8 \times 7, \dots\}$
 8 16 24 32 40 48 56

(ii) $M9 = \{9 \times 1, 9 \times 2, 9 \times 3, 9 \times 4, 9 \times 5, 9 \times 6, 9 \times 7, \dots\}$
 9 18 27 36 45 54 63

- (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**

$6 \div 1 = 6$

$6 \div 2 = 3$

$6 \div 3 = 2$

$6 \div 6 = 1$

$F_6 = 1, 2, 3, 6$

Note F_6 means factors of 6.**Find factors of 9.**

$1 \times 9 = 9$

$3 \times 3 = 9$

$F_9 = \{1, 3, 9\}$

$1 \times 6 = 6$

$2 \times 3 = 6$

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

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 4:7 Pg 81

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

Examples:

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

2	24	36	40
2	12	18	20
2	6	9	10
3	3	9	5
3	1	3	5
5	1	1	5
	1	1	1

$$= 2 \times 2 \times 2 \times 3 \times 3 \times 5$$

$$= 4 \times 6 \times 15$$

$$= 4 \times 90$$

$$= 360$$

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

2	6	8	12
	3	4	6

$$= 2$$

EVALUATION ACTIVITY:

Mathematics Revision Hand Book for Primary 5 – 7 exercise 4:1 Pg 62

A New MK Primary Six Mathematics

Remarks:**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 remainder?
- (iii) Two bells are used in Sir Apollo at intervals of 30 minutes and 40 minutes respectively. They are first rung together at 8:45 am, when will the two bells ring together again?
- (iv) The product of two numbers is 240. One of them is 60, work out their:
- (a) LCM
- (b) GCF
- (v) The LCM of x and y is 48 and HCF is 4. If x 16 find y.

EVALUATION ACTIVITY:

MK Primary Mathematics Bk 6 exercise 9:20 Pg 85 (Old Edition)

Oxford Primary Mathematics Bk 6 Pg 35

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

The sum of three consecutive counting numbers is 18. Find the numbers.

Solution: Let the first number be r.

1 st No.	2 nd No.	3 rd No	Sum
R	R + 1	R + 2	18

$$r + r + 1 + r + 2 = 18$$

$$r + r + r + 1 + 2 = 18$$

$$3r + 3 = 18$$

$$3r + 3 - 3 = 18 - 3$$

$$3r = 15$$

$$3r = 15$$

$$3 \quad 3$$

$$R = 5$$

$$1^{\text{st}} \text{ no.} = r = 5$$

$$2^{\text{nd}} \text{ No.} = r + 1 \text{ but } r = 5$$

$$5 + 1 = 6$$

$$3^{\text{rd}} \text{ No.} = r + 2$$

$$\text{Where } r = 5$$

$$5 + 2 = 7$$

The numbers are

5, 6, and 7

Example ii.

The sum of 3 consecutive odd numbers is 15. Find the numbers:

Solution:

Let the first number be y .

1 st No.	2 nd No.	3 rd No	Total
Y	$Y + 2$	$Y + 4$	15

$$y + Y + 2 + y + 4 = 15$$

$$y + y + Y = 2 + 4 = 15$$

$$3y + 6 = 15$$

$$3y + 6 - 6 = 15 - 6$$

$$3y = 9$$

$$\frac{3y}{3} = \frac{9}{3}$$

$$y = 3$$

$$1^{\text{st}} \text{ No. } y = 3$$

$$2^{\text{nd}} \text{ No } y + 2 = y$$

$$\text{Where } y = 3$$

$$3 + 2 = 5$$

$$3^{\text{rd}} \text{ No. } = y + 4$$

$$\text{where } y = 3 \quad 3 + 4 = 7$$

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:

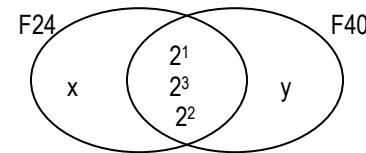
A New MK Primary Bk 6 Pg 76 exercise 9:8 9Old Edition)

Remarks:

TOPICAL EXERCISE:

- Find the sum of even numbers between 13 and 31.
- List down all the composite numbers between 2 and 15.

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



- Find the value of x and y .
- 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:

$$\begin{array}{rcl}
 1 & 14/9 = 9 \overline{)14} & \\
 & - 9 & \\
 & \hline
 & 5 &
 \end{array}
 \qquad
 \begin{array}{rcl}
 2 & 211 = 14 \overline{)211} & \\
 & - 14 & \\
 & \hline
 & 71 & \\
 & - 70 & \\
 & \hline
 & 1 &
 \end{array}$$

$$\therefore \frac{14}{9} = \frac{15}{9}$$

$$\therefore \frac{211}{14} = \frac{151}{14}$$

Express as improper fractions:

$$\begin{aligned} 1. \quad 6\frac{2}{3} &= \frac{6 \times 3 + 2}{3} \\ &= \frac{18 + 2}{3} = \frac{20}{3} \\ \therefore 6\frac{2}{3} &= \frac{20}{3} \end{aligned}$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 2:

SUB TOPIC: CHANGING FRACTIONS TO DECIMALS AND VISE VERSA

CONTENT: Changing fractions to decimals and decimals to fractions

Examples:

- Changing fractions to decimals:

$$\begin{array}{r} 5 \\ 8 \end{array} = 8 \overline{) 50} \begin{array}{r} 0.625 \\ -48 \\ \hline 20 \\ -16 \\ \hline 40 \\ -40 \\ \hline - \end{array}$$

$$\frac{5}{8} = 0.625$$

$$\begin{array}{r} 1 \\ 3 \end{array} = 3 \overline{) 10} \begin{array}{r} 0.3333 \\ -9 \\ \hline 10 \\ -9 \\ \hline 10 \\ -9 \\ \hline 10 \\ -9 \\ \hline 1 \end{array}$$

$$\frac{1}{3} = 0.33\ldots$$

- Changing decimals to fractions:

$$(i) \quad 0.25 = \frac{25}{100} = \frac{1}{4}$$

$$2. \quad 0.125 = \frac{125}{1000} = \frac{1}{8}$$

$$0.25 = \frac{1}{4}$$

$$0.125 = \frac{1}{8}$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 3:

SUB TOPIC: CHANGING RECURRING DECIMALS TO RATIONAL NUMBERS AND VISE VERSA

CONTENT: Changing recurring decimals to rational numbers and rational numbers to recurring decimals.

Examples:

- Changing recurring decimals to rational numbers:

1. $0.33\ldots$	2. $0.45\ldots$
Let the No. be y	Let the No. be t
$Y = 0.33\ldots$	$t = 0.45\ldots$
$10 \times y = 0.33\ldots \times 10$	$100 \times t = 0.45\ldots \times 100$
$10y = 3.33\ldots$	$100t = 45.45\ldots$
$10y = 3.33\ldots$	$\underline{-t} \quad \underline{-0.45\ldots}$
$-y = \underline{0.33\ldots}$	$99t = 45$
$\frac{9y}{9} = \frac{3}{9}$	$\frac{99t}{99} = \frac{45}{99}$
$Y = \frac{1}{3}$	$y = \frac{5}{11}$

$$\begin{aligned} 3. \quad &0.1666\ldots \\ &\text{Let the No be a} \\ &a = 0.1666\ldots \\ &10 \times a = 0.1666\ldots \\ &10a = 1.666\ldots \\ &100 \times a = 0.166\ldots \times 1000 \\ &100a = 16.666\ldots \\ &100a = 16.666\ldots \\ &\underline{-10a} = \underline{-1.666\ldots} \\ &90a = 15 \\ &\frac{90a}{90} = \frac{15}{90} \\ &a = \frac{1}{6} \end{aligned}$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 4:
SUB TOPIC: CHANGING RATIONAL NUMBERS TO DECIMALS

CONTENT: Changing rational numbers to decimals

Examples:

$1. \quad \frac{3}{11} = 0.2727$ $\begin{array}{r} 11 \overline{) 30} \\ \underline{22} \\ 80 \\ \underline{-77} \\ 30 \\ \underline{-22} \\ 80 \\ \underline{-77} \\ 2 \end{array}$ $\frac{3}{11} = 0.2727...$	$2. \quad \frac{1}{12} = 0.08333$ $\begin{array}{r} 12 \overline{) 100} \\ \underline{-96} \\ 40 \\ \underline{-36} \\ 40 \\ \underline{-36} \\ 40 \\ \underline{-36} \\ 4 \end{array}$ $\frac{1}{12} = 0.833....$
---	--

EVALUATION ACTIVITY:

Macmillan Primary Mathematics Bk 7 exercise 1 Pg 81.

Remarks:

LESSON 5:
SUB TOPIC: OPERATIONS OF FRACTIONS

CONTENT: Addition and subtraction

Examples:

$1. \quad \frac{1}{3} + \frac{1}{2} = \frac{2+3}{6}$ $= \frac{5}{6}$	$2. \quad \frac{1\frac{3}{4}}{4} + \frac{1\frac{5}{6}}{6}$ $\frac{7}{4} + \frac{11}{6}$ $\frac{21}{12} + \frac{22}{12} = \frac{43}{12}$ $= 3\frac{7}{12}$
--	---

Subtract:

$1. \quad \frac{3}{4} - \frac{1}{3}$ $= \frac{9-4}{12}$ $= \frac{5}{12}$	$2. \quad 3\frac{5}{6} - 1\frac{4}{5}$ $= \frac{23}{6} - \frac{9}{5}$ $= \frac{115-54}{30}$ $\frac{61}{30}$ $= 2\frac{1}{30}$
--	---

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercises 5:2 and 5:3 Pg s73/74

Remarks:

LESSON 6:
SUB TOPIC: OPERATION ON FRACTIONS

CONTENT: Multiplication of fractions

Examples:

$1. \quad \frac{1}{5} \times 3$ $= \frac{3}{5}$	$2. \quad \frac{1}{3} \times \frac{3}{4}$ $= \frac{1}{3} \times \frac{3}{4} = \frac{1}{4}$
$2. \quad 2\frac{1}{4} \times 1\frac{1}{5}$ $\frac{9}{4} \times \frac{6}{5} = \frac{27}{10}$ $= 2\frac{7}{10}$	

EVALUATION ACTIVITY:

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

Remarks:

LESSON 7:

SUB TOPIC: OPERATION ON FRACTIONS

CONTENT: Division of fractions

Examples:

$1. \quad \frac{2}{5} \div \frac{1}{2}$ $= \frac{2}{5} \times \frac{1}{2}$ $\frac{1}{5}$	$2. \quad \frac{3}{4} \div \frac{1}{2}$ $= \frac{3}{4} \times \frac{1}{2} \quad \text{LCM} = 4$ $\frac{(3 \times 4)}{4} \div \frac{(1 \times 4)}{2}$ $3 \div 2 = \frac{3}{2}$ $= 1\frac{1}{2}$
--	--

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercises 5:9 and 5:5 Pg 80

Remarks:

LESSON 8:**SUB TOPIC: USE OF BODMAS TO SIMPLIFY MIXED FRACTION****CONTENT:** Combined operations

Brackets

Of

Division

Multiplication

Addition

Subtraction

Examples:

$$\begin{aligned}
 1. \quad & \frac{2}{3} \text{ of } \frac{3}{4} - \frac{1}{3} \\
 & \frac{2}{3} \times \frac{3}{4} - \frac{1}{3} \\
 & \frac{1}{2} - \frac{1}{3} \\
 & \frac{3-2}{6} \\
 & = \frac{1}{6}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad & \frac{5}{6} - \frac{3}{4} \text{ } 1 \frac{1}{2} \\
 & \frac{5}{6} - \frac{3}{4} \div \frac{3}{2} \\
 & \frac{5}{6} - \frac{3}{4} \times \frac{2}{3} \\
 & \frac{5}{6} - \frac{1}{2} = \frac{5-3}{6} \\
 & = \frac{2}{6} = \frac{1}{3}
 \end{aligned}$$

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?
- $$1 - \frac{13}{20} = \frac{20}{20} - \frac{13}{20} = \frac{7}{20}$$

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

- (a) What fraction did C contribute?
- (b) If C contributed shs 30,000 what was their total contribution?

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

(a) What fraction of his money was left?

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

EVALUATION ACTIVITY:

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

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:

Tap A Tap B

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

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

In 1 minute the tank will be $1 \frac{1}{2}$ $= 1 \times 2$
 $1 = 2$ minutes.

i.e $\frac{1}{2}$ (1 part is filled in 1 minute
 $\frac{2}{2}$ (2 parts are filled in 2 minutes.

Method 2: Product

Time taken by Sum

The two taps

$$= \frac{\text{Tap A} \times \text{tap B}}{\text{Tap A} + \text{tap B}}$$

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

$$= \frac{18}{9}$$

2minutes

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 $\frac{1}{3}$

$$\text{Remained fraction: } 1 - \frac{1}{3} = \frac{3}{3} - \frac{1}{3} = \frac{2}{3}$$

$$\text{Fraction spent on transport: } \frac{1}{6} \text{ of } \frac{2}{3} = \frac{1}{6} \times \frac{2}{3} = \frac{2}{18} = \frac{1}{9}$$

$$\text{Total fraction spent on transport and books: } \frac{1}{3} + \frac{1}{9} = \frac{3}{9} + \frac{1}{9} = \frac{4}{9}$$

$$\text{Remained fraction} = 1 - \frac{4}{9} = \frac{9}{9} - \frac{4}{9} = \frac{5}{9}$$

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

Let the total be y.

$$\frac{5}{9} \text{ of } y = 15,000 =$$

$$\frac{5}{9} \times y = 15,000 =$$

$$\frac{5y}{9} = 15,000$$

$$\times \frac{9}{5} = 15000 \times \frac{9}{5}$$

$$Y = 3000 \times 9$$

$$= \text{shs } 27,000 =$$

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

TH	H	T	O	T th	H th	TH th
4	3	7	8	2	5	9

Place values are:

4 Thousand (1000)

3 Hundreds (100s)

7 Tens (10s)

8 Ones (1s)

2 Tenths ($\frac{1}{10}$)

5 Hundredths ($\frac{1}{100}$)

9 Thousandths ($\frac{1}{1000}$)

Values of digits

$$\text{Value of 7} = 7 \times 10$$

$$= 70$$

$$\text{Value of 2} = 2 \times \frac{1}{10}$$

$$\frac{2}{10}$$

$$= 0.2$$

Operation on values of digits in decimals

Evaluation

A new MK pri mtc bk 6

Mtc revision hand bk 5 – p.7 pg25

LESSON 12:

SUB TOPIC: reading and writing decimals in words

CONTENT:

Examples:

Write the following decimals in words

232.76

H	T	O	T th	H th
2	3	2	.7	6

Twenty three and two hundred seventy six thousand

378.01

H	T	O	T th	H th
3	7	8	.0	1

Three hundred seventy eight and one hundredths

Writing decimals in figures

Thirty six and seventeen hundredths

Thirty six 36

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

$$0.17$$

$$36 + 0.17$$

36.017

$$\begin{array}{r} 36.00 \\ +0.17 \\ \hline 36.17 \end{array}$$
LESSON 13:**SUB TOPIC: EXPANDING DECIMALS USING VALUES AND POWERS/EXPONENTS OF 10****CONTENT: Expand 486.5729 using:**

(a) **Values:**

$$(4 \times 100) + (8 \times 10) + (6 \times 1) + \left(5 \times \frac{1}{10}\right) + \left(7 \times \frac{1}{100}\right) + \left(2 \times \frac{1}{1000}\right) + \left(9 \times \frac{1}{10000}\right)$$

$$400 + 80 + 6 + \frac{5}{10} + \frac{7}{100} + \frac{2}{1000} + \frac{9}{10000}$$

$$486.5129 = 400 + 80 + 6 + 0.5 + 0.007 + 0.002 + 0.0009$$

b)

10^2	10^1	10^0	10^{-1}	10^{-2}	10^{-3}	10^{-4}
4	8	6	5	7	2	9

$$(4 \times 10^2) + (8 \times 10^1) + (6 \times 10^0) + (5 \times 10^{-1}) + (7 \times 10^{-2}) + (2 \times 10^{-3}) + (9 \times 10^{-4})$$

EVALUATION ACTIVITY:

A New MK Primary Mathematic Pupils Bk 7 Pg 90 Exercise 7:11.

Remarks:**LESSON 14:****SUB TOPIC: WRITING DECIMALS IN SHORT FORM****CONTENT: Find the number expanded:**

(i) $600 + 70 + 8 + 0.2 + 0.003$

Solution:

$$\begin{array}{r} 600.000 \\ 70.000 \\ 8.000 \\ 0.200 \\ + 0.003 \\ \hline 678.203 \end{array}$$

(ii) $(5 \times 10^3) + (7 \times 10^2) + (3 \times 10^1) + (4 \times 10^0) + (9 \times \frac{1}{10}) + (6 \times \frac{1}{10^2})$

Solution:

$$(5 \times 1000) + (7 \times 100) + (3 \times 10) + (4 \times 1) + (9 \times 0.1) + (6 \times 0.01)$$

$$(5000 + 700 + 30 + 4 \times 0.9 + 0.06)$$

$$5734.96$$

EVALUATION ACTIVITY:

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

Remarks:**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
 3.6572×10^2

(ii) 0.67
 6.7×10^{-1}

(iii) 0.00098
 9.8×10^{-4}

Finding decimals expressed in Scientific notation.**EVALUATION ACTIVITY:**

- Express the following in standard notation/Scientific form
- Find the decimal number expressed in standard form.
 - 2.34×10^{-2}
 - 6.1×10^{-2}

Ref: MTC Revision Hand Book P.6, 6, P.7 Pg 29

Remarks:**LESSON 16:****SUB TOPIC: ROUNDING OFF DECIMALS****CONTENT:****Example:****Round off the following decimals as instructed:**

4.78516 to the nearest thousandths.

Solution:

0	Tth	Hth	THth	Hth
4.	7	8	5	6

+0

4.	7	8	5	0	0
----	---	---	---	---	---

4.78516 to the nearest thousandths = 4.885

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

0	Tth	Hth	THth	Hth
7	5	6	3	4
<u>+1</u>				
7	6	0	0	0

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	2.	5 - 0.03
	= 3.4		5.00
	+ 0.23		- 0.03
	<u>3.63</u>		<u>4.97</u>

3.	8 - 5.16 + 3.07
	Re-arrange first 8 + 3.07 - 5 - 16
	8.00 11.07
	+ 3.07 - 5.16
	<u>11.07</u> <u>5.91</u>

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.

$\frac{36}{100} \times 1000$	$\frac{54}{1000} \times 1000$	$\frac{7}{100} \times 1000$	$\frac{8}{10} \times 1000$
360	54	70	800

3.6 x 10		7 x 10	8 x 10
= 360	= 54	= 70	= 800

∴ 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	2.	11.9 x 0.3
	= 27.36		$\frac{119}{10} \times \frac{3}{10}$
	X 6		
	<u>164.16</u>		<u>3.57</u>

$$\frac{100}{3.57} = 0.09$$

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 7:15 Pg 96 (Old Edition)

Remarks:**LESSON 20****SUB TOPIC: DECIMALS****CONTENT:** Division of decimals

Examples:

1. $0.72 \div 9$

$$\frac{72}{100} \div \frac{9}{1}$$

$$\frac{72}{100} \times \frac{9}{1}$$

$$\frac{8}{100}$$

$$= 0.08$$

2. $0.12 \div 0.3$

$$\frac{12}{100} \div \frac{3}{10} = \frac{4}{10}$$

$$= 0.4$$

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 7:16 Pg 97 (Old Edition)

Remarks:**LESSON 20****SUB TOPIC: DECIMALS****CONTENT:** Multiplication and division of decimals

Examples:

1. 0.24×0.3

$$\frac{24}{100} \times \frac{3}{10} = \frac{72}{1000}$$

$$= \frac{24}{100} \times \frac{3}{10} \times \frac{10}{8}$$

$$= \frac{3 \times 3}{100} = \frac{9}{100}$$

$$= 0.09$$

EVALUATION ACTIVITY:

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

Remarks:**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.

= $\frac{\text{Number of boys}}{\text{Number of girls}}$

$$= \frac{20}{30} \text{ lowest terms } \frac{2}{3}$$

The ratio of boys to girls is 2:3 and the ratio of girls to boys is 3:2

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 7:1 Pg 96 (Old Edition)

Remarks:**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

? : 80kg

4 parts make 80kg

$$1 \text{ part makes } \frac{80}{4} = 20$$

$$5 \text{ parts make } \frac{20}{100} \times 5$$

Example 2: Decrease 2000= in the ratio of 3:5

New : old

3 : 5

? : 2000

5 parts make 2000=

1 part makes 2000 = 400

3 parts make $400 \times 3 = 1200$

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 7:2 Pg 97 Nos 1 -6 (Old Edition)

Remarks:

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
 $24 \div 6$: $30 \div 6$
= 4 : 5

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 7:2 Pg 97 Nos 10, 111 & 12

Remarks:

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 = $\frac{4}{9} \times 18 = 4 \times 2$

2nd share = $\frac{5}{9} \times 18 = 5 \times 2$
= 10

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 7:3 Pg 99 (Old Edition)

Remarks:

P.1	P.2	Total
4parts	5parts	9parts
		18

4parts rep 18

1part rep $\frac{18}{9}$

4parts rep $\frac{18}{9} \times 4$

$\frac{18}{9} \times 4$
= 8

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

$\frac{2}{6}$ parts = $12000 \times \frac{2}{6}$

= 12000×3

= 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:

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=

$\frac{2}{6}$ books cost shs $2000 \times \frac{3}{2}$

2000×3

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

2

 \therefore 3 parts make 240×3

2

= 120×3

= 360 books

Method 2:

Let all the books be a $\frac{2}{3}$ of a

= 240 books

 $2a = 240$

3

 $3 \times 2a = 240 \times 3$ $2 \times 3 = 240 \times 3$ $\therefore a = 120 \times 3$

= 360 books

EVALUATION ACTIVITY:

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

Remarks:**LESSON 28****SUB TOPIC: PROPORTION****CONTENT:** Indirect/inverse proportion

Examples:

1. 4 men take 9 days to complete a job. How long will 12 men take to finish the job at the same rate?

4 men take 9 days

1 man take 9×4 days12 men take $\frac{9 \times 4}{12}$ days

= 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:

$$35\% = \frac{35}{100}$$

$$= \frac{35}{100} \div 5$$

$$= \frac{7}{20}$$

$$120\% = \frac{120}{100}$$

$$= \frac{6}{5}$$

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

Changing fractions into percentages:

Examples:

Write $\frac{1}{3}$ as a percentage.

Solution:

$$= \frac{1}{3} \times 100\%$$

$$= \frac{100\%}{3}$$

$$= 33\frac{1}{3}\%$$

$$\frac{2}{5} = 2 \times 100\%$$

$$= 2 \times 20\%$$

$$= 40\%$$

Changing percentage to decimals:

25% as a decimal

$$25\% = \frac{25}{100}$$

$$= 0.25$$

112% as a decimal

$$112\% = \frac{112}{100}$$

$$= 1.12$$

Changing decimals to percentages:

$$0.2 = \frac{2}{10}$$

$$= 2 \times \frac{10}{10}$$

1.5 as a percentage

$$1.5 = 15 \times \frac{10}{10}$$

$$\begin{array}{r} 10 \quad 10 \\ = \frac{20}{100} \\ = 20\% \end{array} \qquad \begin{array}{r} 10 \quad 10 \\ = \frac{150}{100} \\ = 150\% \end{array}$$

EVALUATION ACTIVITY:

Primary School Maths Bk 7 Pg 105 – 106 exercise 1 and 2.

A New MK Primary Mathematics 2000 Bk 7 Pg 105 – 106 exercise 8:1 and 8:2 & 8:4, 8:5

Primary Maths Revision and Practice (Gladys Wambuzi) Pg 70/71

Remarks:

LESSON 33**SUB TOPIC: CHANGING PERCENTAGES TO RATIOS AND VISE-VERSA**

CONTENT: Changing percentage to ratios

Examples:

Express the following as ratios:

$$\begin{array}{ll} 1. & 5\% \\ & 5\% = \frac{5}{100} \\ & = \frac{1}{20} \\ & \text{Ratio} = 1:20 \end{array} \qquad \begin{array}{ll} 2. & 33 \frac{1}{3}\% = 100\% \\ & \frac{100}{3} \frac{100}{1} \\ & = \frac{100}{3} \times \frac{1}{100} \\ & = \frac{1}{3} \\ & \text{Ratio} = 1:3 \end{array}$$

Changing ratios to percentages:

Examples:

Express as a percentage.

$$\begin{array}{lll} \text{(i)} & 4.5 & \text{(ii)} \quad \frac{1}{4} : \frac{1}{3} \quad \text{(iii)} \quad 1:8 \\ & \text{Ratio} = 4:5 & \\ & \text{Fraction} = \frac{4}{5} & \\ & \frac{4}{5} \times \frac{20}{20} & \\ & = \frac{80}{100} & \\ & = 80\% & \end{array} \qquad \begin{array}{ll} & \frac{1}{4} : \frac{1}{3} \\ & \frac{3}{4} \times 100\% \\ & = 3 \times 25\% \\ & = 75\% \end{array}$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 34**SUB TOPIC: PERCENTAGES**

CONTENT: Finding percentages of quantities

Examples:

$$\begin{array}{ll} 1. & \text{Find 40\% of 150} \\ & 40\% \text{ of } 150 \\ & \frac{40}{100} \times 150 \\ & = 4 \times 15 \\ & = 60 \end{array} \qquad \begin{array}{ll} 2. & \text{A piece of land is 200 hectares. A farmer used} \\ & \text{60\% of it for cultivation. How much land is = 40} \\ & \text{used for cultivation} \\ & \text{Cultivation} = 60\% \text{ of } 200 \\ & = \frac{60}{100} \times 200 \text{ hectares} \\ & = 60 \times 2 \text{ hectares} \\ & = 120 \text{ hectares} \end{array}$$

$$3. \quad \text{If 20\% of a number is 40, what is the number?}$$

Solution:

Let the number be x

$$20\% \text{ of } x = 40$$

$$\frac{20}{100} \times x = 40$$

$$\frac{x}{5} = 40$$

$$x \times 5 = 40 \times 5$$

$$x = 200$$

or:

$$20\% \text{ of a number} = 40$$

$$1\% \text{ of a number} = \frac{40}{20}$$

$$100\% \text{ of the number} = \frac{40 \times 100}{20}$$

$$= 40 \times 5 = 200$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 35**SUB TOPIC: FINDING THE REMAINING PERCENTAGES**

CONTENT: Examples

$$\begin{array}{ll} 1. & \text{If 40\% of a class is absent, what percentage is present?} \\ & \text{What percentage is a present?} \\ & \text{Those absent} = 40\% \\ & \text{Those present} = 100\% - 40\% \\ & = 60\% \end{array} \qquad \begin{array}{ll} 2. & 35\% \text{ of the pupils in a school like rice while 10\% like potatoes. If the rest like posho,} \\ & \text{what percentage of pupils like posho?} \\ & \% \text{ge for rice and potatoes} = 35\% + 10\% \\ & = 45\% \\ & \text{Percentage for posho} = 100\% - 45\% \end{array}$$

$$= 55\%$$

3. Expressing quantities and percentages:

Examples:

- (i) Write 20 as a percentage of 80.

$$\text{Fraction} = \frac{20}{80}$$

$$= \frac{1}{4} \times 100\% = \frac{100}{4} = 25\%$$

- (ii) Amos got 12 out of 25 in a Maths test. Express his mark as a percent.

$$\text{Fraction} = \frac{12}{25}$$

$$\text{Percentage} = \frac{12}{25} \times 100\% = \frac{12 \times 4}{1} = 48\%$$

$$= 12 \times 4\% = 48\%$$

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:

$$= 75\% \text{ of } 12,000 =$$

$$= \frac{75}{100} \times 12,000$$

$$= 75 \times 120$$

$$= 9,000$$

- (ii) How much does she save?

$$(100\% - 75\%) \text{ of } 12,000$$

$$= 25\% \text{ of } 12,000$$

$$\text{Or } 12,000 = 9,000 =$$

$$= \frac{25}{100} \times 12,000 = 25 \times 120 = 3,000$$

$$3,000 =$$

2. If 30% of my salary is spent on food and I save shs 21,000. What is my salary?

Solution:

Let the salary be P.

Method II

Total	Food	Savings
100%	30%	100% - 30% = 70%

$$70\% \text{ of } P = 21,000$$

$$70 \times P = 21,000$$

$$\frac{70}{100} \times P = 21$$

$$\frac{7P}{10} \times 10 = 210,000$$

$$\frac{7P}{10} = 210,000$$

$$\frac{7}{7} = \frac{210,000}{7}$$

$$P = 30,000 =$$

Percentage saved.

$$100\% - 30\% = 70\%$$

$$70\% \text{ of salary} = 21,000$$

$$10\% \text{ of salary} = \frac{21,000}{7} = 3,000$$

$$100\% \text{ of salary} = 300 \times 100$$

$$= 30,000 =$$

EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 8:11 & 8:12 Pg 113 - 114 (New Edition)

Remarks:

LESSON 38**SUB TOPIC: PERCENTAGE INCREASE AND DECREASE****CONTENT:** Percentage increase

Examples:

1. Increase 800 by 20%

$$\text{New amount} = 100\% + 20\% \text{ of old amount}$$

$$= 120\% \text{ of } 800$$

$$= \frac{120}{100} \times 800$$

$$= 960 =$$

2. Increase 800 pupils by
- $12\frac{1}{2}\%$
- :

$$\text{New number} = 100\% + 12\frac{1}{2}\% \text{ of old number}$$

$$= 112\frac{1}{2}\% \text{ of } 800 \text{ pupils}$$

$$= \frac{225}{2} \times 800 \text{ pupils}$$

$$= \frac{225}{2} \div \frac{100}{100} \times \frac{800}{100}$$

$$\begin{aligned}
 &= \frac{225}{2} \times \frac{1}{100} \times \frac{800}{1} \\
 &= (225 \times 4) \text{ pupils} \\
 &= 900 \text{ pupils}
 \end{aligned}$$

3. Increase shs 4800 by 10% and then by 20%
- Old amount = shs 4800
- 10% increment = $100\% + 10\% = 110\%$
- 20% increment = $100\% + 20\% = 120\%$
- = $110\% \times 120\%$ of shs 4800
- = $\frac{110}{100} \times \frac{120}{100} \times 4800$ New amount
- = $11 \times 12 \times 48$ = 6336

EVALUATION ACTIVITY:

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

Remarks:

LESSON 39

SUB TOPIC: PERCENTAGE DECREASE

CONTENT:

Examples:

1. Decrease shs 1,500 by 10%
- New amount as percentage
- = $100\% - 10\% = 90\%$
- New amount = 90% of 1500/=
- = $\frac{90}{100} \times 1500$
- = 90×15 =
- = 1350/=
2. Decrease 720 dollasa by $33\frac{1}{3}\%$
- New percentage = $100\% - 33\frac{1}{3}\%$
- = $66\frac{2}{3}\%$
- New amount = $66\frac{2}{3}\%$ of 720 dollars
- = $\frac{200}{3}\%$ of 720 dollars
- = $\frac{200}{3} \times \frac{1}{100} \times \frac{720}{1}$ dollars
- = 2×240 dollars
- = 480 dollars

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

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Pg 117 exercise 8:14

Mathematics Revision Handbook P5 – P7 Pg 101

Remarks:

LESSON 40

SUB TOPIC: FINDING THE ORIGINAL NUMBER AFTER %age INCREASE

CONTENT:

Examples:

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
- $120\%x = 1440$
- $\frac{120}{100}x = 1440$
- $10 \times \frac{12x}{10} = 1440 \times 10$
- $12x = \frac{14400}{12}$
- $x = \frac{14400}{12}$
- $x = 1,200$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 41

SUB TOPIC: FINIDNG THE ORIGINAL NUMBER AFTER THE DECREASE

CONTENT:

Examples:

1. A worker's salary was decreased by 35% to shs 1560.
- Let the old salary be x.
- New salary = $(100\% - 35\%)$ of x
- 1560 = $\frac{65}{100}x$
- 1560 x 100 = $\frac{65}{100}x \times 100$
- Method II:
- Percentage after decrease
- $100\% - 35\% = 65\%$
- 65% of the salary = 1560

$$\begin{array}{r} 120 \quad 20 \quad 100 \\ 1560 \times 100 = 65x \\ \hline 65 \quad 65 \\ \hline 5 \quad 1 \end{array}$$

$$120 \times 20 = x \\ 240 = x$$

$$\begin{array}{r} 24 \\ 1\% \text{ of salary} = \frac{1560}{100} \\ \hline 65 \\ \hline 1 \end{array}$$

$$100\% \text{ of salary} = 24 \times 100 \\ = 2,400 =$$

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

EVALUATION ACTIVITY:

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

Remarks:

LESSON 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

$$\begin{aligned} \text{Increase} &= 540 - 480 \\ &= 60 \end{aligned}$$

Percentage increase:

$$\begin{aligned} &= \frac{60}{480} \times 100\% \\ &= \frac{100}{8} \% \\ &= 12 \frac{1}{2} \% \end{aligned}$$

2. When 240 is decreased, it becomes 192. Calculate the percentage decrease.

Solution:

Old number = 240

New number = 192

$$\begin{aligned} \text{Decrease} &= 240 - 192 \\ &= 48 \end{aligned}$$

$$\begin{array}{r} 1 \quad 20 \\ \text{Percentage decrease} = \frac{48}{240} \times 100 \\ \hline 240 \\ \hline 5 \\ \hline = 20\% \end{array}$$

EVALUATION ACTIVITY:

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

Remark:

LESSON 43

SUB TOPIC: PERCENTAGE PROFIT AND LOSS

CONTENT: Percentage profit

Examples:

1. An article was bought at 100,000 and sold at shs 120,000. Calculate the percentage profit.

Solution:

Cost price = 100,000

Selling price = 120,000

Profit = 120,000 – 100,000

= 20,000

Percentage profit

= Profit x 100%

CP

= $\frac{20,000}{100,000} \times 100\%$

= 20%

Percentage loss:

2. I bought a house at \$ 120,000 but I was forced to sell it at \$ 100,000. Find my percentage loss.

Solution:

Buying price = 120,000

Selling price = \$ 100,000

Loss = BP – SP

120,000 – 100,000

= \$ 20,000

Percentage loss:

= $\frac{\text{loss}}{\text{cost price}} \times 100\%$

Cost price

= $\frac{20,000}{120,000} \times 100\%$

= $\frac{100}{6} \%$

= $16 \frac{2}{3} \%$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 123 – 124 exercise 8:20/8:21

Mathematics Revision Hand book P.5 – P.7 Pg 104

Remarks:

LESSON 44

SUB TOPIC: FINDING COST PRICE FROM PERCENTAGE PROFIT/LOSS

CONTENT:

Examples:

1. After selling a pair of shoes at shs 21,000, a trader made a profit of 20%. Find the buying price of the pair of shoes.

Cost price as a percentage = 100%
 Selling price as a percentage = 100% + 20% = 120
 120% represents = shs 21,000
 1% represents = 21,000

$$\begin{array}{r}
 120 \\
 700 \quad 25 \\
 100\% \text{ represents} = \frac{21,000}{120} \times 100 \\
 \underline{120} \\
 \underline{4} \\
 1 \\
 = (25 \times 700) \\
 = 17,500=
 \end{array}$$

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

Loss = 15%	$\frac{86\text{CP}}{100} = 34,000$
CP = 100%	$\frac{100}{400}$
SP = 100% - 15%	$\frac{85\text{CP}}{85} = \frac{34,000 \times 100}{85}$
= 85%	$\frac{85}{85}$
85% of CP = 34,000	CP = 400 x 100=
	Cost price = 40,000=

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 125 – 126 exercise 8:22

Mathematics Revision Hand book P.5 – P.7 Pg 106 - 107

Remarks:

LESSON 45

SUB TOPIC: APPLICATION OF PERCENTAGE PROFIT AND LOSS

CONTENT: Examples:

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

Cost price for 50kg = 45,000	Selling price for 1kg
Cost price for 1kg = $\frac{45,000}{50}$	$\frac{120}{100} \times 900$
	$\frac{100}{100}$

%age profit = 900=	(120 x 9)
Selling price as percentage = 100%+ 20%	1080=
= 120	

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

- (a) Calculate his percentage gain or loss.
 (b) At what price must he sell each kg in order to make a profit of 20%?

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 123 – 124 exercise 8:20/8:21

Mathematics Revision Hand book P.5 – P.7 Pg 104

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?

$$\begin{aligned}
 \text{Discount} &= \text{Marked price} - \text{cash price} \\
 &= 1500/- - 1200/= \\
 &= 300/=
 \end{aligned}$$

Express the discount as a percentage

Percentage discount = discount x 100%

$$\begin{array}{r}
 \text{Marked price} \\
 1 \quad 20 \\
 = \frac{300}{1500} \times 100\% \\
 \underline{1500} \\
 5 \quad 1 \\
 = 20\%
 \end{array}$$

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

$$= \frac{15}{100} \times 60,000$$

$$= 9000=$$

Amount paid = 60,000=

$$= - 9,000$$

$$51,000=$$

Amount paid = 100% - 15% = 95%

= 85% of 60,000

$$\frac{85}{100} \times 60,000$$

$$100$$

= 85 x 600=

$$= 51,000=$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 129

Mathematics Revision Hand book P.5 – P.7 Pg 109

Remarks:

LESSON 47

SUB TOPIC: FINDING ORIGINAL PRICE WHEN GIVEN PERCENTAGE DISCOUNT

CONTENT:

Example:

1. Cissy paid shs 18,000 for a hand bag after being a discount of 10%. Calculate the marked price.

Solution:

Cost price as %age = 100%

Let the marked price be x

Discount offered = 10%
Cissy paid = 100% - 10%
= 90%

$$\begin{array}{r} \frac{90}{100} \times x = \text{shs } 18,000 \\ \frac{90x}{100 \times 100} = 18,000 \times 100 \\ \frac{90x}{90} = \frac{18,000 \times 100}{90} \\ X = 20,000 \end{array}$$

90% of x = shs 18,000

90% rep 18000
1% rep $\frac{18000}{90}$

100% rep $\frac{18000 \times 100}{90}$

100% rep 20,000/=

EVALUATION ACTIVITY:

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

Remarks:

LESSON 48

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

CONTENT:

Example:

1. Kanya was given a discount 17% of the marked price which amounted to 8500=.
- Calculate the marked price and selling price.
- Solution:
- | | |
|---|--------------------------------|
| %age discount – 17% | 500 x 100 |
| Discount – 8500= | |
| Marked price = 100% | Selling price |
| But 17% rep 8500 | 100% - 17% |
| 1% rep $\frac{8500}{17}$ | = 8% |
| 100% rep $\frac{(8500 \times 100)}{17}$ | $\frac{83 \times 50,000}{100}$ |
| | 83 x 500 |
| | = <u>41,500=</u> |
| <u>50,000/=</u> | Or 50,000 – 8500 |

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 131 exercise 8:35 Qns 5, 7 & 9

Remarks:

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 | | 10,000 |
| Commission = | 10% of 6500 = | <u>650</u> |
| | $\frac{10}{100} \times 6500$ | 10,650 |
| | = 650 | = shs 10,650 |
- Amount he got altogether = 10,000 + 650

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 132 - 133 exercise 8:26

Remarks:

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 $2\frac{1}{2}\%$ per year. Calculate his simple interest and the total amount after 5 years.
- Solution:
- | | |
|---|---------------------------------|
| Simple interest (SI) | The simple interest: |
| $SI = PTR$ | is shs 5,000 |
| $= 40,000 \times 5 \times 2\frac{1}{2}\%$ | Amount = principle interest |
| $= 40,000 \times 5 \times \frac{5}{200}$ | |
| $= 40,000 \times 5 \times \frac{5}{200}$ | $= \text{shs } (40,000 + 5000)$ |
| $= 200 \times 25$ | $= \text{shs } (45,000)$ |
| $= \text{shs } 5,000$ | |

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 132 - 133 exercise 8:26

Remarks:

$$P = 40,000$$

$$\text{Principal} = 40,000 =$$

LESSON 51**SUB TOPIC: FINDING THE PERCENTAGE RATE****CONTENT:****Example:**

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

Solution:

Method 1

$$\text{PTR} = \text{SI}$$

$$\frac{30,000}{1} \times \frac{9}{12} \times \frac{R}{100} = \text{sh } 1,125$$

$$150 \times 50$$

$$\frac{30,000 \times 9}{12 \times 100} R = 1125$$

$$6$$

$$\frac{25 \times 9R}{25 \times 9} = 1125$$

$$5$$

$$R = 5\%$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 52**SUB TOPIC: CALCULATING PRINCIPAL****CONTENT:****Example:**

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

Solution:

$$\text{SI} = 6000$$

$$R = 5\% \text{ per year}$$

$$T = 3 \text{ years}$$

$$P \times R \times T = \text{Simple interest}$$

$$P \times \frac{5}{100} \times 3 = 6000$$

Method 2:

$$\text{Rate} = \frac{\text{SI} \times 100}{P \times T}$$

$$1125 \times 100$$

$$30,000 \times 9$$

$$\frac{1125}{300 \times \frac{3}{4}}$$

$$375 \times 75$$

$$= \frac{1125 \times 4}{300 \times 3}$$

$$= \frac{75 \times 4}{60}$$

$$30$$

$$6$$

$$3 \text{ Rate} = 5\%$$

$$60$$

$$30$$

$$6$$

$$3 \text{ Rate} = 5\%$$

2. A farmer borrowed money at $12\frac{1}{2}\%$ per year. After 2 years, a simple interest of shs 8,000 was paid. Find the amount borrowed.

Solution:

$$\text{SI} = 8,000 =$$

$$T = 2 \text{ years}$$

$$R = 12\frac{1}{2}\%$$

$$P = \frac{\text{SI} \times 100}{R \times T}$$

$$P = \frac{8,000 \times 100}{12\frac{1}{2} \times 2}$$

$$12\frac{1}{2} \times 2$$

$$P = 800,000 \times \frac{25}{2} \times 2$$

$$\frac{800,000}{25} =$$

$$32,000$$

$$= 32,000$$

$$\text{Principal} = 32,000$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 53**SUB TOPIC: CALCULATING TIME****CONTENT:****Example:**

1. In what time will shs 12,000 yield an interest of shs 1,800 at 5% per year.

$$P \times T \times R = \text{SI}$$

$$\text{SI} = 1800 =$$

$$P = 12,000$$

$$R = 5\%$$

$$P \times R \times T = \text{SI}$$

$$12,000 \times \frac{5}{100} \times T = 1800 =$$

$$\frac{1800}{12000 \times \frac{5}{100}} =$$

$$\frac{1800}{600} T = \frac{1800}{600} \times 3$$

$$3$$

$$3$$

$$T = 3 \text{ years}$$

2. How long will 48,000= take to yield shs 5400 at 15% per year?

Solution:

$$P = 48,000$$

$$R = 15\% \text{ per year}$$

$$\text{SI} = 5400 =$$

$$P \times R \times T = \text{SI}$$

$$48,000 \times \frac{15}{100} \times T = 5400 =$$

$$100$$

$$480 \times 15T = 5400 =$$

$$7200T = 5400$$

$$7200 \quad 7200$$

$$T = \frac{3}{4} \text{ years}$$

$$= (3/4 \times 12)$$

$$= 9 \text{ months}$$

EVALUATION ACTIVITY:

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

Remarks:

TOPICAL EXERCISE ON FRACTIONS

1. Name the types of fractions and give an example on each.
2. Divide: $\frac{2}{3} \div \frac{1}{3}$
3. Simplify: $\frac{1}{2} - \frac{1}{4} - \frac{1}{3}$
4. Salim's bicycle got spoilt after he had covered a distance of 20km which was $\frac{1}{4}$ of his journey. How long was the journey?
5. In a class of 120 pupils, the ratio of girls to boys is 4:2. Find the number of boys.
6. Work out: $\frac{1}{4} + \frac{3}{5}$.
7. Simplify: 0.27×0.06
 0.9×0.3
8. Work out: $\frac{1}{4} - \frac{1}{8}$
9. Otim had 30km still to cover after traveling $\frac{3}{5}$ of the journey. How was the journey?
10. Simplify: $\frac{1}{2} \div \frac{1}{4}$
11. Subtract: $\frac{1}{2} - \frac{1}{4}$
12. In Sir Apollo Schools, $\frac{3}{4}$ of the pupils who sat for the Primary Leaving Examination passed.
 - (a) If those who failed were 30, find the number of pupils who passed.
 - (b) What percentage of pupils failed the examination?
13. $\frac{2}{3} - \frac{1}{2}$
14. Add: $35.7 + 0.35$
15. A bus broke down after covering $\frac{5}{7}$ of the journey. The remaining distance to complete the journey was 140km. How long was the whole journey?
16. Divide: $4.2 \div 0.03$
17. Add: $4.05 + 11.4 + 2.36$
18. Usamah spent $\frac{1}{4}$ of his salary on food, $\frac{1}{3}$ of the remainder on debts and saved shs 3,600=.
 - (a) How much did he spend on paying debts?
 - (b) What are his earnings per month?
19. Arrange in ascending order: $\frac{1}{2}$, $\frac{3}{4}$, 0.03 and $\frac{2}{3}$.
20. Tap A takes 9 minutes to fill in the tank.
Tap B takes 12 minutes and Tap C takes 18 minutes. How long will A, B and C take to fill the tank if opened together?
21. The cost of 4 rules is shs 800. What is the cost of 6 similar rulers?
22. 5 handkerchiefs take 30 minutes to dry when exposed to the sunshine. How long will 12 handkerchiefs take to dry if exposed to the same sunshine?
23. 12 men can build a classroom in 5 days.
 - (a) How many men are needed to do the whole job in 1 day?
 - (b) How long will 10 men take to do the job?

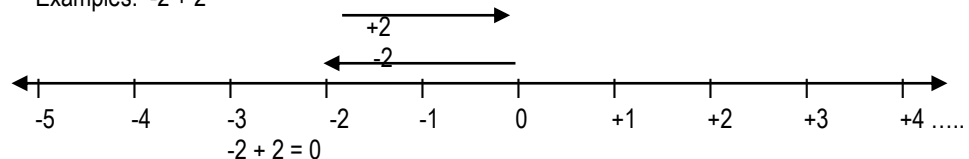
Fractions (Percentages) Topical questions:

1. Express 2:5 as a percentage.

2. Change 0.8 as a percentage
3. Express 66.6% as a fraction to the lowest terms.
4. Express 40cm as a percentage of 2M.
5. What is 10% of 2200 pencils?
6. A bag of cement cost shs 5,600. How much will it cost after a 30% increase?
7. Asiimwe deposited shs 50,000 in Uganda Commercial Bank which offers an interest of 30% per year. How much money will Asiimwe have in the Bank after six months?
8. Okello bought a car at shs 2,500,000 and sold it to Otim at a profit of 20%. Otim then sold it to Tumwine at a loss of 15%. How much did Tumwine pay for the car?
9. If 280 is increased by x it become 392. Find the value of x.
10. Decrease 65kg by 5.
11. A farmer has the following animals:

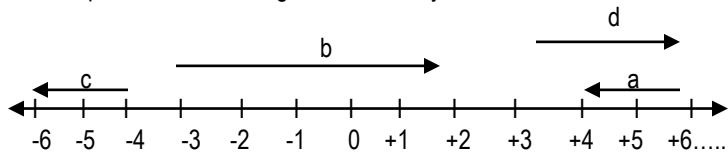
Chicken	= 30
Goats	= 35
Sheep	= 15
Rabbits	= 10

 What percentage of the total animals are rabbits.
12. Milk was mixed with water to make tea. If 14 litres of milk was used and this was 40% more than the amount of water in the tea, how tea was prepared?
13. Mugisha bought about at shs 200,000 and sold it as shs 180,000 what was his percentage loss?
14. (a) Okello's wage was increased by 10% to shs 77,000 per month. Find his salary?
(b) If his new wage of shs 77,000 was decreased by 5%, find his final wage.
15. A man spent 20% of his salary on food, 10% on transport, 40% on medical care and the rest on rent.
 - (i) Find the percentage of his salary spent on rent.
 - (ii) How much does he spend on medical care if he earns 800,000 as his salary?
 - (iii) How much more is spent on food than transport?
16. Fatuma had shs 5,000 if she used 10% of her money to buy soap what was her balance?

TOPIC 9: INTEGERS**LESSON 1:****SUB TOPIC: OPPOSITES/INVERSES/ADDITIVE INVERSES****CONTENT:**Examples: $-2 + 2$ 

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

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



Example 3. What is the additive inverse of +6

Let the inverse be x.

$$+6 + x = 0$$

$$+6 - 6 + x = 0 - 6$$

$$x = -6.$$

EVALUATION ACTIVITY:

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

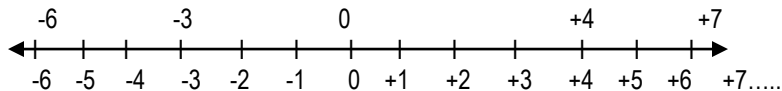
Remarks:

LESSON 2:

SUB TOPIC: ORDERING INTEGERS ON A NUMBERLINE

CONTENT:

The number line:



- Note: - (i). All integers to the left of zero are -ve.
 (ii) All integers to the right of zero are +ve
 (i) Any integer is less than that on its right.
 (ii) Any integer is more than that on its left.

Examples

1. Use $>$, $<$ or $=$ to compare the pair of integers. Given:

(i) $-6 < -3$

(ii) $-3 < 0$

(iii) $0 < +4$

(iv) $0 > -6$

(v) $-3 > -6$

(vi) $+7 > +4$

(vii) $+4 = +4$

(viii) $-8 = -8$

2. Arrange in descending order/decreasing order the following integers:

$-6, 0, +7, -3, +4$

Solution: $+7, +4, 0, -3, -6$

EVALUATION ACTIVITY:

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

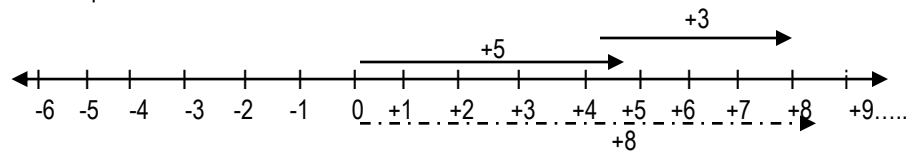
Remarks:

LESSON 3:

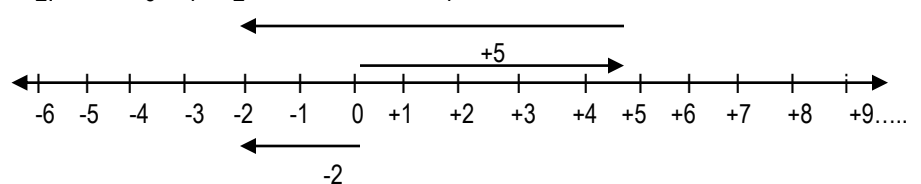
SUB TOPIC: ADDITION OF INTERS USING A NUMBER LINE

CONTENT:

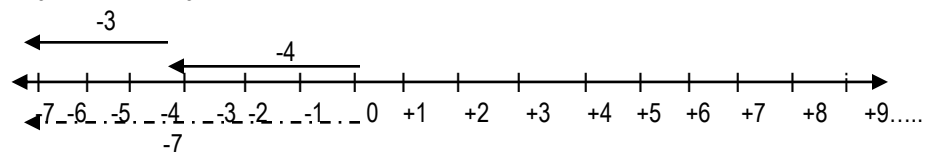
Example 1. $+5 + +3 = +8$



2. $+5 + -7 = -2$



3. $-4 + -3 = -7$



EVALUATION ACTIVITY:

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

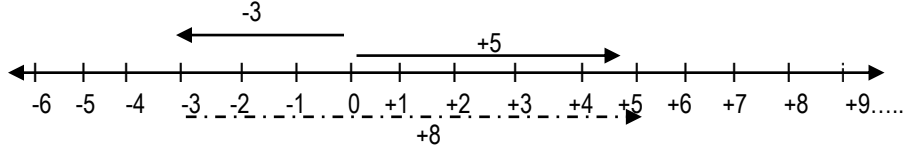
Remarks:

LESSON 4:

SUB TOPIC: SUBTRACTION OF INTEGERS USING A NUMBERLINE

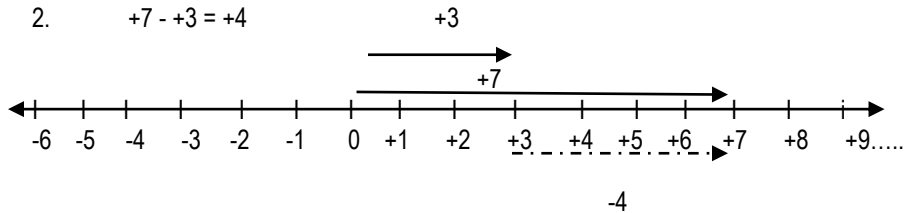
CONTENT:

Example 1. $+5 - -3 = +8$



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

2. $+7 - +3 = +4$



EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 19:2 No 2. Pg 356 (New Edition)

Remarks:

LESSON 5:

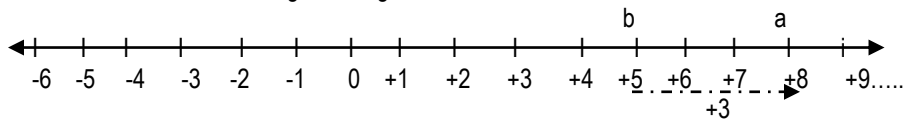
SUB TOPIC: SUBTRACTION OF INTEGERS BY NAMING THE INTEGERS USING LETTERS

CONTENT:

Example 1.

$$+8 - +5 = +3$$

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



Subtraction means moving backwards.
The arrow shows the answer.

EVALUATION ACTIVITY:

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

Remarks:

LESSON 6:

SUB TOPIC: SUBTRACTING INTERGERS WITHOUT NUMBER LINES

CONTENT:

Example 1.

1. $+8 - +7$ Note $=x + -$

$$+8 - 7$$

$$= +1$$

2. $-8 - +3$

$$= -8 - 3$$

$$= -11$$

3. $-5 - -2$ Note $-x - = +$

$$= -5 + 2$$

$$= +2 - 5$$

$$= -3$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 7:

SUB TOPIC: ADDING INTEGERS WITHOUT USING A NUMBERLINE

CONTENT:

Example 1.

1. $+7 + +2$ +ve X +ve = +ve

$$= +7 + 2$$

$$= +9$$

2. $+7 + -2$ +X- = - +ve X -ve = -ve

$$= +7 - 2$$

$$= +5$$

3. $-7 + -2 = -7 - 2$ +ve X -ve = -ve

$$= -9$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 8:**SUB TOPIC: MULTIPLICATION OF INTEGERS****CONTENT:**

Example 1.

Note: $+ve \times +ve = +ve$ $+ve \times -ve = -ve$ $-ve \times -ve = +ve$

Examples:

1. $+2 \times +6 = +12$

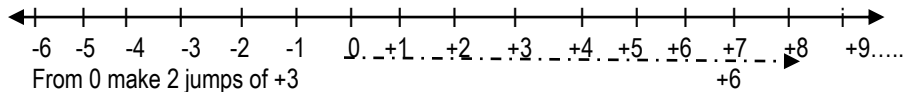
2. $+2 \times -6 = -12$

3. $-2 \times -6 = +12$

Multiplication of integers on a number line:

Examples:

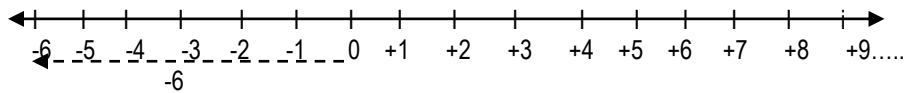
1. $+2 \times +3$



From 0 make 2 jumps of +3

$+2 \times +3 = +6$

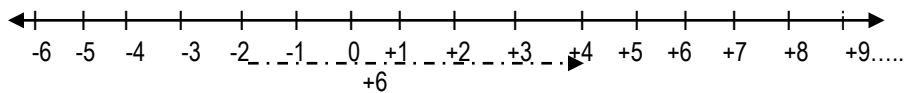
2. $+2 \times -3$



From 0 make 2 jumps of -3

$+2 \times -3 = -6$

3. -2×-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.

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 19:6 Pg 352 (New Edition)

Remarks:**LESSON 9:****SUB TOPIC: DIVISION OF INTEGERS****CONTENT:**

$-ve \div -ve = +ve$

$-ve \div +ve = -ve$

$+ve \div -ve = -ve$

$+ve \div +ve = +ve$

Examples:

1. $+16 \div +2 = +8$

2. $+16 \div -2 = -8$

3. $-16 \div +2 = -8$

4. $-16 \div -2 = +8$

Check: $-16 \div -2 = +8$

$-16 = +8 \times -2$

2

$-16 = +8 \times -2$

Also $-16 = +8 \times -2$

$+8 \quad +8$

$-16 \div +8 = -2$

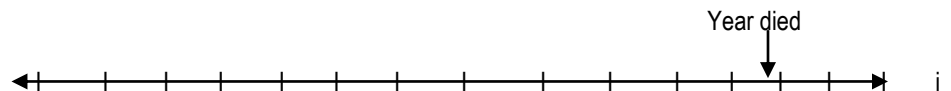
EVALUATION ACTIVITY:

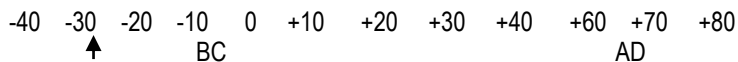
A New MK Primary Mathematics 2000 Bk 7 exercise 19:7 Pg 361 (New Edition)

Remarks:**LESSON 10:****SUB TOPIC: APPLICATION OF INTEGERS****CONTENT:**Bc, LOSS, Time before debts, below sea level are $-ve$.AD, profit, time after, above sea level are $+ve$.

Example 1:

A Scientist was born in 30BC and died immediately after his birthday in 76AD. How old was he when he died?





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 $6 + 7 = \underline{\hspace{1cm}}$ (finite 9)
 $6 + 7$

$13 \div 9 = 1 \text{ rem } 4$

$\therefore 6 + 7 = 4$ (finite 9)

(ii) $8 + 6 + 3 = \underline{\hspace{1cm}}$ (finite 13)

$(8 + 6) + 3$

$14 + 3$

$17 \div 13 = 1 \text{ rem } 4$

$\therefore 8 + 6 + 3 = 4$ (finite 13)

(iii) $3 + 4 + 5 = x$ (finite 7)

EVALUATION ACTIVITY:

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

Remarks:

LESSON 12

SUB TOPIC: SUBTRACTION IN THE FINITE SYSTEM

CONTENT: Examples:

(i) $1 - 3 = \underline{\hspace{1cm}}$ (finite 4)

$(1 + 4) - 3$

$5 - 3$

$= 2$

$\therefore 1 - 3 = 2$ (finite 4)

(ii) $2^2 - 5 = \underline{\hspace{1cm}}$ (finite 7)

$(2 \times 2) - 5 = \underline{\hspace{1cm}}$ (finite 7)

$4 - 5 = \underline{\hspace{1cm}}$ (finite 7)

$4 + 7 - 5$

$11 - 5$

$= 6$

$\therefore 2^2 - 5 = 6$ (finite 7)

(iii) $2 - 6 - 4 - 8 = \underline{\hspace{1cm}}$ (finite 9)

EVALUATION ACTIVITY:

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

Remarks:

LESSON 13

SUB TOPIC: MULTIPLICATION USING THE FINITE SYSTEM

CONTENT: Examples:

(i) $5 \times 7 = \underline{\hspace{1cm}}$ (finite 9)

$= 5 \times 7$

$= 35 \div 9$

$3 \text{ rem } 8$

$\therefore 5 \times 7 = 8$ (finite 9)

(ii) $2^3 = \underline{\hspace{1cm}}$ (finite 7)

$= 2^3$

$= 2 \times 2 \times 2$

$= 4 \times 2$

$= 8$

$= 1 \text{ rem } 1$

$\therefore 2^3 = 1$ (finite 7)

(iii) $4 (5 \times 2) = \underline{\hspace{1cm}}$ (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) $x - 4 = 3 \pmod{7}$
 $x - 4 + 4 = 3 + 4 \pmod{7}$
 $x + 0 = 7 \pmod{7}$
 $x = 7 \div 7 \pmod{7}$
 $x = 1 \text{ rem } 0 \pmod{7}$
 $x = 0 \pmod{7}$

(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) $2x - 3 = 3 \pmod{4}$
 $2x - 3 + 3 = 3 + 3 \pmod{4}$
 $2x + 0 = 6 \pmod{4}$
 $\frac{2x}{2} = \frac{6}{2} \pmod{4}$
 $x = 3 \pmod{4}$

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

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 $2 \div 5 = \underline{\hspace{1cm}}$ (Mod 7)

Solution:

$$\begin{aligned} 2 \div 5 &= \underline{\hspace{1cm}} \pmod{7} \\ &= 2 + 7 \times 5 \\ &= 9 \div 5 = \underline{\hspace{1cm}} \pmod{7} \\ &= 9 + 7 \times 5 \\ &= 16 \div 5 = \underline{\hspace{1cm}} \pmod{7} \\ &= 16 + 7 \times 5 \\ &= 23 \div 5 = \underline{\hspace{1cm}} \pmod{7} \\ &= 23 + 7 \times 5 = \underline{\hspace{1cm}} \pmod{7} \\ &= 30 \div 5 = 6 \text{ rem } 0 \pmod{7} \\ \therefore 2 \div 5 &= 6 \pmod{7} \end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7

Maths Revision Hand Book 5, 6 & 7 Pg 35

Primary Maths Revision & Practice for Uganda Pg 19

Remarks:**LESSON 16****SUB TOPIC: APPLICATIONS OF THE FINITE SYSTEM (FINITE 7 AND FINITE 12)**

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

Example:

(i) Today is Thursday, what day of the week will it be 82 days from today?
 Solution:
 Thursday stands for 4
 $4 + 8 = \underline{\hspace{1cm}} \pmod{7}$
 $86 = \underline{\hspace{1cm}} \pmod{7}$
 $86 \div 7 = \underline{\hspace{1cm}} \pmod{7}$
 12 rem 2
 2 stands for Tuesday

- (ii) It will be Tuesday.
Today is Tuesday what day of the week was it 85 days ago.

Solution:

2 represents Tuesday

$$2 - 85 = \text{___ (finite 7)}$$

$$85 - \text{(finite 7)}$$

$$85 \div 7 = 12 \text{ rem } 1$$

$$85 = 1 \text{ (fin 7)}$$

$$2 - 1 = \text{___ (finite 7)}$$

$$2 - 1 = 1 \text{ (finite 7)}$$

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

$$7 + 2132 = \text{___ (finite 2)}$$

$$2139 = \text{___ (finite 12)}$$

$$178$$

$$\begin{array}{r} 12 \overline{) 2139} \\ \underline{12} \\ 93 \end{array} \quad 178 \text{ rem } 3$$

$$\begin{array}{r} \text{___} - 84 \\ 99 = 33 \text{ stands for March} \\ \underline{ - 96} \\ 3 \end{array}$$

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

$$4 - 346 = \text{___ (finite 12)}$$

$$346 - \text{(finite 12)}$$

$$\begin{array}{r} 28 \\ \overline{) 346} \\ \underline{ 24} \\ 106 \end{array} \quad 346 = 10 \text{ (fin 12)}$$

$$4 - 10 = \text{(fin 12)}$$

$$(4 + 12) - 10 = \text{(fin 12)}$$

$$16 - 10 = 6 \text{ (fin 12)}$$

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:

$$7 + 9 = \text{___ (fin 12)}$$

$$16 = \text{___ (fin 12)}$$

$$16 \div 12 = 1 \text{ rem } 4$$

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?

Solution:

$$11 + 19 = \underline{\quad} \text{ (fin 12)}$$

$$30 = \underline{\quad} \text{ (fin 12)}$$

$$30 \div 12 = 2 \text{ rem } 6$$

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:

$$5:00 \text{ pm} = 24 \text{ hr clock}$$

$$12:00 + 5:00 = 1700 \text{ hours}$$

$$1340 \text{ hours } 24$$

$$55 \text{ rem } 20$$

$$\begin{array}{r} 24 \overline{) 1340} \\ \underline{120} \\ 140 \\ \underline{120} \\ 20 \end{array}$$

55 days rem 20 hours

$$\therefore 17:00 + 20:00 \text{ hours}$$

$$= 37:00 \text{ hours}$$

$$= 37:00 \text{ hours } 24$$

$$= 1 \text{ rem } 13$$

$$13:00 \text{ hours or } 1:00\text{pm}$$

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:

$$7 \text{ (finite 9)} = 7, 16, 25, 34, 43, \underline{52}, 61, \dots$$

$$4 \text{ (finite 8)} = 4, 12, 20, 28, 36, 44, \underline{52}, 60, \dots$$

$$1 \text{ (finite 3)} = 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31$$

$$34, 37, 40, 43, 46, 49, \underline{52}, 55, \dots$$

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:

- Find the value of 4 in the figure 78, 421.
- Find the place value of 6 in 71.867.
- Write down all 3 digit numerals that can be formed using the digits 7, 1, 6.
- Find the product of the values of 2 and 4 in 823.45.
- Write in figures: Sixty thousand sixteen.
- Write 454 in Roman numerals.
- Change 15 ten to binary base.
- Change 101 two to decimal base.
- Add 111 two to 11 two.
- Multiply 1001 two
X 10 two

- What numeral has been expanded to give:
 $(2 \times 10) + (6 \times 1) + (x \times 1/10) + (2 \times 1/100) + (5 \times 1/1000)$
- Round off to the nearest hundred thousandths 0.422563.
- Round off 43,256 to the nearest ten thousands.
- Solve for the unknown: if $44x = 35$ nine.
- Simplify $2 - 4 = \underline{\quad}$ (finite 5)
- Solve (i) $y - 5 = 4$ (finite 5)
(ii) $2(x - 2) = 3$ (finite 6)
- Divide $15 = \underline{\quad}$ (finite 6)
- Today is Tuesday. What day of the week will it be after 46 days
- 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 LXIX into Hindu Arabic Numerals.
23. Evaluate $33 \div ___$ (mode 7)
24. (a) Express 1534 in standard form
(b) Express 0.006 in Scientific notation

TOPIC 6:

TOPIC: GRAPHS AND INTERPRETATION OF INFORMATION

LESSON 1:

SUB TOPIC: PICTO GRAPHS
















CONTENT: 0.3

Definition:

A picto 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.

Kyengera P/s	 
Nakasero P/S	  
Mengo P/s	   
Old Kampala P/s	 
Winston P/s	   

Given that stands for 100 books and for 50 books.

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

- (d) Calculate the average number of books that were distributed to the five schools.

EVALUATION ACTIVITY:

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

Remarks:

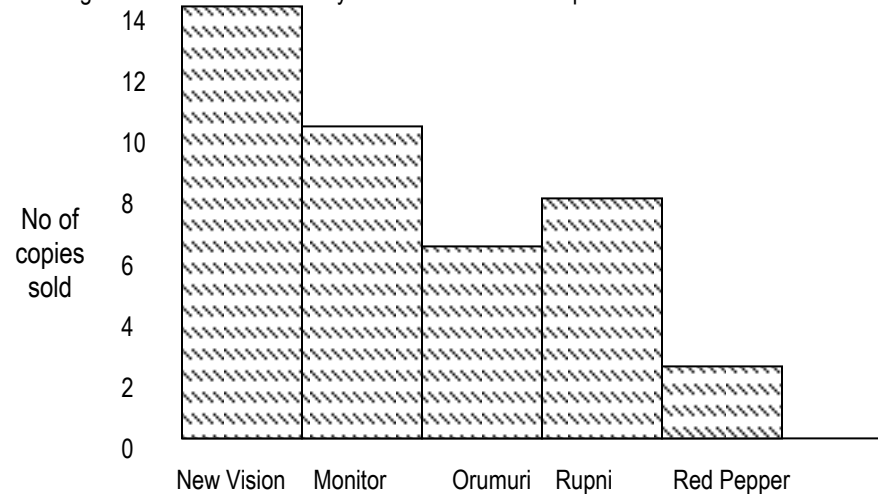
LESSON 2:

SUB TOPIC: BAR GRAPHS

CONTENT:

Example:

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



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

EVALUATION ACTIVITY:

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

Remarks:

LESSON 3:**SUB TOPIC: BAR GRAPHS****CONTENT:** Using given data to draw bar graphs**Example:**

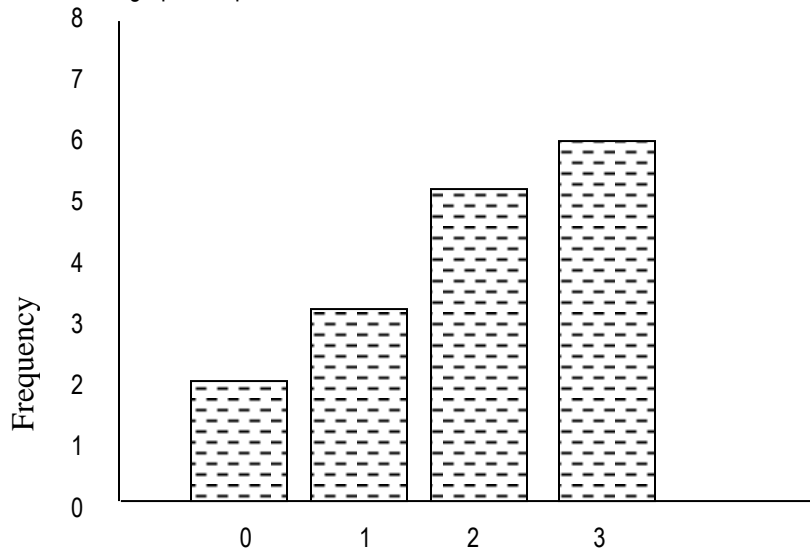
1. The table below represents points scored by 30 players.

Points scored	0	1	2	3	4	5
Frequency	2	3	5	6	9	5

Frequency table:

No	Tallies	Frequency
0	//	2
1	///	3
2	////	5
3	//// /	6
4	//// ////	9
5	////	5

A bar graph to represent the above information:



Points scored

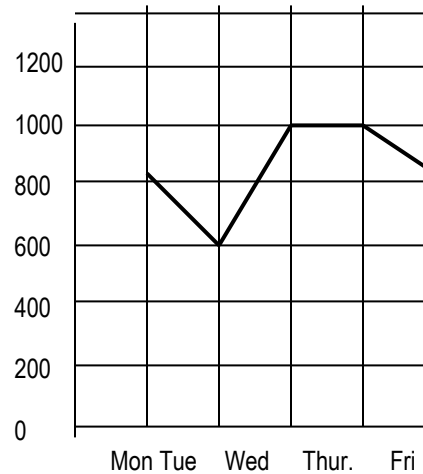
EVALUATION ACTIVITY:

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.



- On which day was the attendance very poor?
- On which day was the attendance 600?
- How many pupils attended on Wednesday?
- What was the average attendance that week?
- How many more pupils attended on Wednesday than Tuesday?

EVALUATION ACTIVITY:

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

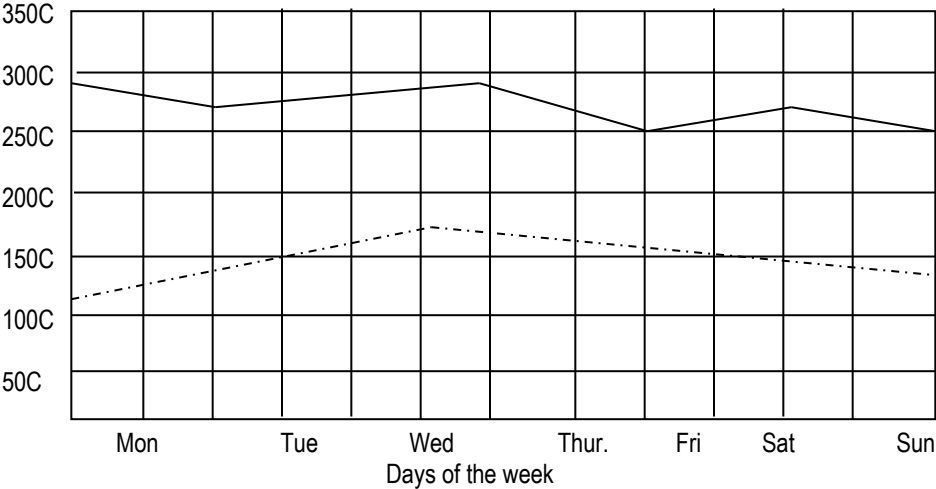
Remarks:**LESSON 5:**

SUB TOPIC: TEMPERATURE GRAPHS
CONTENT: Interpreting temperature graphs

Example:
Study the table below:

Days	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Maximum Temp	28°C	27°C	29°C	30°C	26°C	29°C	27°C

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



- Minimum temperature
_____ Maximum temperature
- (a) What was the highest temperature of the week?
(b) Which day was the minimum temperature?
(c) What was the median for the maximum temperature?

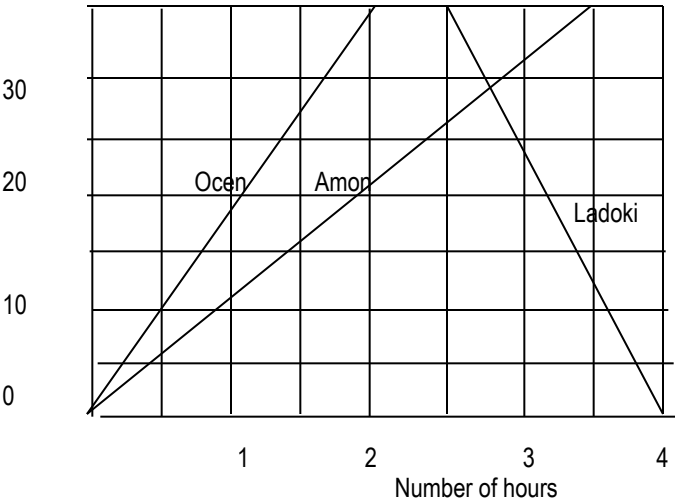
EVALUATION ACTIVITY:

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

Remarks:

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



- What is the scale on the horizontal axis.
- What is the scale on the vertical axis?
- Find the average speed of each person.
- Who is moving all the highest speed?
- Where was Amon after 2 ½ hours?
- How many hours did Amon take to complete her journey?
- Where was Ladoki after 2 hours?
- Where did Amon meet Ladoki
- How many hours earlier did Ocen arrive at Mpigi before Amon?
- How long did Ocen take to cover 30km?

EVALUATION ACTIVITY:

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

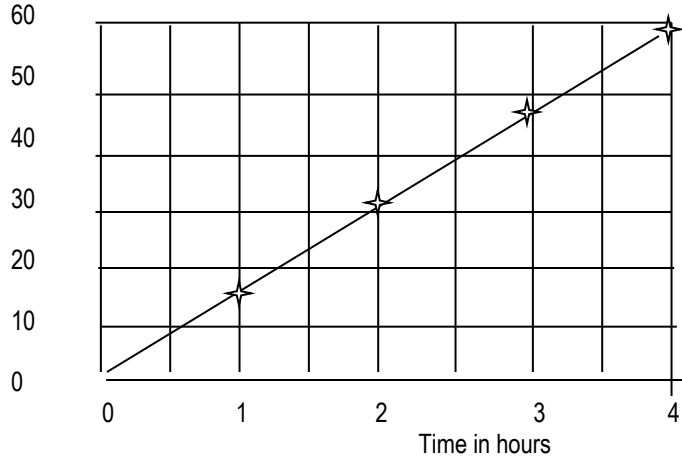
Remarks:

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.

KM	0 ⁺¹⁵	15km ⁺¹⁵	30km ⁺¹⁵	60km
Time	0 ⁺¹	1 hr ⁺¹	2hrs ⁺¹	4 hrs

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:

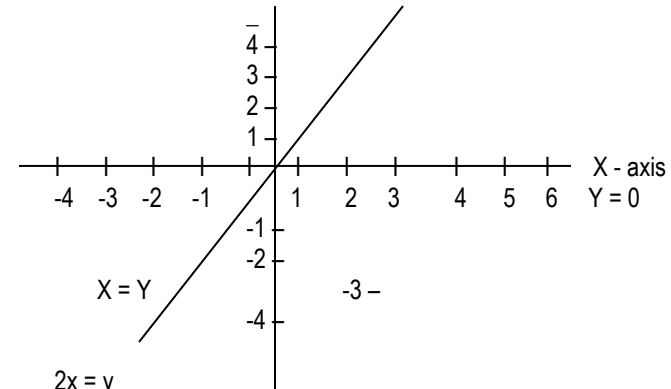
LESSON 9:

SUB TOPIC: GRAPHS OF EQUATIONS

CONTENT:

Example:

- Given that $x = y$. Complete the table.
(a) Draw a graph for the equation.



- $2x = y$
- $y = x + 4$
- $y = 2x - 1$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 10:22 Pg 182

Remarks:

LESSON 10:

SUB TOPIC: GRAPHS OF EQUATIONS

CONTENT: Complete the table of the given equation

Example:

If $2x + y = 10$. Complete the table.

X = 0

$2x + y = 10$

$2x0 + y = 10$

$0 + y = 10$

Y = 10

X = 2

$2x + y = 10$

$(2 \times 2) + y = 10$

$4 + y = 10$

$4 - 4 + y = 10 - 4$

Y = 6

x = 1

$2x + y = 10$

$2x1 + y = 10$

$2 + y = 10$

$2 - 2 + y = 10 - 2$

Y = 8

x = 3

$2x + y = 10$

$2x3 + y = 10$

$6 + y = 10$

$6 - 6 + y = 10 - 6$

Y = 4

EVALUATION ACTIVITY:

- 1.
- $Y = 2x - 1$
- Complete the table.

X	0	1	2	3	4
Y					

2. Complete the table
- $y = 3x - 5$

X	4		$1/3$		3
Y		-2		-8	

- 3.
- $3x + y = 5$
- Complete the table

X	0	1	2		6	
Y	5			7		3

Remarks:

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

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

X	-3	-2	-1	0	1	2	3
Y	-3	-2	-1	0	1	2	3

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

X	-3	-2	-1	0	1	2	3
Y	-2	-1	0	1	2	3	4

$$Y = x + 1$$

$$-2 = -3 + 1$$

$$-1 = -2 + 1$$

$$0 = -1 + 1$$

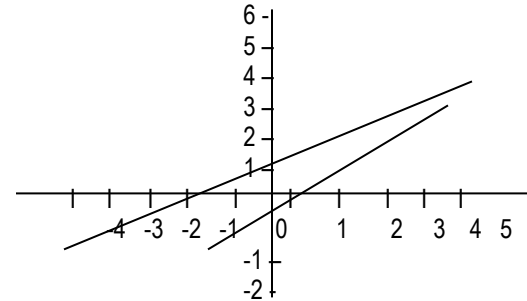
$$1 = 0 + 1$$

$$2 = 1 + 1$$

$$3 = 2 + 1$$

The equation for line B is $y = x + 1$

Represent the above lines on a coordinate graph

**EVALUATION ACTIVITY:**

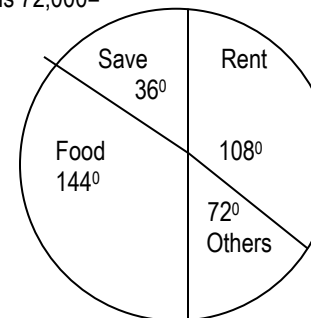
MK Bk 7 Pg 185 exercise 10:21

Remarks:

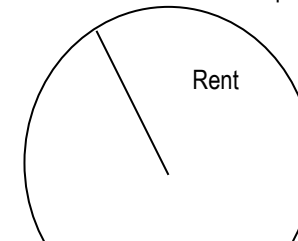
LESSON 12:**SUB TOPIC: PIE CHARTS****CONTENT:**

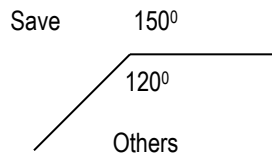
Example:

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=





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

EVALUATION ACTIVITY:

MK Bk 7 Pg 192 exercise 12:11

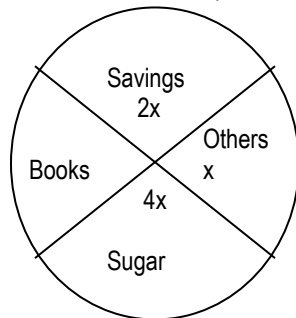
Remarks:

LESSON 13:**SUB TOPIC: PIE CHARTS****CONTENT:**

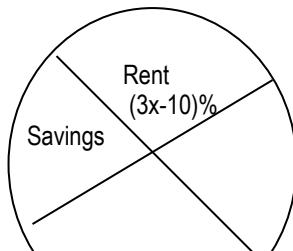
Example:

- Mukasa was given 12,000= for his pocket money and spent it as shown on the pie chart below.

- Find the value of x in degrees.
- How much does he spend on each item?



- 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?



$(x+10)\%$ $(x+20)\%$
 Food Car
 $(2x+10)\%$

EVALUATION ACTIVITY:

MK Bk 7 195 exercise 12:12

Remarks:

LESSON 14:**SUB TOPIC: CONSTRUCTION OF PIE CHARTS****CONTENT:**

Example:

- Mukiibi spent 70% of his salary on rent 50% of the remainder on others. He was left with 3,000=
 - What did he have at first?
 - Draw a pie chart using the information above.
- The table below shows how Mr Mwanje spends his salary.

Items	School fees	Food	Transport	Others	Car expenses
Percentages	15%	20%	X%	10%	15%

- Calculate the value of x .
- If he spends 60,000 on others, calculate his salary.
- 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:

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

Goals scored	2	3	6	7	10
Number of teams	4	1	2	1	2

- (a) Find the mode score.
 (b) What was the modal frequency?
 (c) Calculate the medium
 (d) Calculate the mean and range.
2. Find the medium of the following scores 3, 1, 2, 0, 6, 1, 4

EVALUATION ACTIVITY:

MK Bk 7 Pg 156 exercise 10:7

Remarks:

LESSON 20:

SUB TOPIC: COMPLEX AVERAGE/INVERSE OF AVERAGE

CONTENT:

Example:

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

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

$$\begin{aligned} \text{Total age of 4 boys} &= \text{Mean age} \times \text{number of boys} \\ &= 12 \times 4 \\ &= 48 \\ \text{Mean age of 5 boys} &= \frac{\text{Sum of ages}}{\text{Number of boys}} \\ &= \frac{48 + 4}{5} \\ &= \frac{52}{5} \\ &= 10 \frac{2}{5} \end{aligned}$$

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

- 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.
- A die is rolled once. What is the probability that a composite number will show on top?
- 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.
- Mary kept the following record of rainfall in centimeters 4, 3, 6, 5, 3, 0. Find the mode.
- a FOOT BALL TEAM CAN WIN, DRAW OR LOSE A March. What is the probability that it will win a March?
- The mean of the scores: 8, 7, 6, 5, (a – 5) is 6
 - Find the value of a.
 - Find the range of the scores.
- Sumaya scored the following marks in her homework exercises: 2, 5, 7, 3, 10, 4, 7, 11, 8, 3
 - Find her median mark
 - Find the mean mark
 - Find the probability that Sumaya scored a mark above her mean mark
- 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.
- Given that $x = 2y + 1$ Complete the table below.

X	1	_____	5	_____	9
Y	_____	1	_____	3	_____

- Draw a grid and plot the following points:
 - A (-4, 3)
 - B (0, 3)
 - C (2, -3)
 - D (-4, -1)
 - Join the points A to B, B to C, C to D, D to A
 - Name the quadrilateral formed.
 - Find the area of the quadrilateral formed above.
- Find the mean of x, 4, 2x, 6 and 2x.

12. What number is mid way of $\frac{1}{2}$ and $\frac{1}{3}$?
13. A cyclist traveled from town P to R as follows. For 2 hours, he cycled from P to town Q a distance of 30km and then rested for 1 hour from Q. He continued for another 1 hour to town R at a speed of 40km/hr.

(a) Draw a travel graph to show his journey

14. Given that $Y = 2x - 1$

(a) Complete the table below.

X	0	1	2	3	4	5
Y	-1	1	_____	_____	_____	_____

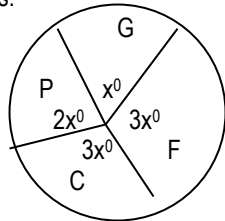
(b) Plot the points given in the table above on a graph.

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.

Marks scored	Frequency	Total marks
4	4	16
_____	9	45
6	_____	84
7	8	_____
9	5	45

- (a) Complete the table
(b) What was the mode?
(c) How many pupils were in the class?

(d) What was the average mark scored?

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

Marks scored	20	40	70	50
No. of children	2	3	1	1

- (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:

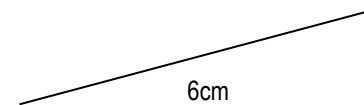
SUB TOPIC: LINES ((MEASURING, DRAWING AND CONSTRUCTING))

CONTENT: Review:

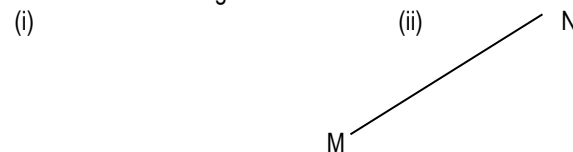
- Measuring line segments
- naming line segments (AB)
- types of lines
- (Parallel, not parallel, intersecting, etc)

Drawing line segments:

1. Draw a line segment measuring 6cm.



2. Measure the following lines:



3. Construct the following line segments:

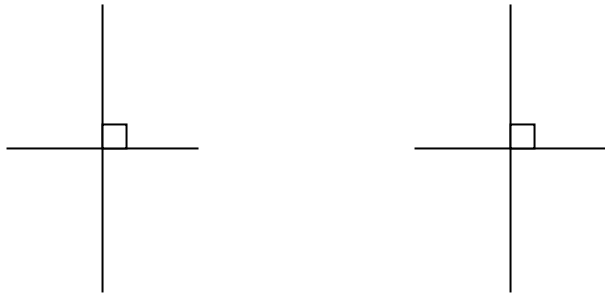
- (i) $AB = 7.5\text{cm}$ (ii) $DE = 8.3\text{cm}$ (iii) $TB = 3.2\text{cm}$

EVALUATION ACTIVITY:

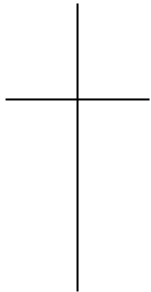
Remarks:
LESSON 2:

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



Drop a perpendicular line from point t.

EVALUATION ACTIVITY:

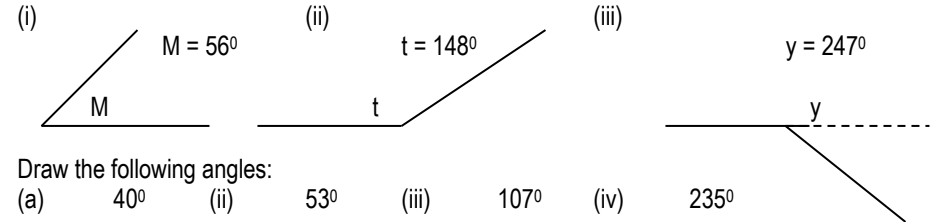
Pupils will bisect lines and drop perpendicular lines from points to meet known line segments.

Remarks:

LESSON 4:

SUB TOPIC: MEASURING AND DRAWING ANGLES

CONTENT: Measure the size of angles below.



Draw the following angles:

(a) 40° (ii) 53° (iii) 107° (iv) 235°

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Exercise 28:9 28:10, 28:11 Pg 277 - 279 (New Edition)

Remarks:

LESSON 4:

SUB TOPIC: CONSTRUCTING ANGLES

CONTENT: Review bisecting angles

1. Construct the following angles:

(a) 60° (b) 300°

(c) 750° 60°, 30°, 15°, 75°, 150°, 120°, 165°

2. (a) 90° (b) 45°

(Use the very method to construct 90°, 45°, 135°, 75°, 22 ½ °)

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Exercise 28:9 28:10, 28:11 Pg 277 - 279 (New Edition)

Remarks:

LESSON 6:

SUB TOPIC: CONSTRUCTING REFLEX ANGLES

CONTENT: Construct an angle of 210°

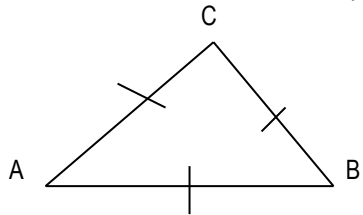
$$210^\circ = 180^\circ + 30^\circ$$

210
2100
3000

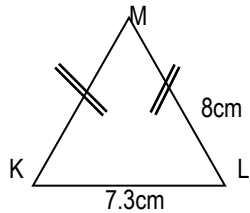
EVALUATION ACTIVITY:

Construct the following angles:

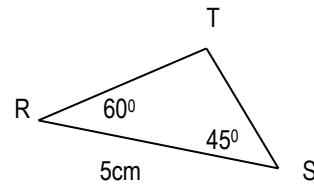
1. 225°
2. 195°
3. 240°
4. 270°

Remarks:**LESSON 7:****SUB TOPIC: CONSTRUCTING OF 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 7:****SUB TOPIC: CONSTRUCTING TRIANGLES****CONTENT:** Construct a triangle RST where angle R = 60° angle S = 45° and RS = 5cm
Measure the length of ST and angle T.

$$T = 75^\circ$$

Length of ST = 4.6cm

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

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 6 Exercise 28:25 Pg 301 (New Edition)

Remarks:**LESSON 8:****SUB TOPIC: ANGLES****CONTENT:** Complementary angles

- An angle with 90° is called a right angle.
- Any two angles that add up to 90° are complementary angles.

Examples:

1. What is the complement of 30° ?

Let the complement be x

$$x + 30^\circ = 90^\circ$$

$$x + 30 - 30 = 90 - 30$$

$$x = 60$$

2. Find the complement of $(x + 40)^\circ$

$$\text{Comp of } (x + 40)^\circ$$

$$= 90^\circ - (x + 40)^\circ$$

$$= 90^\circ - x + 40^\circ$$

$$= 90^\circ - 40^\circ - x$$

$$(50 - x)^\circ$$

3. What angle is $\frac{1}{2}$ of its complement?

Let Y represent the complement

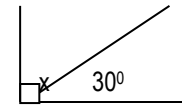
$$Y \text{ is } \frac{1}{2} \text{ of } (90 - y)^\circ$$

$$Y = \frac{1}{2} (90 - y)$$

$$2y = (90 - Y) \times 2$$

$$2y = 90 - y$$

$$2y + y = 90 \rightarrow y = 30$$



$$\frac{3y}{3} = \frac{90}{3}$$

$$Y = 30^\circ$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 9**SUB TOPIC: SUPPLEMENTARY ANGLES**

CONTENT: Supplementary angles add up to 180° .

$$X + Y = 180^\circ \text{ (supp. S)}$$

Examples:

1. In the above figure, if $x = 48$, find y .

$$X + y = 180^\circ$$

$$Y + 48^\circ = 180^\circ$$

$$Y + 48^\circ - 48^\circ = 180^\circ - 48^\circ$$

$$Y = 132^\circ$$

2. What angle is $\frac{1}{4}$ of its supplement?

$$X = \frac{1}{4}(180^\circ - x)$$

$$X = \frac{(180^\circ - x)}{4}$$

$$4x = \frac{(180^\circ - x)}{4} \times 4$$

$$4x = 180^\circ - x$$

$$4x + x = 180^\circ \rightarrow x + x$$

$$\frac{5x}{5} = \frac{180^\circ}{5}$$

$$x = 36^\circ$$

3. What angle is 5 times its supplement?

EVALUATION ACTIVITY:

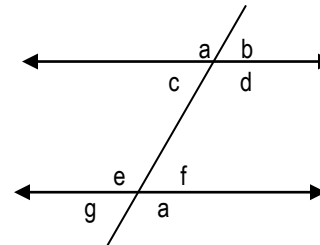
A New MK Primary Mathematics 2000 Bk 7 exercise 11:56 Pg 204 (New Edition)

Remarks:

LESSON 10**SUB TOPIC: ANGLES ON PARALLEL LINES**

CONTENT: Properties of angles on parallel lines

Illustration:



$$a + b = 180^\circ \text{ (supp. } \angle\text{S)}$$

$$a = d \text{ (vertically opp } \angle\text{S)}$$

$$a = e \text{ (corresp } \angle\text{S)}$$

$$d = h \text{ (")}$$

$$b = f \text{ (")}$$

$$c = f \text{ \& } d = e \text{ (alt. int } \angle\text{S)}$$

$$a = h \text{ \& } b = g \text{ (alt. ext. S)}$$

$$c + e = 180^\circ \text{ (co.int. S)}$$

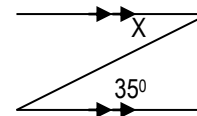
$$d + f = 180^\circ$$

$$a + g/b + h = 180^\circ \text{ (co.ext S)}$$

$$a + b + c + d = 360^\circ \text{ (S at a point)}$$

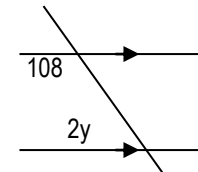
Examples:

(i)



$$X = 35^\circ \text{ (Alt, int } \angle\text{S)}$$

(ii)

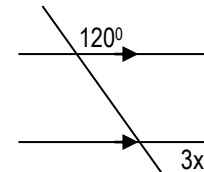


$$2Y = 108^\circ \text{ (co.int } \angle\text{S)}$$

$$\frac{2y}{2} = \frac{108}{2}$$

$$Y = 54^\circ$$

(iii)



$$3x = 120^\circ \text{ (co.ext } \angle\text{S)}$$

$$\frac{3x}{3} = \frac{120}{3}$$

$$x = 40^\circ$$

(iv)

$$(6x - 20)^\circ = (2x + 80)^\circ \text{ (veric.opp } \angle\text{S)}$$

$$(6x - 20)^\circ = 2x + 80^\circ$$

$$4x = 100^\circ$$

$$4x = 100$$

$$\frac{4}{4} \quad \frac{4}{4}$$

$$X = 25^\circ$$

$$7x^\circ + 3x^\circ + 70 = 360^\circ$$

$$\angle\text{S at a point}$$

$$10x + 70 = 360^\circ$$

$$10x + 70^\circ - 70^\circ = 360^\circ - 70^\circ$$

$$10x = 270$$

$$10x = 270$$

$$\frac{10}{10} \quad \frac{10}{10}$$

$$X = 27^\circ$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 13:10 Pg 216 - 218 (New Edition)

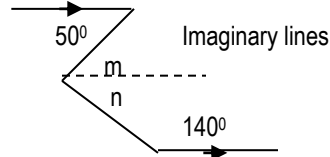
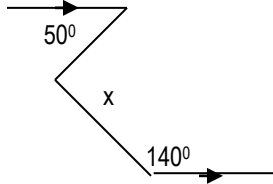
Mathematics Revision Handbook Bk 5 - 7 Pg 209 - 120

LESSON 11

SUB TOPIC: ANGLES ON PARALLEL LINES**CONTENT:** More about angles on parallel lines

Examples:

1. Find the value of
- x
- .



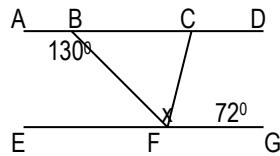
Draw imaginary lines and rename the S.

$$M = 50^\circ \text{ (Alt. int. } \angle\text{s)}$$

$$N + 140^\circ = 180^\circ \text{ (Co. int. } \angle\text{s)}$$

$$N + 140^\circ - 140^\circ = 180^\circ - 140^\circ$$

$$N = 40^\circ$$



$$\angle ABF = \angle BFG \text{ (Alt. Int. } \angle\text{s)}$$

$$X + 72^\circ = 130^\circ$$

$$4 \times 72^\circ = 130^\circ - 72^\circ$$

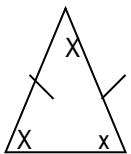
$$X = 58^\circ$$

EVALUATION ACTIVITY:

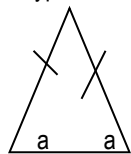
A New MK Primary Mathematics 2000 Bk 7 exercise 11:11, 11:12, 12:6 Pg 213 (New Edition)

Remarks:**LESSON 12****SUB TOPIC:****ANGLES OF TRIANGLES****CONTENT:**

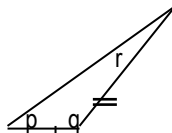
Types of triangles and their angle properties.



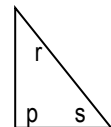
Equilateral
All \angle s are equal



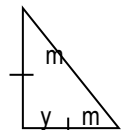
Isosceles
Base \angle s are equal $P \neq r \neq q$



Scalene
 $P \neq r \neq q$

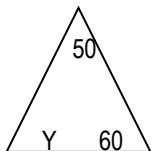


Right d scalene
 $P = 90$



Equilateral Isosceles
 $\angle y = 90^\circ$ $m = 45$

Examples:

**Interior angle sum of a triangle**

$$Y + 50 + 60 = 180 \text{ (sum of a triangle)}$$

$$Y + 110 = 180$$

$$Y + 110 - 110 = 180 - 110$$

$$Y = 70$$

Interior and exterior angles of a triangleFind the value of y .

$$Y + 60^\circ = 140^\circ \text{ (2 int. } \angle\text{s} = 1 \text{ opp ext.)}$$

$$Y + 60^\circ - 60^\circ = 140^\circ - 60^\circ$$

$$Y = 80^\circ$$

Exterior angles of trianglesFind the value of x

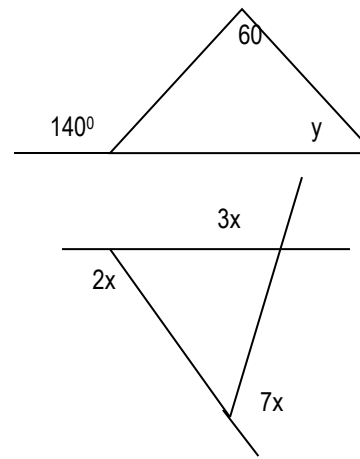
$$2x + 3x + 7x = 360^\circ$$

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

$$12x = 360^\circ$$

$$\frac{12x}{12} = \frac{360}{12}$$

$$x = 30^\circ$$

**EVALUATION ACTIVITY:**

A New MK Primary Mathematics 2000 Bk 7 exercise 12:1/12:2/12:3/12:4/12:5 Pg 229-235 (New Edition)

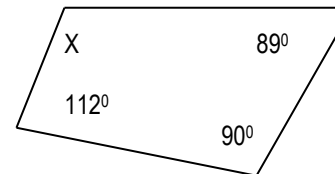
LESSON 13:**SUB TOPIC:****ANGLES OF QUADRILATERALS****CONTENT:**

Angle properties of quadrilaterals

The interior angle sum of a quadrilateral is 360° .

Example:

(i)



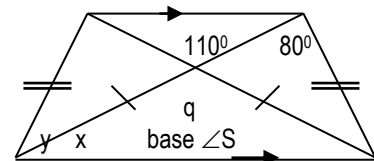
$$x = 112^\circ + 90^\circ + 89^\circ = 360^\circ$$

$$X + 291^\circ = 360^\circ$$

$$X + 291^\circ - 291^\circ = 360^\circ - 291^\circ$$

$$X = 69^\circ$$

(ii)



$$q = 110^\circ \text{ (vert. opp. } \angle\text{s)}$$

$$X + x + 110 = 180 \text{ (int. } \angle\text{sum)}$$

$$2x + 110^\circ = 180^\circ \text{ (of)}$$

$$2x + 110^\circ - 110^\circ = 180^\circ - 110^\circ$$

$$2x = 70^\circ$$

$$\frac{2x}{2} = \frac{70}{2}$$

$$x = 35^\circ$$

EVALUATION ACTIVITY:

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

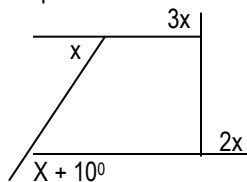
Remarks:

LESSON 14:
SUB TOPIC: PROPERTIES OF REGULAR POLYGONS

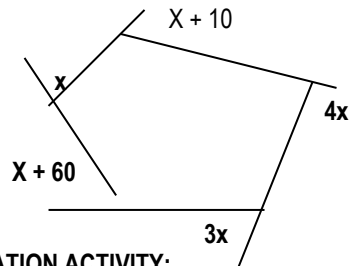
CONTENT: Exterior angles of polygons

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

Examples:



$$\begin{aligned} 2x + x + 10^\circ + 3x + x &= 360^\circ \\ 7x + 10^\circ &= 360^\circ \\ 7x + 10^\circ - 10^\circ &= 360^\circ - 10^\circ \\ \frac{7x}{7} &= \frac{350^\circ}{7} \\ X &= 50^\circ \end{aligned}$$



$$\begin{aligned} X + 4x + x + 10^\circ + x + 60^\circ &= 360^\circ \\ 7x + 70^\circ &= 360^\circ \\ 7x + 70^\circ - 70^\circ &= 360^\circ - 70^\circ \\ 7x &= 270^\circ \\ \frac{7}{7} &= \frac{270^\circ}{7} \\ X &= 30^\circ \end{aligned}$$

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:
 All ext S = 360°
 Each ext angle = 30°
 Number of sides = all ext angles
 Each ext angle

$$= \frac{360^\circ}{30^\circ}$$

No of sides = 12 sides.

2. The interior angle of a regular polygon is 144. name the polygon.
 Let the ext angle be x.

$$144 / x$$

$$X + 144^\circ = 180^\circ$$

$$X + 144^\circ - 144^\circ = 180 - 144$$

$$X = 36^\circ$$

$$\text{Exterior angle} = 36^\circ$$

$$\begin{aligned} \text{No of side} &= \frac{\text{All ext angles}}{\text{each ext angle}} \\ &= \frac{360^\circ}{36^\circ} \end{aligned}$$

$$= 10 \text{ sides}$$

The polygon is a decagon

3. The interior angle of a regular polygon is 90° more than the exterior angle.

(a) Calculate the exterior angle

(b) How many sides has the polygon?

Solution:

Let the ext. angle be x

Int angle $x + 90^\circ$

Ext. angle x

$$X + 90^\circ + x = 180^\circ$$

$$2x + 90^\circ - 90^\circ = 180^\circ - 90^\circ$$

$$\frac{2x}{2} = \frac{90}{2}$$

$$X = 45^\circ$$

$$\text{ext. angle} = 45^\circ$$

$$\text{No of sides} = \frac{\text{All ext angles}}{\text{each ext angle}}$$

$$= \frac{360^\circ}{45}$$

$$= 8 \text{ sides}$$

EVALUATION ACTIVITY:

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

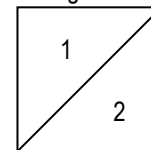
Remarks:

LESSON 16:

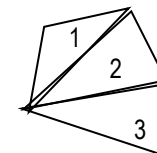
SUB TOPIC: ANGLES OF POLYGONS

CONTENT: Triangulation

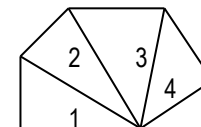
Triangulation is forming triangles in a polygon.



Quadrilateral



Pentagon



Hexagon

Polygon	Number of sides	Number of triangles
Quadrilateral	4	$4 - 2 = 2$ triangles
Pentagon	5	$5 - 2 = 3$ triangles
Hexagon	6	$6 - 2 = 4$ triangles
Septagon	7	$7 - 2 = 5$ triangles

Examples:

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

A New MK Primary Mathematics 2000 Bk 7 Pg 237-250 (New Edition) Exercise 12:13

Remarks:

LESSON 17

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

CONTENT: Polygon

Examples:

- 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 = $108^\circ \times 5$

= 540° .
- Calculate the interior angle sum of a regular polygon with 7 sides.

Solution:

Int angle sum = $180(n-2)$

$$\begin{aligned} & 180(7-2) \\ &= 180 \times 5 \\ &= 900^\circ \end{aligned}$$

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 | $180^\circ (n - 2)$ |
| 301 | $180^\circ (12 - 2)$ |
| 30 | 180×10 |
| = 12 sides | = 1800° |
4. The sum of interior angles of a regular polygon is 1440° .
- How many sides has the polygon?
 - 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

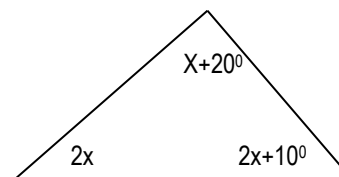
Remarks:

LESSON 18:

SUB TOPIC: MORE ABOUT INTERIOR ANGLE SUM OF POLYGONS

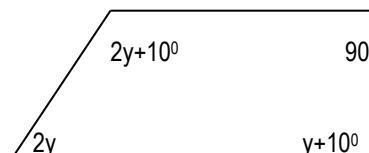
CONTENT: Examples

1. Find the value of x in the figure.



$$\begin{aligned} \text{Sum of int S of triangle} &= 180^\circ \\ X + 20^\circ + 2x + 2x + 10 &= 180^\circ \\ 5x + 30^\circ &= 180^\circ \\ 5x + 30^\circ - 30^\circ &= 180^\circ - 30^\circ \\ 5x &= 150^\circ \\ \frac{5x}{5} &= \frac{150^\circ}{5} \\ x &= 30^\circ \end{aligned}$$

2. Find the value of y .



$$\begin{array}{r} 2y + y + 10 + 2y + 10 + 90^\circ = 360^\circ \\ 2y + y + 2y + 10 + 10 + 90^\circ = 360^\circ \\ 5y + 110 = 360^\circ \\ 5y + 110 - 110 = 360^\circ - 110 \\ \underline{5y = 250^\circ} \\ \underline{5} \quad \underline{5} \end{array}$$

$$= y = 50^\circ$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Pg 258 (New Edition) Exercise 12:19

Remarks:**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.

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Exercise 13:7Pg 212 & Pg 214 exercise 13:8(New Edition)

Remarks:**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.

EVALUATION ACTIVITY:

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

Remarks:**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 of rectangles ABCD of length 7cm and width 4cm:

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

EVALUATION ACTIVITY:

Maths Revision Hand Book Pupils Bo 5, 6, and 7 Pg 264.

Remarks:

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 vise versa
- Angle son compass

Example:

Find the angle made in each of the following:

- (a) 3 rotations (b) $1\frac{1}{2}$ turn (c) What angle does a minute

$$\begin{aligned} 1 \text{ rotation} &= 360^\circ \\ 3 \text{ rotations} &= 360^\circ \times 3 \\ &= 1080^\circ \end{aligned}$$

$$\begin{aligned} 1 \text{ turn} &= 360^\circ \\ 1\frac{1}{2} \text{ turn} &= 1\frac{1}{2} \times 360^\circ \\ &= 540^\circ \end{aligned}$$

hand turn in:

(i) 10 minutes

Complete turn of a minute hand is 60 minutes and 3600

$$60 \text{ minutes} = 360^\circ$$

$$1 \text{ minute} = \frac{360^\circ}{60}$$

$$10 \text{ minutes} = \frac{360^\circ \times 10}{60}$$

$$= 6 \times 10$$

$$= 60^\circ$$

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

EVALUATION ACTIVITY:

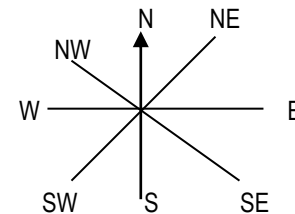
A New MK Primary Maths Pupils Bk 7 Pg 333 - 334 & 335 exercise 18:1

Remarks:**LESSON 24****SUB TOPIC: ORDINARY BEARING (DIRECTION)****CONTENT:** Direction and angles made by clockwise and anti clock wise turns

Example:

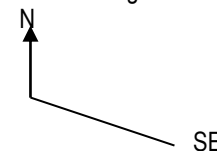
In which direction will I face if I turned anti clock wise through an angle of 135° from South.

Solution:



I will face NE direction.

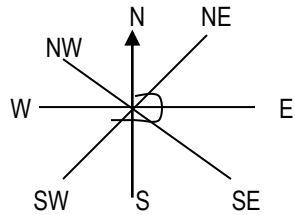
- State the angle made through the following turns.



- 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° .



EVALUATION ACTIVITY:

A New MK P.6 Maths Pupils Bk 7 (New Edition) Pg 288 – 289 Exercise 15:3 and 15"4

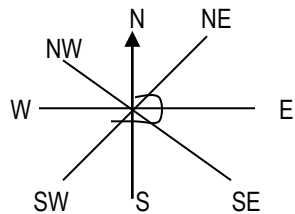
Remarks:

LESSON 25

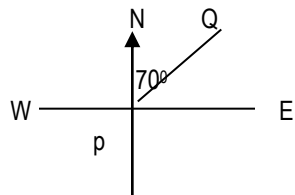
SUB TOPIC: ORDINARY BEARING (DIRECTION)

CONTENT:

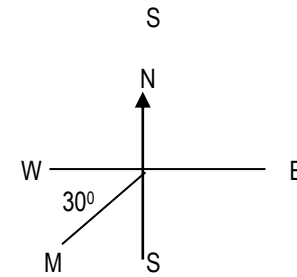
Example:



What is the bearing of Q from P?



The direction of Q from P is N 70° E



$90^{\circ} - 30^{\circ}$
 $= 60^{\circ}$
 Direction of M
 M is 70° West of South
 S 70° W

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7 Pg 290 exercise 15:5

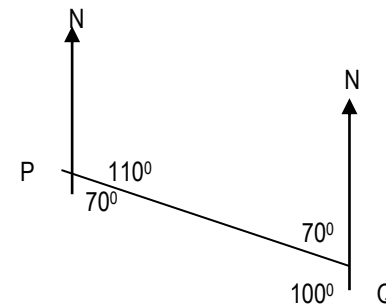
Remarks:

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.

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7 Pg 292 exercise 15:6

Remarks:

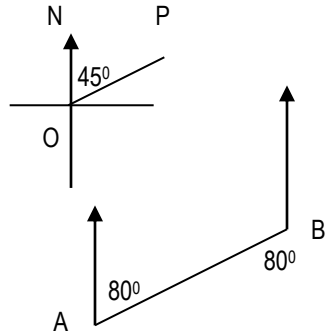
LESSON 16

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 $180^\circ + 80^\circ$
 $= 260^\circ$

EVALUATION ACTIVITY:

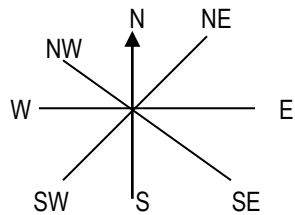
A New MK Primary Maths Pupils Bk 7 Pg 295 - 296 exercise 15:9 & 15:10

Remarks:

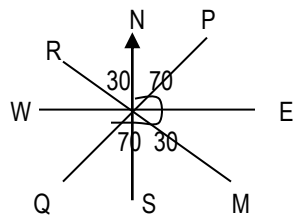
LESSON 17

SUB TOPIC: OPPOSITE DIRECTIONS AND BEARING

CONTENT: Opposite direction



Opp of NE is W
Opp of W is E
Opp of SE is NW



Point P is $N 70^\circ E$ opp. to Q ($S 70^\circ W$)
Point R is $N 30^\circ W$ opp. to M ($S 30^\circ E$)

EVALUATION ACTIVITY:

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

Remarks:

LESSON 18

SUB TOPIC:

CONTENT:

OPPOSITE BEARING

Table showing opposite bearing

Bearing	Opposite bearing
045°	225°
090°	270°
135°	315°
225°	045°

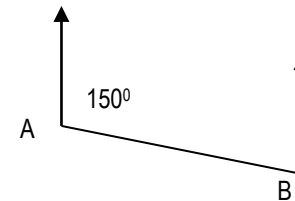
Examples:

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)
 $= 060^\circ + 180^\circ$
 $= 240^\circ$

2. The bearing of A from B is 270° . Find the bearing of B from A.

Bearing of B from A (Opposite bearing)
 $= 270^\circ - 180^\circ$
 $= 090^\circ$



Bearing of A from B (Opposite bearing)
 $= 150^\circ + 180^\circ$
 $= 330^\circ$

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7.

Remarks:

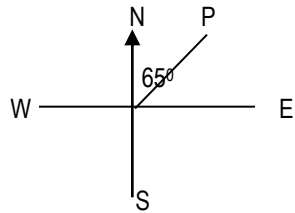
LESSON 19

SUB TOPIC:

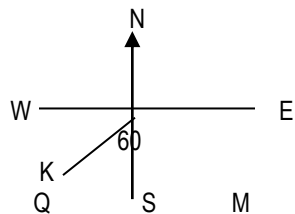
DIRECTION AND BEARING

CONTENT:

Bearing	Opposite bearing
North	000° or 360°
East	090°
South	180°
West	270°
NE	045°
NW	315°



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



Direction is S60W
Bearing is $60^\circ + 180^\circ = 240^\circ$

EVALUATION ACTIVITY:

A New MK Primary Maths Pupils Bk 7 Pg 299 exercise 15:11.

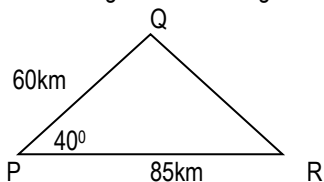
Remarks:

LESSON 20

SUB TOPIC: SCALE DRAWING

CONTENT:

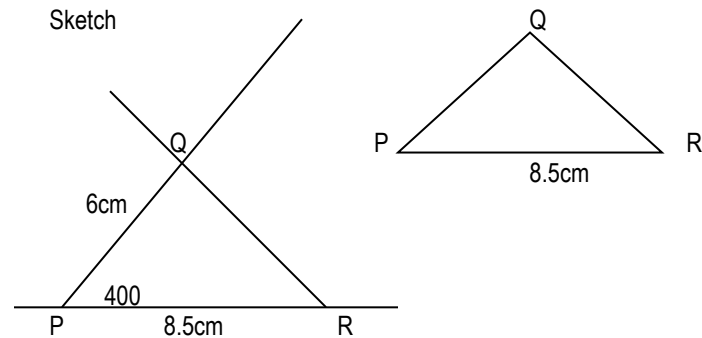
Construct the figure below using scale drawing.



Scale: 1cm represents 10km

Actual length	Drawing length
60km	$\frac{60}{10} = 6\text{cm}$
85km	$\frac{85}{10} = 8.5\text{cm}$

Sketch



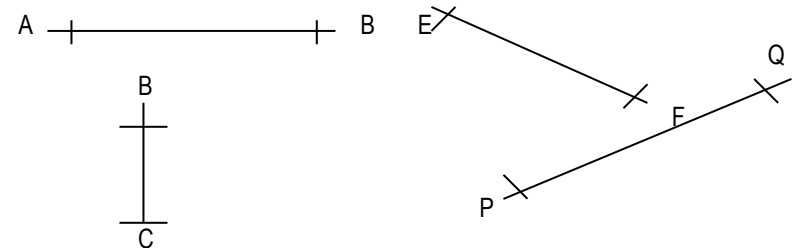
EVALUATION ACTIVITY:

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

Remarks:

TOPICAL REVISION QUESTIONS:

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



- With the help of a ruler and pair of compasses only, construct the following angles.
 - 30°
 - 45°
 - 75°
 - 120°
- Construct using a ruler and pair of compasses only the triangles with the following measurement.
 - Triangle ABC where AB = 7cm, AC = 6cm and BC = 5cm
 - Triangle PQR where PQ = 8cm, $\angle Q = 120^\circ$ and QR = 5cm. Measure PR
- What is the smaller angle between West and South West.
- The bearing of a village P from town K is 049. What is the bearing of town K from village P.
- Construct a square WXYZ whose sides are 4.5cm.

7. Each interior angle of a regular polygon is 120° .
 (i) Find the number of sides of the polygon.
 (ii) Calculate its interior angle sum.
8. How many degrees will Munduni turn through in $3\frac{1}{4}$ revolutions?
9. Town B is 60km South of town A and town C is 80km East of town B.
 Draw an accurate diagram for the 3 towns and measure the shortest distance between A and C

TOPIC

TOPIC: MEASURES

LESSON 1:

SUB TOPIC: TIME

CONTENT: Changing seconds to minutes and hours and vice versa

Examples:

1. Change 3600 sec to minutes and hours.

$$\begin{array}{r} 60 \\ \text{Solution: } 60 \overline{) 3600} \\ 60 \text{ minutes} \end{array} \quad 60 \text{ seconds} = 1 \text{ minute}$$

Change 60 minutes to hours

1 hour = 60 minutes

$$\begin{array}{r} 1 \text{ hr.} \\ 60 \overline{) 60} \\ = 1 \text{ hour} \end{array}$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 2:

SUB TOPIC: TIME

CONTENT: Conversion of 12 hour time in 24 hour time

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

Example

1. Change 2:00am to 24 hour clock

$$\begin{array}{r} \text{Solution: } 2:00 \\ +00:00 \end{array}$$

02:00 hrs

2. Change 8:30pm to 24 hour clock

$$\begin{array}{r} \text{Solution: } 8:30 \\ +12:00 \\ \hline 20:30 \text{ hrs} \end{array}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 21:3 Pg 412 (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

$$\begin{array}{r} \text{Solution: } 0436 \\ -0000 \end{array}$$

$$\begin{array}{r} 4:36 \\ \hline \end{array} = 4:36\text{am}$$

2. Write 2310 hrs in the 12-hour clock time

$$\begin{array}{r} \text{Solution: } 2340 \\ -1200 \end{array}$$

$$\begin{array}{r} 11:40 \\ \hline \end{array} = 11:40\text{pm}$$

EVALUATION ACTIVITY:

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

Remarks:

LESSON 4

SUB TOPIC: TIME

CONTENT: Finding duration

Example

1. A bus left Nairobi at 1315 hours and arrived in Kampala at 1630 hrs. How long did the journey take?

$$\begin{array}{r} \text{Subtract: } 1630 \text{ hrs} \\ - 1315 \text{ hrs} \end{array}$$

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)

11:30pm +12:00hrs	Then subtract	23300hrs -2000hrs
2330 hrs		3hrs :30minutes

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.

From	8:30 am	9:10 am	9:50 am	10:30 am	11:10 am	11:50 am	12:30 pm	2:00 pm	2:40 pm
To	9:10	9:50	10:30	11:10	11:50	12:30	2:00	2:40	3:20
Mon	MTC	Eng		PAPE	PAPE	R.E		PAPE MDD	PAPE MDD
Tue.	Sci	MTC		R.E	R.E	Eng		SST	SST
Wed.	SST	Eng		IPS	Sci	Sci		Eng	Eng
Thur	Eng	Sci		MTC	MTC	L.Lag		R.E	MTC
Fri	MTC	MTC		Swah	Eng	Sci		IPS	IPS

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

40 minutes

- (ii) Each lesson lasts for 40 minutes
At what time does break end?

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

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 21:6 Pg 415 (New Edition)

Remarks:

LESSON 6

SUB TOPIC: TIME

CONTENT: Taxi and bus time tables

Example

1. The table shows the departure and arrival time of a taxi at given stations.
Study it and answer the questions that follow:

Station	Arrival	Departure
Tororo		6:00am
Iganga	7:30am	7:45am
Jinja	8:35am	8:50am
Kampala	10:50am	

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

1:30

- (ii) It took 1 hour 30 minutes
How long was the taxis stopover in Jinja?
Subtract 8:50am
- 8:35am

0:15

= It was 15 minutes.

- (ii) 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:

A New MK Primary Mathematics 2000 Bk 7 exercise 21:7 Pg 416 - 417 (New Edition)

Remarks:

LESSON 7

SUB TOPIC: TIME
CONTENT: Train timetables

Example

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

Station	Arrival	Departure
Mityana		11:00pm
Bujjuko	11:45pm	12:00 Mid night
Kampala	12:30am	12:45am
Jinja	1:30am	1:40am
Iganga	2:10am	2:30am
Tororo	3:30am	

Table II:

Mty					
500	BJK				
1000	500	Kla			
1600	1100	1000	JNJ		
2600	2100	2000	1000	ING	
3600	3100	3000	2000	1000	TRR

- (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 tourist pay shs 2000
 X 3

Shs 6,000

EVALUATION ACTIVITY:

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

Remarks:

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:

Port		Day	Time	Fares (shs)
Port Bell (KP)	Dep	Wed	06:00	1500
Bukoba	Arrival	Wed	09:15	
Mwanza	Dep	Wed	09:55	3000
	Arrival	Wed	15:55	
Musoma	Dep	Wed	19:55	3000
	Arrival	Thurs	02:00	
Kisumu Peir	Dep	Thurs	04:00	5000
	Arrival	Thurs	14:00	

- (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 QU 758	07:00 hours 17:00 hours	08:00 hours 18:00
Entebbe	Kasese	QU 702 QU 730	07:00 hours 21:00 hours	08:15 hours 22:15 hours
Kasese	Entebbe	QU 703 QU 731	07:00 hours 21:45 hours	08:15 hours 23:00 hours
Soroti	Entebbe	QU 741 QU 759	08:30 hours 18:30 hours	09:30 hours 19:30 hours

- (a) How long does the flight from Entebbe to Soroti take?

Subtract 0800 it takes 1 hour
-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 Add 0700 hours 1:45
-22:15 +07:00

1:45

8:45

Owori waited at Kasese for 8 hours and 45 minutes

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:

Time	Programme	Presenter
8:00am – 8:15 am	News	Aisha Nambetha
8:15 am – 10:15am	Healthy tips	Apio Olga
10:15am – 10:30am	News	Muwanga Kisolo

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 The healthy tips programme lasts 2 hours.

2:00

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 21:11 & 21:12Pg 422 - 423 (New Edition)

Remarks:

LESSON 10

SUB TOPIC: TIME

CONTENT: changing km/hr to m/s and vise versa

Example

- change 10m/s to km /hr
- change 90km/hr to m/s

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 pg 331 (old edition)
MK NCDC bk 6 pg 116

Remarks:

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

- Namayanja arrives at Kampala at 11:20pm and leaves at 2:0am to travel to Nairobi. She is due into Nairobi at 6:00am the following day. Unfortunately she is delayed and arrives at 9:30am.
 - How late is Namayanja in arriving at Nairobi?
 - For how long does Namayanja have to wait in Kampala?
 - At what time does Namayanja leave Kampala on the 24 – hour clock?
- A lesson started at 10:30am and ended at 11:50 am. How long did the lesson last?
- Convert 7200 seconds into hours.
- Convert 1717 hours to a 12- hour clock.
- Thieves escaped from the prisons at 12:15 am. Express this time in a 24-hour clock.
- Convert 2 ½ hours to minutes.
- 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.
- 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.
 - After how many KM from B will they meet?
 - If both vehicles start at 9:00 am at what time will the two buses meet?
- The table below shows the arrival and departure time for a bus moving between Masaka and Kampala.
 - How long did the bus take to travel from Masaka to Nateete?
 - For how long did the bus stay at Nateete?
 - If the distance between Masaka and Kampala is 280km. calculate the average speed of the bus for the time it spent traveling.
- Express 90km/hr as m/sec.
- Convert 10m/second to km/hour
- A motorist covered 140km between 11:25 am and 2:55pm. Find his average speed.
- It takes a car industry 1 hour 10 minutes 20 seconds to assemble a car. How long will it take to assemble 50 cars?

LESSON 1

SUB TOPIC: MONEY

CONTENT: Bills

Example

- A mother had a 5,000 shillings note and bought the following items.
 - 1 ½ kg of beans at 2600 per kg .
 - 500g of salt at shs 700 each kg.
 - 2 bars of soap at shs 6200

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

Beans	Salt	Soap	Total expenditure
1 1/2kg x 600	500g	2 bars = 6200	3900
6 x 2600	1kg = 1000g		6200
2	500 kg		+350
3 x 300	1000		
= 3900	500 x 700		10450/=
	1000		
	5 x 70 = 350		

Balance = Money at hand – Total expenditure

15000

- 10450

4650

- (b) Given that she was given a discount of 10% on the total expenditure. How much money did she pay?
- Total expenditure = 100%
- Discount = 10%
- %age of money paid = 100% - 10%
- = 90%
- Amount = $\frac{90}{100} \times 1650$
- = 9 x 165 =
- = 1485 =

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 21:11 & 21:12Pg 214 - 216 (New Edition)

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.

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:

Country	Currency
Burundi	Burundi francs (BF)
Zambia	Kwacha (Kch)
Zimbabwe	Zimbabwe Dollar (Z\$)
German	Deutsch mark (DM)
Egypt	Egyptian pound , etc

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

Total number of notes = 99 + 1 = 100 notes

EVALUATION ACTIVITY:

- Amos has paper notes numbered from A/P 004300 to A/P 004399.
 - How many paper notes does Amos have?
 - If each is 1000 shillings in value, how much money does Amos have?
- A school bursar withdrew money from the bank. He was given new banknotes numbered consecutively Q/P 728601 to Q/P 728700. If each note was shs 500. How much money was withdrawn?
- Find the amount of money in a bundle of 1000= notes if they are numbered UH 627400 to UH 627499
- A cashier is paying salaries to teachers. How many 1000 shilling notes will he give to a teacher who gets a salary of:
 - 96000=
 - 75000

5. A money counting machine detects and records paper money. If 98000 of 1000 shillings denominations are inserted in the machine, what number will be recorded on the machine?
6. Francis has the following money:
5000 shilling notes numbered AC 502830 to ACX 502839
1000 shilling notes numbered CU 412389 to CU 412397
10000 shilling notes numbered SM 301422 to SM 301437
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 Ushs 20 x 150,000=
 = U shs 3,000,000=
2. How much Uganda shillings is equivalent to £ 20 plus Tz hs 30,000?
Tz shs 30,000 Total Uganda currency
Ushs 1650 Ushs 33,000
20 = Ush 1650 x 20 Ush 66,000
= U sh 3,300
TZ sh = Ush 2.2 Ushs 99,000
TZ shs 30,000 = Ush 22 x 30,000 _____

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

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 21:11 & 21:12Pg 214 - 216 (New Edition)

Remarks:

LESSON 8

SUB TOPIC: ADVERTISEMENT

CONTENT:

Example

Advertisement is sometimes done in newspapers or radios o television.

The table below shows how adverts are charged in red pepper news paper.

Size	Black and white	Full colour
Full page (inside)	1,145,300	1,750,000
Half page	257,650	875,000
Quarter page	286,350	438,000
Front page	1,145,300	1,638,000
Back page	297,800	595,000

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

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 291-293 (New Edition)

Remarks:

LESSON 9**SUB TOPIC: RADIO ANNOUNCEMENTS**

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

1. What is the cost of sending a death announcement of 27 words on Radio Kiboga?
The death announcement of 27 words
First 25 words cost 1000=
2 extra words cost $100 \times 2 = 200$
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 announemnt 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 Newspaper for people and charges them accordingly.

1. Letters: For the first 20 grams shs 50
Each additional word 50gram shs 30.
2. Printed papers: For the first 50 grams shs 50
Each additional 50 grams shs 20
 - (a) How much does it cost to post a letter weighing 120 gram?

First 20 grams	= shs 50
Additional grams	= $120 - 20$
	100
Additional 20 grams	= $\frac{100}{20}$
	= 5 additional 20 grams
	= $5 \times 30 = 150$
	= $150 + 50$
	= 200
 - (b) How much does it cost shs 2000 to post 2 letters each weighing 120 grams and 2 printed papers each weighing 300grams?

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 = 200×2
= 400
Printed papers:
First 50g = sh 50
Additional grams = $(300 - 50)$
= 250g
Additional 50g = 250
50
= 5
= $5 \times 20 = 100$
Total cost of 1 printed paper = $100 + 50 = 150$

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:

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.

106	105	104	103	102	101	100
Km	Hm	Dm	Metre	Dm	Cm	Mm
Kg	Hg	Dg	Gram	Dg	Cg	Mg
Kl	HI	DI	Litre	DI	CI	MI

2. Conversion of metric units.

(a) Change 7m to millimeter

$1\text{m} = 1000\text{m}$

$7\text{m} = (7 \times 1000\text{m})$

$= 7000\text{mm}$

3. Change 800m to km

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

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

$800\text{m} = \frac{1}{1000} \times 800$

$= \frac{8}{10} = 0.8\text{km}$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 18:2 and 18:1 Pg 344

Remarks:

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

$$\begin{array}{r} 5 \quad 8 \\ +8 \quad 3 \\ \hline 14 \quad 1 \end{array} = 14.1\text{cm}$$

2. Subtract: 8m – 7cm

$$\begin{array}{r} \text{M} \quad \text{cm} \\ 7 \quad 100 \\ 8 \quad 00 \\ - \quad 07 \\ \hline 7 \quad 93 \end{array} = 7\text{m } 93\text{cm}$$

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.

$$\begin{array}{r} \text{Cm} \quad \text{mm} \\ 7 \quad 9 \\ \times 4 \\ \hline 31 \quad 6 \end{array} \quad \begin{array}{l} 316\text{mm} \\ 31\text{cm } 6\text{mm} \\ \text{or } 31.6\text{cm} \end{array}$$

2. Divide 2.4km wire into pieces of 60 metres each.

$$\begin{array}{l} 2.4\text{km} \quad 1\text{km} = 1000\text{m} \\ 60\text{m} \end{array} \quad \begin{array}{l} 2.4\text{km} = 24 \times 1000 \\ 10 \\ = 24 \times 100 \\ = 2400\text{m} \\ 2400 \\ 60 \quad = 40 \text{ pieces} \end{array}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 18:4 and 18:1 Pg 346

Remarks:

LESSON 4:

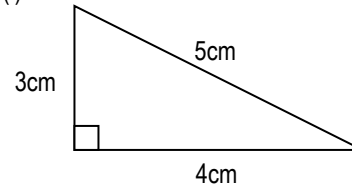
SUB TOPIC: METRIC SYSTEM

CONTENT: Perimeter of triangles, quadrilaterals combined figures and other polygons
(Revision)

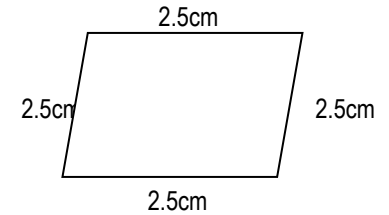
Examples:

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

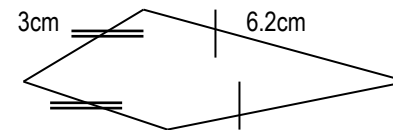
(i)



(ii)



(iii)



EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 Pg 347-350

Remarks:

LESSON 5:

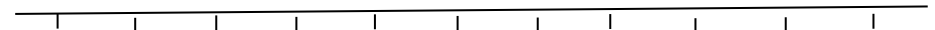
SUB TOPIC: application of perimeters

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
- (c) from the first pole to the 10th pole.

(d) Solution:

- (e) a) Relating numbers of poles to number of spaces.
- (f)



1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th

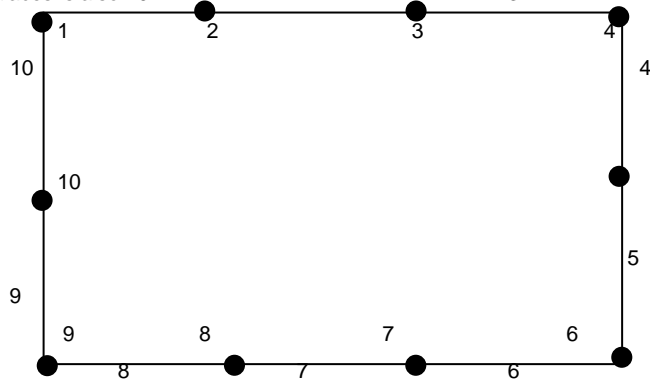
By counting we have ten poles bwn 1st and tenth pole and nine spaces.

No. of spaces = No of poles – 1

$$\begin{aligned}\text{Distance} &= (10 - 1) \times 20\text{m} \\ &= 9 \times 20\text{m} \\ &= 180\text{m}.\end{aligned}$$

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:

$$\begin{aligned}\text{Perimeter of flower garden} &= 2(l + w) \\ &= 2(10 + 8)\text{m} \\ &= 2(18) \\ &= 36\text{m}\end{aligned}$$

No. of poles

= Perimeter

Space bwn poles

$$= \frac{36\text{m}}{2} = 18$$

~~2m~~

= 18 poles

ACTIVITY:

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

EVALUATION ACTIVITY:

Macmillan Primary Mathematics Bk 7 exercise 1 Pg 81.

Remarks:

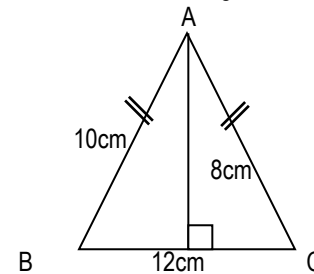
Lesson : 6

SUB TOPIC: TRIANGLE

CONTENT: Area of a triangle

Examples:

- Find the area of triangle ABC



$$\begin{aligned}A &= \frac{1}{2} \times b \times h \\ &= \frac{1}{2} \times 12 \times 8 \\ &= 6 \times 8 \\ A &= 48\text{cm}^2.\end{aligned}$$

EVALUATION ACTIVITY:

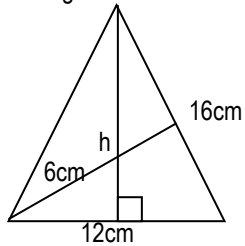
A New MK Primary Mathematics Bk 7 exercise 19:1 and 18:1 Pg 351

Remarks:

LESSON 7:

SUB TOPIC: TRIANGLE**CONTENT:** Finding the missing side when given the area.**Examples:**

1. Find the height marked h.



$$\frac{1}{2} \times b \times h = \frac{1}{2} \times b \times h$$

$$\frac{1}{2} \times 12 \times h = \frac{1}{2} \times 16 \times 6$$

$$6h = 48$$

$$\frac{6h}{6} = \frac{48}{6}$$

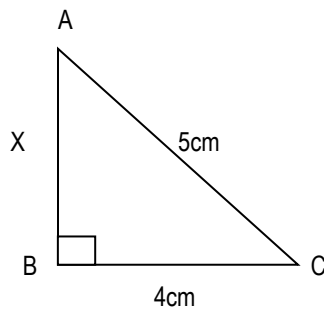
$$\therefore h = 8\text{cm}$$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 8****SUB TOPIC: TRIANGLE****CONTENT:** Application of Pythagoras theorem in a triangle.**Examples:**

1. Find the value of x and the area of the figure below.



Value of x=

$$a^2 + b^2 = c^2$$

$$4^2 + x^2 = 5^2$$

$$4 \times 4 + x^2 = 5 \times 5$$

$$16 + x^2 = 25$$

$$16 - 16 + x^2 = 25 - 16$$

$$x^2 = 9$$

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

$$x = 3\text{cm}$$

2. Area of the triangle

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

$$= \frac{1}{2} \times 4 \times 3$$

$$= 2 \times 3$$

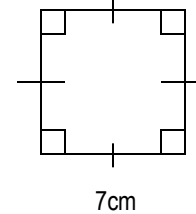
$$= 6\text{cm}^2$$

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:**

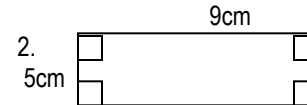
1. Find the value of x and the area of the figure below.



$$A = S \times S$$

$$= 7 \times 7$$

$$= 49\text{cm}^2$$

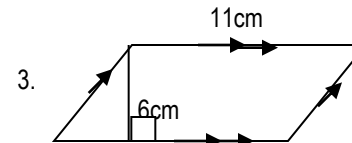


- 2.

$$A = L \times W$$

$$= 9 \times 5$$

$$= 45\text{cm}^2$$



- 3.

$$A = b \times h$$

$$= 11 \times 6$$

$$= 66\text{cm}^2$$

EVALUATION ACTIVITY:

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

Remarks:

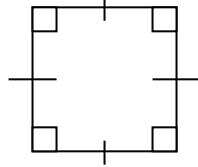
LESSON 10

SUB TOPIC: QUADRILATERALS

CONTENT: Finding the unknown side when given area.

Examples:

1. The area of a square is 49cm^2 . Find the length of each side..



5cm

$$\begin{aligned} A &= S \times S \\ &= s \times s = 49\text{cm}^2 \\ S^2 &= 49\text{cm}^2 \\ \sqrt{S^2} &= \sqrt{49} \\ S &= 7\text{cm} \end{aligned}$$

2. The area of a rectangular garden is 48m^2 . Find its length if it has a width of 6cm.

$$\begin{aligned} A &= L \times W \\ L \times 6 &= 48\text{m}^2 \\ 6L &= 48 \\ 6 \mid 48 \\ 6 \quad 6 \\ L &= 8\text{m} \end{aligned}$$

EVALUATION ACTIVITY:

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

Remarks:

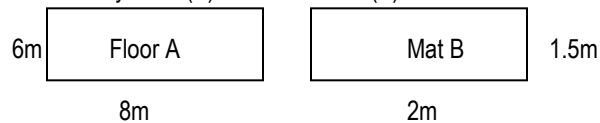
LESSON 11

SUB TOPIC: AREA OF QUADRILATERALS

CONTENT: Comparison of different areas

Examples:

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



$$\begin{aligned} 1\text{m} &= 100\text{cm} & \text{A long length: } \frac{800}{200} &= 4 \\ 8\text{m} &= 800\text{cm} & & \\ 6\text{m} &= 600\text{cm} & & \\ 2\text{m} &= 200\text{cm} & \text{A long width } \frac{600}{150} &= 4 \\ 1.5\text{m} &= 150\text{cm} & & \\ & & &= 4 \text{ mats} \\ & & &= 4 \times 4 \\ & & &= 16 \text{ mats} \end{aligned}$$

EVALUATION ACTIVITY:

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

Remarks:

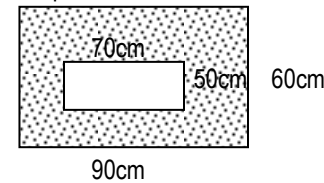
LESSON 12

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?



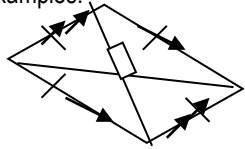
$$\begin{aligned} \text{Area of the table top} &= A = L \times W \\ &= 90 \times 60 \\ &= 5400 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of the cloth} &= A = L \times W \\ &= 70 \times 50 \\ &= 3500\text{cm}^2 \end{aligned}$$

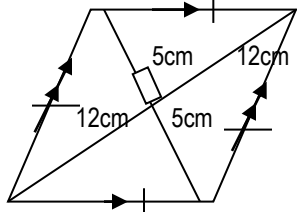
$$\begin{aligned} \text{Uncovered area} &= 5400\text{cm}^2 \\ &\quad - 3500\text{cm}^2 \\ &= 1900\text{cm}^2 \end{aligned}$$

EVALUATION ACTIVITY:

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

Remarks:**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

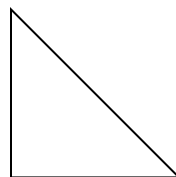
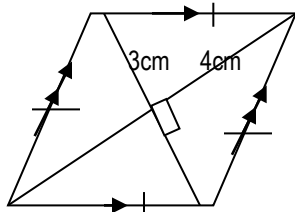
Example: $A = \frac{1}{2} \times b \times h \times 4$
 $\frac{1}{2} \times 12 \times 5 \times 4$
 $= \frac{1}{2} \times 12 \times 5 \times 4$
 $= 12 \times 5 \times 2$
 $= 12 \times 10$
 $= 120 \text{ cm}^2$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:8 Pg 358

Remarks:**LESSON 14****SUB TOPIC: AREA OF QUADRILATERAL****CONTENT:** Application of Pythagoras theorem in a rhombus**Examples:**

1. Calculate the length of each side of a rhombus whose diagonals are 8cm and 6cm.



$$a^2 + b^2 = C^2$$

$$3^2 + 4^2 = C^2$$

$$3 \times 3 + 4 \times 4 = C^2$$

$$9 + 16 = C^2$$

4cm

3cm

4cm



$25 = C^2$

$25 = C^2$

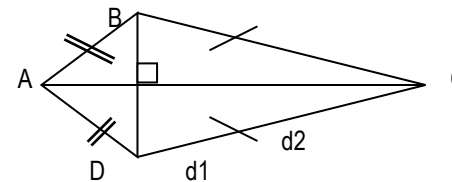
$5 = C$

Each side of a rhombus is 5cm

3cm

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:9 Pg 360

Remarks:**LESSON 15:****SUB TOPIC: AREA OF QUADRILATERAL****CONTENT:** Area of a kite.

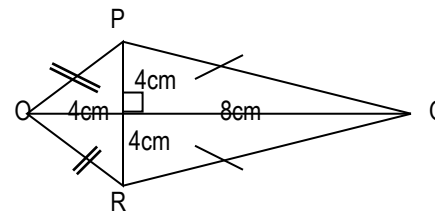
ABCD is a kite

Area of the kite = $\frac{1}{2} \times$ the two diagonals = $\frac{1}{2} \times d_1 \times d_2$

Or Separate the kite into 2 different isosceles triangles of the same base ie ABC and BCD

Area = $(\frac{1}{2} \times b \times h) + (\frac{1}{2} \times b \times h)$ **Example:**

OPQR is a kite Calculate its area.

**Method II**

Area of a kite

$\frac{1}{2} \times d_1 \times d_2$

$\frac{1}{2} \times 8 \times 12$

$= 48 \text{ cm}^2$

Method II

(using triangles)

Area = $(\frac{1}{2} \times b \times h) + (\frac{1}{2} \times b \times h)$

$(\frac{1}{2} \times 8 \times 4) + (\frac{1}{2} \times 8 \times 8)$

$16 + 32$

$$= 48\text{cm}^2$$

EVALUATION ACTIVITY:

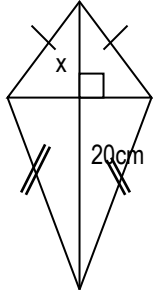
A New MK Primary Mathematics Bk 7 exercise 19:10 Pg 361

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 = $\frac{1}{2} \times d_1 \times d_2$

$$160 = \frac{1}{2} \times 12 \times d_2$$

$$160 = 10d_2$$

$$\frac{160}{10} = \frac{10d_2}{10}$$

$$16 = d_2$$

Second diagonal = 16cm

$$x = \frac{d_2}{2} = \frac{16}{2} = 8\text{cm}$$

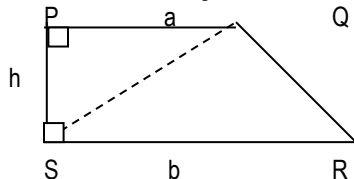
EVALUATION ACTIVITY:

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



a = short parallel side

b = long parallel side

h = height

$$\text{Area of a triangle PQS} = \frac{1}{2} \times a \times h = \frac{1}{2} ah$$

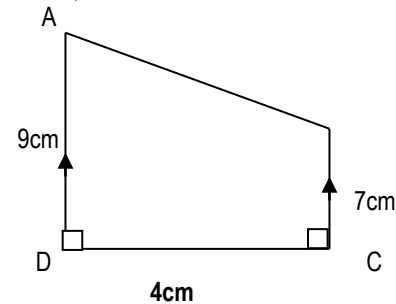
$$\text{Area of triangle QRS} = \frac{1}{2} \times b \times h = \frac{1}{2} bh$$

$$\text{Area of two triangles} = \frac{1}{2} ah + \frac{1}{2} bh$$

$$= \frac{1}{2} h(a+b)$$

Area of a trapezium = $\frac{1}{2} h(a+b)$

Example:



$$\begin{aligned} \text{Area of a trapezium} &= \frac{1}{2} h(a+b) \\ &= \frac{1}{2} \times 4 \times (7+9) \\ &= \frac{1}{2} \times 4 \times 16 \\ &= 2 \times 16 \\ &= 32\text{cm}^2 \end{aligned}$$

EVALUATION ACTIVITY:

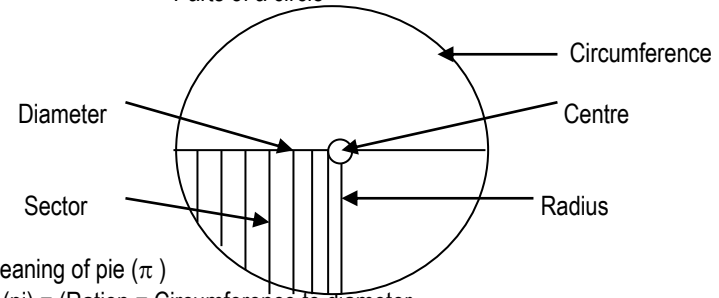
A New MK Primary Mathematics Bk 7 exercise 19:12 Pg 363

Remarks:

LESSON 18**SUB TOPIC: CIRCLE**

CONTENT: Circumference of a circle when given diameter

Parts of a circle



Meaning of pie (π)

π (pi) = (Ratio = Circumference to diameter).

Example: $\text{Pi} = \frac{\text{circumference}}{\text{Diameter}}$

$$\pi = \frac{C}{D}$$

$$C = \frac{\pi D}{2}$$

NB. $\pi (\pi) = \frac{22}{7} = 3 \frac{1}{7}$
Or = 3.14

- Find the circumference of a circle whose diameter is 10cm. (Use $\pi = 3.14$)
 $C = \pi D$
 $= 3.14 \times 10$
 $= \frac{3.14}{100} \times 10 = 31.4$
 $C = 31.4\text{cm}$
- Calculate the circumference of a circle whose diameter is 14cm. (Use $\pi = \frac{22}{7}$)
 $C = \pi D$
 $= \frac{22}{7} \times 14$
 $= 22 \times 2$
 $C = 44\text{cm}$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 19****SUB TOPIC: CIRCLE****CONTENT:** Finding circumference when given radius**Examples:** $C = 2\pi R$

- Find the circumference of a circle whose radius is:
 - 7cm
 $C = 2\pi r$
 $= 2 \times \frac{22}{7} \times 7$
 $= 2 \times 22$
 $= 44\text{cm}$
 - 10cm
 $C = 2\pi r$
 $= 2 \times 3.14 \times 10$
 $= \frac{2 \times 314}{100} \times 10$
 $= \frac{628}{10}$
 $= 62.8\text{cm}$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 20****SUB TOPIC: CIRCLE****CONTENT:** Finding the radius of a circle when circumference is given**Examples:**

- Find the radius of a circle whose circumference is 44cm.
 $C = 2\pi r$
 $2\pi r = 44\text{cm}$
 $2 \times \frac{22}{7} r = 44$
 $\frac{44r}{7} = 44$
 $\frac{7}{44} \times \frac{44r}{7} = 44 \times \frac{7}{44}$

EVALUATION ACTIVITY:

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

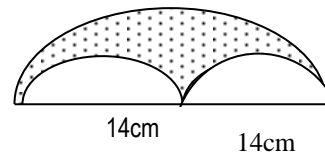
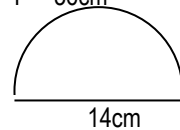
Remarks:**LESSON 21****SUB TOPIC: CIRCLE****CONTENT:** Finding the perimeter of shapes using pi (π)**Examples:**

$$P = \frac{1}{2} \pi D + D$$

$$= \frac{1}{2} \times 22 \times 14 + 14$$

$$= 22 + 14$$

$$P = 36\text{cm}$$

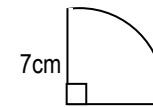


$$P = \frac{1}{4} 2\pi R + R + R$$

$$= \frac{1}{4} \times 2 \times 22 \times 7 + (7 + 7)$$

$$= 11 + 14$$

$$P = 25\text{cm}$$



Diameter of big semicircle = 28cm
 Circumference of big semicircle
 $= \frac{1}{2} D = \frac{1}{2} \times \frac{22}{7} \times 28$

$$= 22 \times 2$$

$$= 44\text{cm}$$

Diameter of each small semicircle = 14cm
 Circumference of one semicircle = $\frac{1}{2} D$
 $= \frac{1}{2} \times \frac{22}{7} \times 14$

7

$$= 22\text{cm}$$

$$\text{Perimeter of the figure} = 22\text{cm} + 22\text{cm} + 44\text{cm}$$

$$= 44\text{cm} + 44\text{cm}$$

$$= 88\text{cm}$$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 22****SUB TOPIC: CIRCLES****CONTENT:** Circumference (Application)

Examples:

1. How many revolutions can a wheel of a car 35cm in diameter make in a distance of 4.4km?

$$C = \pi D = \frac{22}{7} \times 35$$

$$= 22 \times 5$$

$$= 110\text{cm}$$

$$1\text{km} = 100,000\text{cm}$$

$$4.4\text{km} = 44 \times 10000$$

$$10$$

$$44 \times 10000$$

$$= 440000\text{cm}$$

$$1 \text{ revolution} = 110\text{cm}$$

$$\text{No of revolutions} = \frac{440000}{110}$$

2. A wire of length 352ms is wound round a tin 400 turns. Find the diameter of the tin.

$$1\text{m} = 100\text{cm}$$

$$352\text{m} = 352 \times 100$$

$$= 35200\text{cm}$$

$$1 \text{ revolution} = \frac{35200}{400}$$

$$= 88\text{cm}$$

$$C = \pi D$$

$$\frac{22D}{7} = 88\text{cm}$$

$$\frac{7 \times 22D}{22 \times 7} = 88 \times \frac{7}{22}$$

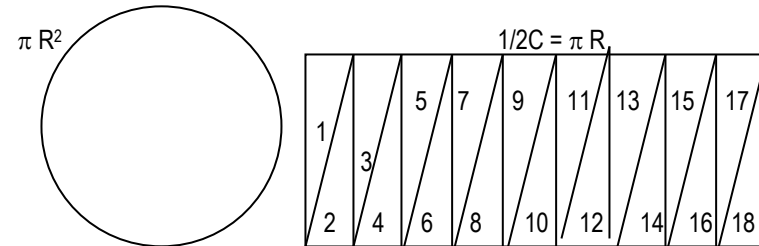
$$\therefore D = 4 \times 7 = 28\text{cm}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:20 Pg 376 – 377 (New Edition)

Remarks:**LESSON 23****SUB TOPIC: CIRCLES**

CONTENT: Area of a circle (given Radius)
Formular of the area of a circle.



Area of a rectangle = L x W

Area of a circle = $\frac{1}{2} C \times r$

$$= \frac{1}{2} 2 \pi r \times r$$

$$= \pi r \times r$$

$$= \pi r^2$$

Examples:

1. Find the area of a circle whose radius is 14cm ($\pi = \frac{22}{7}$)

Area of a circle = πr^2

$$= \frac{22}{7} \times 14 \times 14$$

$$= 44 \times 14$$

$$= 616\text{cm}^2$$

2. A circular table cloth has a radius of 20cm. Calculate the area. ($\pi = 3.14$)

Area of a circle = πR^2

$$= (3.14 \times 20 \times 20) \text{ cm}^2$$

$$= (3.14 \times 400) \text{ cm}^2$$

$$= \frac{314 \times 400}{100}$$

$$= 1256\text{cm}^2$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:21 Pg 380 (New Edition)

Remarks:

LESSON 24

SUB TOPIC: CIRCLES

CONTENT: Calculating area of circles given diameter.

Examples:

- Find the area of a circle whose diameter is 8cm ($\pi = 3.14$)
 Diameter = 8cm
 Radius = $\frac{8}{2} = 4$ cm
 Area = $r\pi^2$
 $= (3.14 \times 4 \times 4) \text{cm}^2$
 $= 3.14 \times 16$
 $= 50.24 \text{cm}^2$
- Find the area of a circle whose diameter is 28cm ($= \frac{22}{7}$)
 Diameter = 28cm
 Radius = $\frac{28}{2} = 14$ cm
 Area = R^2
 $= (\frac{22}{7} \times 14 \times 14) \text{cm}^2$
 $= 44 \times 14$
 $= 616 \text{cm}^2$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:22 Pg 381

Remarks:

LESSON 25

SUB TOPIC: CIRCLES

CONTENT: Find the radius, diameter, circumference when given the area.

Examples:

- The area of a circle is 154cm^2 . Find its:

(a) radius $A = r^2$ $R^2 = 154 \text{cm}^2$ $22r^2 = 154$	(b) Diameter $2 \times R$ $\pi r^2 = A$ $= 2 \times 7$
---	---

$$\begin{aligned} \frac{7}{22} \times \frac{22}{7} r^2 &= 154 \times \frac{7}{22} & (c) & \quad = 14 \text{cm} \\ r^2 &= 7 \times 7 & & \quad \text{Circumference} \\ r^2 &= 49 & & \quad C = D \\ r &= 7 \text{cm} & & \quad 22 \times 14 \\ & & & \quad 7 \\ & & & \quad = 44 \text{cm} \end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:22 Pg 381

Remarks:

LESSON 26

SUB TOPIC: CIRCLE

CONTENT: Finding area when given circumference

Examples:

- Find the area of a circle whose circumference is 44cm
 $C = 2\pi r$ $A = \pi r^2$
 $2\pi r = 44$ $= 22 \times 7 \times 7$
 $2 \times \frac{22}{7} r = 44$ $= 154 \text{cm}^2$
 $\frac{44r}{7} = 44$
 $\frac{7 \times 44r}{44 \times 7} = 44 \times \frac{7}{44}$
 $\therefore r = 7 \text{cm}$

EVALUATION ACTIVITY:

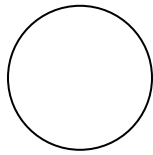
A New MK Primary Mathematics Bk 7 exercise 19:24 Pg 382

Remarks:

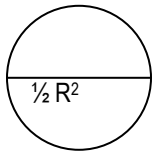
LESSON 27

SUB TOPIC: CIRCLE

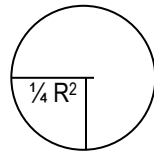
CONTENT: Area of parts of a circle



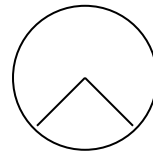
Circular
Region



shaded part
is semi circle



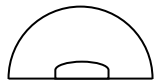
$\frac{1}{4}$ a circle
it is a quadrant



sector of
a circle

Examples:

1. Calculate area of a semicircle of radius 10cm ($\pi = 3.14$)



10cm

$$\begin{aligned}\text{Area} &= \frac{1}{2} R^2 \\ &= \left(\frac{1}{2} \times 3.14 \times 10 \times 10\right) \text{ cm}^2 \\ &= (3.14 \times 5 \times 10) \\ &= 157 \text{ cm}^2.\end{aligned}$$

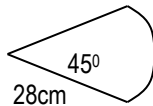
2. Calculate the area of a sector of a circle of radius 28cm and centre angle 45° .



14cm

$$\begin{aligned}\text{Area} &= \frac{1}{4} \times R^2 \\ &= \left(\frac{1}{4} \times \frac{22}{7} \times 14 \times 14\right) \text{ cm}^2. \\ &= \frac{1}{4} \times \frac{22}{7} \times 14 \times 14 = 154 \text{ cm}^2\end{aligned}$$

3. Calculate the area of a sector of a circle of radius 28cm and centre angle 45° .



28cm

$$\begin{aligned}\text{Area} &= \left(\frac{45}{360} \times \frac{22}{7} \times 28 \times 28\right) \text{ cm}^2 \\ &= \frac{1}{8} \times \frac{22}{7} \times 28 \times 28 \\ &= 11 \times 28 = 308 \text{ cm}^2\end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:25 Pg 384

Remarks:

LESSON 28

SUB TOPIC: AREA OF A CIRCLE

CONTENT: Finding area of irregular shapes

Examples:

1. Find the area of the shape below.



Diameter = 14 cm

$$\begin{aligned}\text{A} &= \text{B} + \text{C} \\ \text{Radius} &= \frac{14}{2} \\ &= 7 \text{ cm}\end{aligned}$$

20cm

$$\begin{aligned}\text{Area} &= \text{A} + \text{B} + \text{C} \\ &= \frac{1}{2} C + \text{Rec} + \frac{1}{2} C \\ &= \frac{1}{2} C + \frac{1}{2} C + \text{Rec} \\ &= 1 \text{ circle} + \text{Rec} \\ &= \pi R^2 + L \times W \\ &= \frac{22}{7} \times 7 \times 7 + 20 \times 14 \\ &= 154 + 280 \\ &= 434 \text{ cm}^2.\end{aligned}$$

EVALUATION ACTIVITY:

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

Remarks:

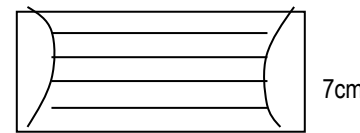
LESSON 29:

SUB TOPIC: CIRCLE

CONTENT: Shaded region

Examples:

1. Find the area of the shaded parts in the figure below.



12cm

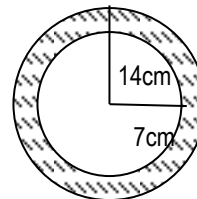
7cm

$$\begin{aligned}\text{Area of a rectangle} &= L \times W \\ &= 12 \times 7 \\ &= 84 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Area of the shaded part} &= 84 \text{ cm}^2 \\ &\quad - 38 \frac{1}{2} \text{ cm}^2 \\ &= 45 \frac{1}{2} \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{Area of a semi circle} &= \frac{1}{2} \pi r^2. \\ &= \frac{1}{2} \times \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 2 \\ &= 11 \times 7 = 77 \times 2 \\ &= 2 \times 2 \times 4 \\ &= 38 \frac{1}{2} \text{ cm}^2.\end{aligned}$$

2. Area of the outer circle



$$\begin{aligned}&= \pi r^2 \\ &= 22 \times 14 \times 14 \\ &\quad - 7 \\ &= 22 \times 2 \times 14 \\ &= 44 \times 14\end{aligned}$$

$$\begin{array}{lcl}
 & = 616\text{cm}^2. & \\
 \text{Area of the inner circle} & = \pi r^2 & \text{Area of the shaded part} = 616\text{cm}^2 \\
 & = 22 \times 7 \times 7 & - 154\text{cm}^2 \\
 & \quad 7 & \\
 & = 22 \times 7 & \hline
 & = 154\text{cm}^2. & 462\text{cm}^2 \\
 & & \hline
 \end{array}$$

EVALUATION ACTIVITY:

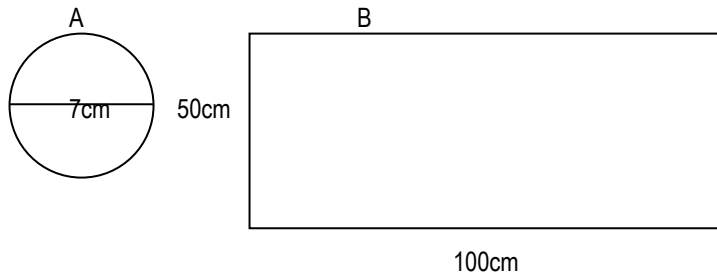
A New MK Primary Mathematics Bk 7 exercise 19:27 and 19:28 Pg 386 (New Edition)

Remarks:

LESSON 30:

SUB TOPIC: application of area of a circle

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



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

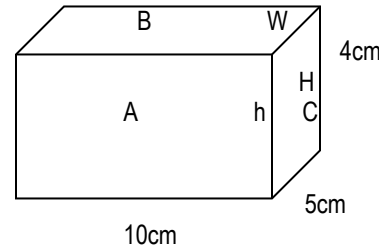
LESSON 31

SUB TOPIC: SOLID FIGURES

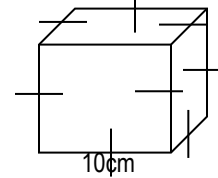
CONTENT: Surface area of cubes and cuboids

Examples:

1. Find the total surface area of the box 10cm by 5cm by 4cm.
Total surface area



2. Find the total surface of the cube below.



$$\begin{array}{l}
 2(\text{face A}) + 2(\text{face B}) + 2(\text{face C}) \\
 2(L \times h) + 2(L \times w) + 2(w \times h) \\
 2(10 \times 4) + 2(10 \times 5) + 2(5 \times 4) \\
 2(40) + 2(50) + 2(20) \\
 2 \times 40 + 2 \times 50 + 2 \times 20 \\
 80 + 100 + 40 \\
 180 + 40 \\
 220\text{cm}^2.
 \end{array}$$

A cube has 6 faces.
Total surface area = Area of one face \times 6
 $A = 6 \times 10 \times 10$
 $= 60 \times 10$
 $= 600\text{cm}^2.$

EVALUATION ACTIVITY:

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

Remarks:

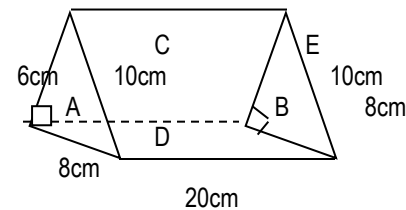
LESSON 32:

SUB TOPIC: SOLID FIGURES

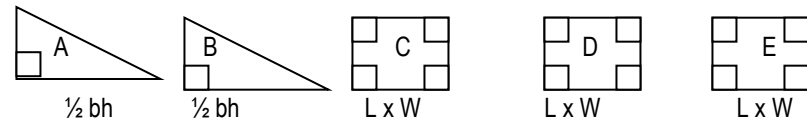
CONTENT: Surface area of a triangular prism

Examples:

1. Find the surface area of the figure below.



The main parts of a triangular prism



$$\begin{array}{l}
 \frac{1}{2}bh \\
 \text{Part A} = \frac{1}{2} \times b \times h \\
 = \frac{1}{2} \times 8 \times 6 \\
 8 \times 3 \\
 = 24\text{cm}^2
 \end{array}$$

$$\begin{array}{l}
 L \times W \\
 \text{Part B} = \frac{1}{2} \times b \times h \\
 = \frac{1}{2} \times 8 \times 6 \\
 = 4 \times 6 \\
 = 24\text{cm}^2
 \end{array}$$

$$\begin{array}{l}
 L \times W \\
 \text{Part C} = L \times W \\
 = 20 \times 8 \\
 = 160\text{cm}^2.
 \end{array}$$

$$\begin{aligned}\text{Part D} &= L \times W \\ &= 20 \times 6 \\ &= 120\text{cm}^2\end{aligned}$$

$$\begin{aligned}\text{Part E} &= L \times W \\ &= 20 \times 10 \\ &= 200\text{cm}^2\end{aligned}$$

$$\begin{aligned}\text{Total Area} &= 24\text{cm}^2 \\ &24\text{cm}^2 \\ &160\text{cm}^2 \\ &120\text{cm}^2 \\ &200\text{cm}^2 \\ \hline &528\text{cm}^2\end{aligned}$$

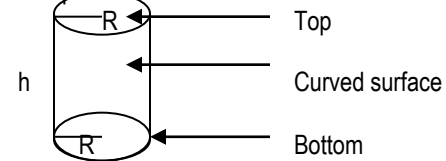
EVALUATION ACTIVITY:

New MK Primary Mathematics Bk 7 exercise 19:34 Pg 368 (New Edition)

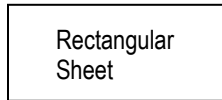
Remarks:**LESSON 33:****SUB TOPIC: SOLID FIGURES**

CONTENT: Cylinder
Surface area of a cylinder

Examples:



Circular end



Rectangular Sheet



Circular end

$$\begin{aligned}\text{Total surface area} &= R^2 + R^2 + C \times h \\ &= \pi R^2 + \pi rh\end{aligned}$$

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

$$\pi R^2 + \pi R^2 + 2\pi Rh$$

$$\begin{aligned}2R^2 + 2RH \\ 2 \times 22 \times 7 \times 7 + 2 \times 22 \times 7 \times 10 \\ 7 \quad 7 \\ 44 \times 7 + 44 \times 10 \\ 308 + 440 = 748\text{cm}^2\end{aligned}$$

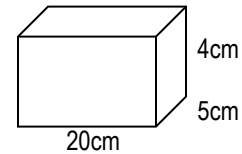
EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 19:35 Pg 398 (New Edition)

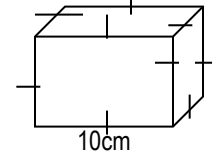
Remarks:**LESSON 34:****SUB TOPIC: SOLID FIGURES****CONTENT:** Volume of cubes and cuboids

Examples:

1. Find the volume of the cuboid below. 2. Find the volume of the cube below.



$$\begin{aligned}V &= \text{base area} \times \text{height} \\ &= 20 \times 5 \times 4 \\ &= 100 \times 4 \\ &= 400\text{cm}^3\end{aligned}$$



$$\begin{aligned}V &= \text{base area} \times \text{height} \\ &= 10 \times 10 \times 10 \\ &= 100 \times 10 \\ &= 1000\text{cm}^3\end{aligned}$$

EVALUATION ACTIVITY:

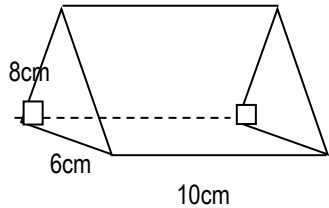
A New MK Primary Mathematics Bk 7 exercise 20:1 Pg 399 (New Edition)

Remarks:

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.



$$\begin{aligned}\text{Volume} &= \text{Base area} \times \text{length} \\ &= \frac{1}{2} \times 7 \times 6 \times 40 \\ &= 21 \times 10 \\ &= 210\text{cm}^3\end{aligned}$$

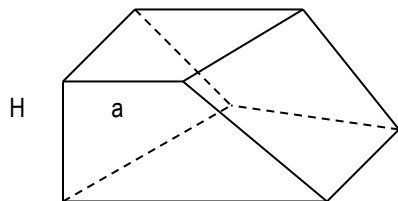
EVALUATION ACTIVITY:

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.



$$\begin{aligned}\text{Volume of the trapezoidal prism} &= \frac{1}{2} \times h \times (a + b) \times \text{length} \\ &= \frac{1}{2} \times 4 \times (6 + 9) \times 10 \\ &= 2(6 + 9) \times 10 \\ &= 2 \times 10(15) \\ &= 20 \times 15 \\ &= 300\text{cm}^3\end{aligned}$$

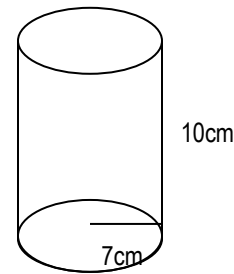
EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 20:3 Pg 401 (New Edition)

Remarks:**LESSON 37:****SUB TOPIC: SOLID FIGURES****CONTENT:** Volume of a cylinder

Examples:

1. A cylindrical tin has a radius of 7cm and a height of 10cm. Calculate its volume.



$$\begin{aligned}V &= \text{base area} \times h \\ &= \pi r^2 \times h \\ &= \frac{22}{7} \times 7 \times 7 \times 10 \\ &= 22 \times 7 \times 10 \\ &= 154 \times 10 \\ &= 1540\text{C.C.}\end{aligned}$$

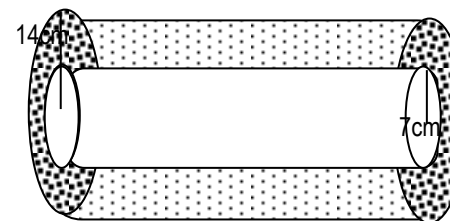
EVALUATION ACTIVITY:

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.



$$\begin{aligned}\text{Volume of outer cylinder} &= \pi r^2 h \\ &= \frac{22}{7} \times 14 \times 14 \times 20 \\ &= 22 \times 2 \times 14 \times 20 \\ &= 44 \times 280 \\ &= 12320\end{aligned}$$

$$+ 11200$$

$$\underline{12320\text{cm}^3}$$

$$\begin{aligned}\text{Volume of the inner cylinder} &= \pi r^2 h \\ &= \frac{22}{7} \times 7 \times 7 \times 20 \\ &= 22 \times 7 \times 20 \\ &= 154 \times 20 \\ &= 3080\text{cm}^3\end{aligned}$$

$$\begin{aligned}\text{Volume of the concrete} &= 12320\text{ cm}^3 \\ &\quad - 3080\text{ cm}^3\end{aligned}$$

$$\underline{9240\text{cm}^3}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 20:5 Pg 403 (New Edition)

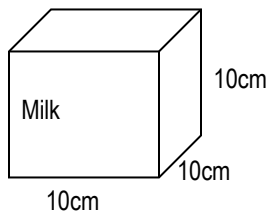
Remarks:

LESSON 39:**SUB TOPIC: SOLID FIGURES**

CONTENT: Volume and capacity of cubes and cuboids

Examples:

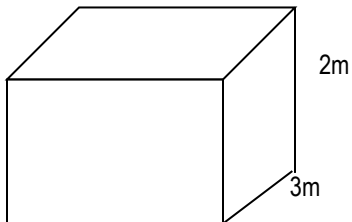
1. A cube measures 10cm by 10cm by 10cm. How many litres of milk can it hold?



$$\begin{aligned}V &= \text{base area} \times h \\ &= 10 \times 10 \times 10 \\ &= 100 \times 10 \\ &= 1000\text{cm}^3 \\ 1\text{litre} &= 1000\text{cm}^3\end{aligned}$$

the cube holds 1 litre

2. How much water will the tank below hold?



$$\begin{aligned}1\text{l} &= 1000\text{cm}^3 \\ &= 1\text{m} = 10\text{cm} \\ &= 4\text{m} = 400\text{cm} \\ &= 3\text{m} = 300\text{cm} \\ &= 2\text{m} = 200\text{cm} \\ V &= (\text{base area}) \times \text{height} \\ &= \underline{400 \times 300 \times 200}\end{aligned}$$

$$4\text{m}$$

$$\begin{aligned}&1000 \\ &= 400 \times 30 \times 2 \\ &= 12000 \times 2 \\ &= 24000\text{ litres}\end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 20:4 Pg 404 (New Edition)

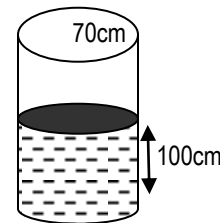
Remarks:

LESSON 40**SUB TOPIC: SOLID FIGURES**

CONTENT: Volume and capacity of cylinders

Examples:

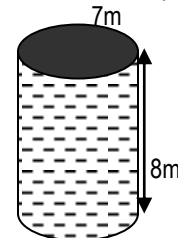
1. How much water is in this tank now?



$$\begin{aligned}\text{Capacity} &= \frac{1540000}{1000} \\ &= 1540\text{litres}\end{aligned}$$

$$\begin{aligned}\text{Volume} &= (\text{base} \times \text{area}) \times \text{height} \\ &= \pi r^2 \times 100 \\ &= \frac{22}{7} \times 70 \times 100 \\ &= 22 \times 10 \times 7000 \\ &= 220 \times 7000 \\ &= 1540000\text{cm}^3 \\ 1\text{L} &= 1000\text{cm}^3\end{aligned}$$

2. Find the capacity of this tank.



$$\begin{aligned}V &= (\text{base} \times \text{area}) \times h \\ &= \pi r^2 \times h \\ &= 22 \times 350 \times 350 \times 800 \\ &= \underline{22 \times 50 \times 350 \times 800}\end{aligned}$$

$$\begin{aligned}1\text{L} &= 1000\text{cm}^3 \\ 1\text{m} &= 100\text{cm} \\ 7\text{m} &= 700\text{cm} \\ 8\text{m} &= 800\text{CM}\end{aligned}$$

$$\begin{aligned}D &= 700\text{cm} \\ R &= \frac{700}{2} \\ &= 350\text{CM}\end{aligned}$$

$$\begin{aligned}&22 \times 50 \times 36 \times 8 \\ &100 \times 35 \times 8 \\ &1100 \times 270 \\ &= 308000\text{ litres}\end{aligned}$$

1000

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 20:7 Pg 405 (New Edition)

Remarks:**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

$$\text{Along the length} = \frac{56}{10} = 5 \text{ cubes}$$

$$\text{Along the width} = \frac{42}{10} = 4 \text{ cubes}$$

$$\text{Along the height} = \frac{60}{10} = 6 \text{ layers}$$

$$\begin{aligned} \text{Total number of cubes} &= 5 \times 4 \times 6 \\ &= 20 \times 6 \\ &= 120 \text{ cubes} \end{aligned}$$

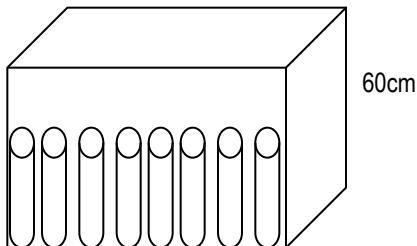
EVALUATION ACTIVITY:

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

Remarks:**LESSON 42****SUB TOPIC: SOLID FIGURES****CONTENT:** Packing cylinders in boxes

Examples:

1. How many cylindrical tins of diameter 7cm and height 10cm can be packed in a box measuring 56cm by 42cm by 60cm?



Tins along the sides:

$$\text{Along length} = 56 \div 7 = 8 \text{ tins}$$

$$\text{Along width} = 42 \div 7 = 6 \text{ tins}$$

$$\text{Along height} = 60 \div 10 = 6 \text{ layers}$$

$$\begin{aligned} \text{Total number of tins (base x tins) x layers} \\ 8 \times 6 \times 6 \end{aligned}$$

$$= 48 \times 6$$

$$= 288 \text{ tins}$$

$$42\text{cm} \quad \text{Altogether} = 8 \times 6 \times 6 = 288 \text{ tins}$$

56cm

EVALUATION ACTIVITY:

A New MK Primary Mathematics Bk 7 exercise 20:9 Pg 407 (New Edition)

Remarks:**LESSON 46****SUB TOPIC: mass**

CONTENT: converting kg to quintal and tonne
 $100\text{kg} = 1 \text{ quintal}$

Examples: Express 2500kg to tonne

$$1000\text{kg} = 1 \text{ tonne}$$

$$2500\text{kg} = \frac{2500\text{kg}}{1000\text{kg}}$$

$$= 2.5 \text{ tonnes}$$

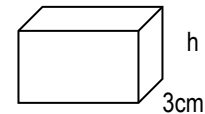
Evaluation activity

Macmillan Uganda pp 246

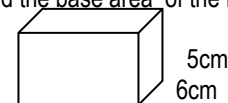
Fountain pp 210-212

QUESTIONS ON MEASURES:

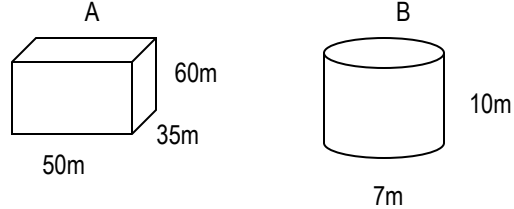
- How many centimeters are in 0.75 metres?
- The circumference of a circle is 17.584cm. Find the radius of the circle (Use $\pi = 3.14$)
- A cylindrical tank is 7m high. What is the capacity in litres of the tank if its radius is 7m?
- The volume of the figure below is 105cm^3 . Find its height.



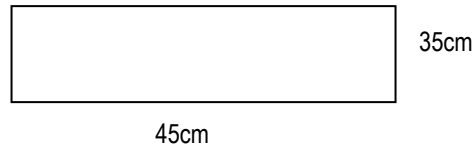
5. Find the base area of the figure below.



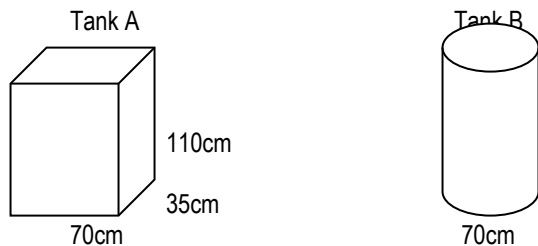
6. Given that the cylindrical tins B are to be packed into box A.



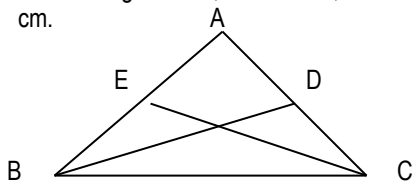
- (a) How many tins will be packed in the box?
 (b) If container A is a tank full of water, how many full cups of container B can you draw from the tank?
7. Abdul cut out circular plates of diameter 7cm from a rectangular sheet of metal of length 45cm and width 35cm as shown below.



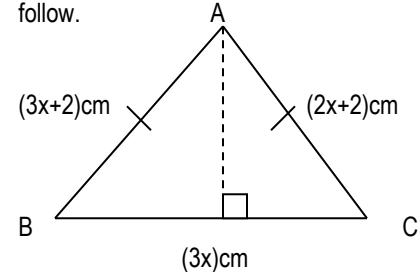
- (a) How many circular plates did he cut out from the rectangular sheet?
 (b) Find the area of the unused sheet after cutting out the circular plates.
 (take $\pi = \frac{22}{7}$)
8. A cuboid water tank (A) which is 70cm long by 35cm wide by 110cm high was filled with water. The water from tank A was all poured into the cylindrical tank B of diameter 70cm



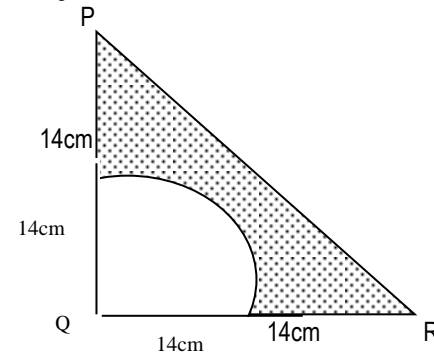
- (a) Find the volume of water in tank A when full.
 (b) Find the new height of water after it has been poured into tank B. (take $\pi = \frac{22}{7}$)
9. In the triangle below, $AB = 12\text{cm}$, $CE = 10\text{cm}$ and $AC = 16\text{cm}$. Find the length of BD in cm.



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, $PQ = QR = 28\text{cm}$ use it to answer the questions that follow.



- (a) Find the area of triangle PQR.
 (b) Find the area of the sector QST
 (c) What is the area of the shaded part?

TOPIC 10: ALGEBRA

LESSON 1:

SUB TOPIC: FORMING ALGEBRAIC EXPRESSIONS

CONTENT:

Forming Algebraic expressions.

Example:

1. $3c$ – Three times C or three c.

2. ab – The product of a and b .
3. $(a + b)$ – The sum of a and b .
4. $3(x - y)$ – Thrice the difference between x and y .

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:1 & 22:2Pg 427 (New Edition)

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:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:6 & 22:7 Pg 430 & 431 (New Edition)

Remarks:

LESSON 3:**SUB TOPIC: REMOVING BRACKETS****CONTENT:**

Remove the brackets and simplify.

Example:

1. $3(x + y)$
2. $2(a - b)$

$$\begin{aligned} &3(x + y) \\ &3x + 3y \end{aligned}$$

$$\begin{aligned} &2(a - b) \\ &2 \times a - 2 \times b \\ &2a - 2b \end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:9 and 22:10Pg 432 & 433 (New Edition)

Remarks:

LESSON 4:**SUB TOPIC: REMOVING BRACKETS****CONTENT:**

Remove the brackets and simplify.

Example:

1. Add: $x + 4$ to $x + 1$
 $(x + 4) + (x + 1)$
 $x + 4 + x + 1$
 $x + x + 4 + 1$
 $2x + 5$
2. $x - 4$ to $3x - 5$
 $(x - 4) + (3x - 5)$
 $x - 4 + 3x - 5$
 $x + 3x - 4 - 5$
 $4x - 9$
3. Subtract $y + 1$ from $2y + 3$
 $(2y + 3) - (y + 1)$
 $2y + 3 - y - 1$
 $2y - y + 3 - 1$
 $y + 2$
4. Subtract $3p - 1$ from $5p - 3$
 $(5p - 3) - (3p - 1)$
 $5p - 3 - 3p + 1$
 $5p - 3p + 1 - 3$
 $2p - 2$

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

1. $\frac{x}{2} + \frac{x}{3}$
 $\frac{3x + 2x}{6}$
 $\frac{5x}{6}$
2. $\frac{m}{2} - \frac{m}{5}$
 $\frac{5m - 2m}{10}$
 $\frac{3m}{10}$
3. $P + \frac{P}{2}$

$$\begin{aligned}
 &= \frac{P}{1} + \frac{P}{3} \\
 &= \frac{3P + P}{3} \\
 &= \frac{4P}{3}
 \end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:14 Pg 435 (New Edition)

Remarks:**LESSON 6:****SUB TOPIC: REMOVING BRACKETS****CONTENT:** removing brackets involving fractions

Example:

- | | |
|--|--|
| 1. $\frac{1}{3}(3a + 9b)$
$(\frac{1}{3} \times 3a) + (\frac{1}{3} \times 9b)$
$a + 3b$ | 2. $\frac{3}{4}(8m + 12p)$
$(\frac{3}{4} \times 8m) + (\frac{3}{4} \times 12p)$
$3 \times 2m + 3 \times 3p$
$6m + 9p$ |
|--|--|

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:15 & 22:16 Pg 436 (New Edition)

Remarks:**LESSON 7:****SUB TOPIC: WORD PROBLEMS ON BRACKETS WITH FRACTIONS****CONTENT:** Word problems on brackets with fractions

Example:

1. Half of $(2x + 4y)$ plus a third of $(6x + 9y)$
 $\frac{1}{2}(2x + 4y) + \frac{1}{3}(6x + 9y)$
 $\frac{1}{2} \times 2x + \frac{1}{2} \times 4y + \frac{1}{3} \times 6x + \frac{1}{3} \times 9y$
 $x + 2y + 2x + 3y$
 $x + 2x + 2y + 3y$
 $3x + 5y$
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:

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

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

multiplying of fractional terms

Example:

Simplify:

- | | |
|--|---|
| 1. $\frac{x}{2} \times \frac{x}{5}$
$= \frac{x \times x}{2 \times 5}$
$= \frac{x^2}{10}$ | 2. $\frac{2}{3}m \times \frac{5}{8}p$
$\frac{2 \times m \times 5 \times p}{3 \times 8}$
$\frac{m \times 5p}{3 \times 4} = \frac{5mp}{12}$ |
|--|---|

EVALUATION ACTIVITY:

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

Remarks:**LESSON 9:****SUB TOPIC:****SUBSTITUTION****CONTENT:**

Substituting or replacement of letters with numbers

Example:

- | | |
|--|---|
| 1. If $a = 5$, $b = 4$ and $c = 0$
Find the value of $a + b + c$
$= 5 + 4 + 0$
$= 9$ | 2. Given that $x = 2$ and $y = -2$
Evaluate $x - y$
$((x) - (y))$
$= 2 - (-2)$
$= 2 + 2$
$= 4$ |
|--|---|

EVALUATION ACTIVITY:

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

Remarks:

LESSON 10:**SUB TOPIC: SUBSTITUTION****CONTENT:** Substitution involving brackets

Example:

$$\begin{aligned}
 1. \quad & \text{Given that } a = 3, b = 4 \text{ and } c = 5 \\
 & = 3 \times a \times 3 \times b \\
 & = 3 \times 3 + 3 \times 4 \\
 & = 9 + 12 \\
 & = 21
 \end{aligned}$$

$$\begin{aligned}
 2. \quad & \text{What is } c(b-a) \\
 & = 5(4-3) \\
 & = 5(1) \\
 & = 5 \times 1 \\
 & = 5
 \end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:12 Pg 434 (New Edition)

Remarks:**LESSON 11:****SUB TOPIC: SUBSTITUTION****CONTENT:** Substitution involving fractions

Example:

$$\begin{aligned}
 1. \quad & \text{Given } a = \frac{3}{4} b = \frac{1}{3} \\
 & \text{Find the value of } a + b \\
 & (a) + (b) \\
 & \frac{3}{4} + \frac{1}{3} \\
 & \frac{9+4}{12} \\
 & \frac{13}{12} \\
 & = 1 \frac{1}{12}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad & \text{If } a = \frac{1}{2}, c = \frac{2}{3} \text{ and } d = \frac{1}{4} \\
 & \text{Evaluate } ac + d \\
 & a \times c + d
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{2} \times \frac{2}{3} + \frac{1}{4} \\
 & = \frac{1}{3} + \frac{1}{4} \\
 & \frac{4+3}{12} \\
 & = \frac{7}{12}
 \end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:20 Pg 440 (New Edition)

Remarks:**LESSON 12:****SUB TOPIC: ADDITION AND SUBTRACTION WITH POWERS****CONTENT:**

Addition and subtraction with powers

Example:

$$\begin{aligned}
 1. \quad & 2^2 + 2^4 \\
 & (2 \times 2) + (2 \times 2 \times 2 \times 2) \\
 & 2 \times 2 + 2 \times 2 \times 2 \times 2 \\
 & = 20
 \end{aligned}$$

$$\begin{aligned}
 2. \quad & p^2 + p^2 \\
 & p^2 + p^2 \\
 & = 2p^2
 \end{aligned}$$

$$\begin{aligned}
 3. \quad & 3m^3 + 4m^3 \\
 & 3m^3 + 4m^3 \\
 & = 7m^3
 \end{aligned}$$

$$\begin{aligned}
 4. \quad & 3o^3 - p^3 \\
 & 3p^3 - p^3 \\
 & = 2p^3
 \end{aligned}$$

$$\begin{aligned}
 5. \quad & 4m^3 - m^3 \\
 & 4m^3 - m^3 \\
 & 3m^3
 \end{aligned}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:2 & 22:22 Pg 441 (New Edition)

Remarks:**LESSON 13:****SUB TOPIC: MULTIPLICATION OF POWERS****CONTENT:** Multiplication of powers

Example: Simplify

$$\begin{aligned}
 1. \quad & 4^3 \times 4^2 \\
 & 4 \times 4 \times 4 \times 4 \times 4 = 4^5
 \end{aligned}$$

$$\begin{aligned}
 \text{or} \quad & 4^3 \times 4^2 \\
 & 4^{3+2} \\
 & 4^5
 \end{aligned}$$

$$\begin{aligned}
 2. \quad & x^3 \times x^2 \\
 & x \times x \times x \times x \times x \times x \\
 & x^5
 \end{aligned}$$

$$\begin{aligned}
 \text{Or} \quad & X^3 \times x^2 \\
 & X^{3+2} \\
 & = 4^5
 \end{aligned}$$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 14:****SUB TOPIC: DIVISION OF POWERS****CONTENT:** Division of powers

Example: Simplify

$$1. \quad 3^4 \div 3^2$$

$$3^4 \div 3^2$$

$$2. \quad p^8 \div p^2 = p^{8-2}$$

$$\text{Either } \frac{3 \times 3 \times 3 \times 3}{3 \times 3}$$

$$3 \times 3$$

$$= 9$$

$$\text{or } 3^{4-2}$$

$$= 3^2$$

$$= 3 \times 3$$

$$= 9$$

$$\text{or } p^8 \div p^2$$

$$\frac{p \times p \times p \times p \times p \times p \times p \times p}{p \times p}$$

$$p \times p \times p \times p \times p \times p$$

$$= p^6$$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 15:****SUB TOPIC: SUBSTITUTION****CONTENT:** Substitution involving powers**Example:**

1. If $m = 2$, what is the value of m^6 ?

$$M^6 = m \times m \times m \times m \times m \times m$$

$$= 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$= 4 \times 4 \times 4$$

$$= 16 \times 4$$

$$= 64$$

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 $\frac{n^3 \times m^2}{M p}$?

$$= \frac{n \times n \times n \times m \times m}{M \times p} = \frac{3 \times 3 \times 3 \times 4 \times 4}{4 \times 2} = \frac{27 \times 16}{8}$$

$$= 27 \times 2$$

$$= 54$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:25 Pg 443 (New Edition)

Remarks:**LESSON 16:****SUB TOPIC: REVISION OF SIMPLE EQUATIONS****CONTENT:** Solving simple equations.**Example:** Solve

1. $x + 5 = 13$
 $x + 5 - 5 = 13 - 5$
 $x = 8$

2. $y - 3 = 5$
 $y - 3 + 3 = 5 + 3$
 $y = 8$

2. $2x + 6 = 18$
 $2x + 6 - 6 = 18 - 6$
 $2x = 12$
 $\frac{2x}{2} = \frac{12}{2}$
 $x = 6$

4. $3a - 8 = 7$
 $3a - 8 + 8 = 7 + 8$
 $3a = 15$
 $\frac{3a}{3} = \frac{15}{3}$
 $a = 5$

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:** Solve

1. $\frac{1}{2}p = 6$
Use of LCM
 $\frac{1}{2}p = 6$
 $2 \times \frac{1}{2}p = 6 \times 2$
 $p = 12$

2. $4\frac{2}{3}t + 2 = 15$
Express all items as fractions
 $\frac{13}{3}t + \frac{2}{1} = \frac{15}{1}$ (LCM)
 $3 \times \frac{13}{3}t + \frac{2}{1} \times 3 = \frac{15}{1} \times 3$
 $13t + 6 = 45$
 $13t + 6 - 6 = 45 - 6$
 $13t = 39$
 $\frac{13t}{13} = \frac{39}{13}$
 $t = 3$

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:** Solve

1. $0.4P + 0.5 = 2.1$
 $\frac{4P}{10} + \frac{5}{10} = \frac{21}{10}$
 $10 \times \frac{4P}{10} + \frac{5}{10} \times 10 = \frac{21}{10} \times 10$ (LCM)
 $4P + 5 = 21$

$$\begin{array}{rcl}
 4p + 5 & = & 21 \\
 4p + 5 - 5 & = & 21 - 5 \\
 4p & = & 16 \\
 \frac{4p}{4} & = & \frac{16}{4} \\
 p & = & 4
 \end{array}$$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 19:****SUB TOPIC: SOLVING EQUATIONS****CONTENT:** Equations involving fractions**Example:** Solve

$$\begin{array}{l}
 1. \quad \frac{2p}{3} - p = 5 \\
 \frac{2p}{3} - \frac{p}{1} = \frac{5}{1} \\
 3 \times \frac{2p}{3} - \frac{p}{1} \times 3 = \frac{5}{1} \times 3 \\
 2p - 3p = 15 \\
 -p = 15 \\
 \frac{+p}{+1} = \frac{15}{-1} \\
 p = -15
 \end{array}$$

$$\begin{array}{l}
 2. \quad 3x + 7 - \frac{3x}{4} = 10 \\
 \frac{3x}{1} + \frac{7}{1} - \frac{3x}{4} = \frac{10}{1} \\
 12x + 28 - 3x = 40 \\
 12x - 3x + 28 = 40 \\
 9x + 28 = 40 \\
 9x = 12 \\
 \frac{9x}{9} = \frac{12}{9} \\
 x = 1 \frac{1}{3}
 \end{array}$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:46 Pg 459 (New Edition)

LESSON 20:**SUB TOPIC: SOLVING EQUATIONS****CONTENT:** Equations involving fractions**Example:** Solve

$$\begin{array}{l}
 1. \quad \frac{m+1}{3} + \frac{m}{4} = 2 \text{ (observation of three items)} \\
 \frac{m+1}{3} + \frac{m}{4} = \frac{2}{1} \text{ (LCM)} \\
 12 \times \frac{m+1}{3} + \frac{m}{4} \times 12 = 2 \times 12 \\
 4(m+1) + m \times 3 = 2 \times 12
 \end{array}$$

$$\begin{array}{l}
 4m + 4 + 3m = 24 \\
 4m + 3m + 4 = 24 \\
 7m + 4 = 24 - 4 \\
 7m = 20 \\
 \frac{7m}{7} = \frac{20}{7} \\
 m = 2 \frac{6}{7}
 \end{array}$$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 21:****SUB TOPIC: SOLVING EQUATIONS****CONTENT:** Equations involving fractions**Example:** Solve

$$\begin{array}{l}
 1. \quad \frac{(3x+1)}{4} = \frac{(x+2)}{2} \\
 4 \frac{(3x+1)}{4} = 4 \frac{(x+2)}{2} \\
 3x + 1 = 2(x + 2) \\
 3x + 1 = 2x + 4 \\
 3x + 1 - 1 = 2x + 4 - 1 \\
 3x = 2x + 3 \\
 3x - 2x = 2x - 2x + 3 \\
 x = 3
 \end{array}$$

$$\begin{array}{l}
 2. \quad \frac{3x-1}{2} = \frac{7x+1}{6} \\
 6 \frac{(3x-1)}{2} = 6 \frac{(7x+1)}{6} \\
 3(3x-1) = 7x+1 \\
 9x-3 = 7x+1 \\
 9x = 7x+4 \\
 9x-7x = 7x-7x+4 \\
 2x = 4 \\
 \frac{2x}{2} = \frac{4}{2} \\
 x = 2
 \end{array}$$

EVALUATION ACTIVITY:

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

Remarks:**LESSON 22:****SUB TOPIC: SOLVING EQUATIONS****CONTENT:** Solving Equations involving squares**Example:** Solve

$$\begin{array}{l}
 1. \quad \frac{1}{2} p^2 = 8 \\
 2 \times \frac{1}{2} p^2 = 8 \times 2 \\
 p^2 = 16 \\
 p = 4
 \end{array}
 \qquad
 \begin{array}{l}
 2. \quad \frac{1}{4} x^2 = 16 \\
 4 \times \frac{1}{4} x^2 = 16 \times 4 \\
 x^2 = 64 \\
 x = 8
 \end{array}$$

$$P^2 = 16$$

$$\sqrt{P^2} = \sqrt{16}$$

$$P = 4$$

$$x^2 = 64$$

$$\sqrt{x^2} = \sqrt{64}$$

$$x = 8$$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 exercise 22:47 Pg 461 & 460 (New Edition)

Remarks:

LESSON 22:**SUB TOPIC: SOLVING EQUATIONS**

CONTENT: Word problems on equations

Example:

1. Baker bought 2kg of suagr 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 x 3p) = 6p. The cost of 1kg of salt is sh (p + 200)
- $$\text{Total cost } 6p + p + 200 = 3700 =$$
- $$7p + 200 = 3700$$
- $$7p + 200 - 200 = 3700 - 200$$
- $$7p = 3500$$
- $$\frac{7p}{7} = \frac{3500}{7}$$
- $$P = \text{shs } 500$$

EVALUATION ACTIVITY:

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

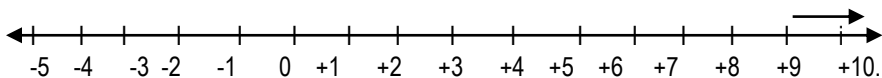
Remarks:

SUB TOPIC: SOLUTION SETS

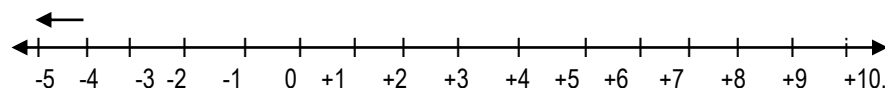
CONTENT:

Examples:

1. Write down the integers for the following inequalities.
- (i) $x > 8$
 $X = \{9, 10, 11, 12, 13, \dots\}$ (infinite set)
- (ii) $x < -3$
 $X = \{-4, -5, -6, -7, -8, \dots\}$ (infinite set)
- Showing solution sets on a number line.
- (i) $x > 8$



(ii) $x < -3$

**EVALUATION ACTIVITY:**

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

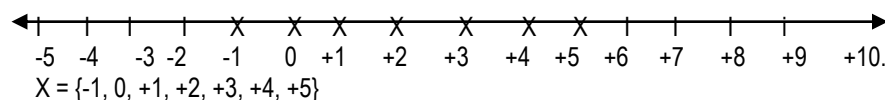
Remarks:

LESSON 12:**SUB TOPIC: REPRESENTING OF FINITE SOLUTION SETS ON ANUMBER LINE**

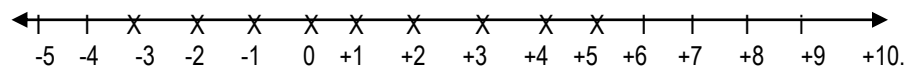
CONTENT:

Example

1. $-2 < x < 6$ Find and show the solution set on a number line



2. Give the solution set and the inequality shown on the number line.



Solution: $-4 < x < +6$

$X = \{-3, -2, -1, 0, +1, +2, +3, +4, +5\}$

EVALUATION ACTIVITY:

A New MK Primary Mathematics 2000 Bk 7 Exercise 6:2 Pg 72 (New Edition)

Remarks:

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

CONTENT:

Examples:

1. $4X > 20$

$$4X > 20$$

$$\frac{4}{4} \frac{X}{4} > \frac{20}{4}$$

$$X > 5$$

Solution set: {6, 7, 8, 9, 10,}

2.

$$-4X > 20$$

$$\frac{-4x}{-4} < \frac{20}{-4} \quad (\text{the inequality sign changes when multiplied/divided by -ve integer})$$

$$X < -5$$

Solution set: $x = \{-6, -7, -8, -9, \dots\}$

3.

$$3x + 6 < 9$$

$$3x + 6 - 6 < 9 - 6$$

$$3x < 3$$

$$\frac{3}{3} \frac{x}{3} < \frac{3}{3}$$

$$X < 1$$

Solution set: $x = \{0, 1, 2, 3, \dots\}$

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:

Examples

1. Solve $\frac{x}{3} > 1$

$$3 \times \frac{x}{3} > 1 \times 3$$

$$X > 3$$

Solution set $x = \{4, 5, 6, 7, \dots\}$

2. $\frac{1x}{7} - 5 > -4$

$$1x - 5 + 5 > -4 + 5$$

$$\frac{1x}{7} > 1$$

$$X > 7$$

$$7 \times \frac{1x}{7} > 1 \times 7$$

$$X > 7$$

Solution set: $x = \{8, 9, 10, 11, \dots\}$

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:

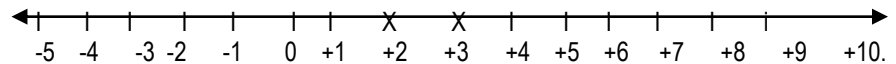
Examples

1. Solve $8 > 2x > 2$

$$\frac{8}{2} > \frac{2x}{2} > \frac{2}{2}$$

$$4 > x > 1$$

Note with $<$ or $>$ the integers in the inequality are not members of the solution set.



Solution set: $x = \{+2, +3\}$

2. $12 < 3x < 24$

$$\frac{12}{3} < \frac{3x}{3} < \frac{24}{3}$$

$$4 < x < 8$$

Note with $<$ or $>$, the integers in the inequality are members of the solution set.

3. Solve $13 > 3x - 2 > 4$

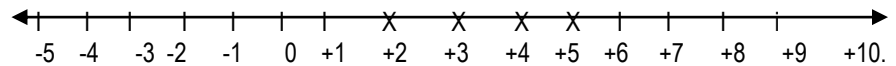
$$13 + 2 > 3x - 2 + 2 > 4 + 2$$

$$15 > 3x > 6$$

$$15 > 3x > 6$$

$$\frac{15}{3} > \frac{3x}{3} > \frac{6}{3}$$

$$5 > x > 2$$



Solution set: $x = \{+2, +3, +4, +5\}$

EVALUATION ACTIVITY:

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

Remarks:

SUB TOPIC : INEQUALITIES INVOLVING BRACKETS

CONTENT:

1. Solve $2(x+1) \leq 4$
2. Solve $3(2x+3) < 18$

Ref: Mk bk 7 pg 449

LESSON 17

SUB TOPIC: APPLICATION OF INEQUALITIES

CONTENT: the Headteacher's car can accommodate maximumly 5 passengers. Using letter X write an inequality for the above given statement

TOPIC: INTEGERS:

TOPICAL QUESTIONS:

1. Use $>$, $<$ or $=$ to compare the following pairs of integers.

(i) -2 0	(ii) -1 -3	(iii) -6 -6
(iv) 8 8	(v) 5 -5	(vi) -7 7
2. Arrange the following integers in ascending order (increasing order)
-8, 2, -1, 5, -3, +7
3. Arrange the integers below in descending order.
0, -7, +4, -6, +1
4. Add the following integers.

(i) +1 + +7	(ii) +8 + -2	(iii) +18 + -18
(iv) -3 + +9	(v) -4 + +5	
5. Subtract the following integers.

(i) +4 - +2	(ii) +7 - -4	(iii) -3 - +7
(iv) -3 - -11	(v) 8 - +8	
6. Subtract +6 - -4 on a number line
7. Multiply:

(i) +4 x -2	(ii) -6 x -3
-------------	--------------
8. Divide:

(i) -9 \div -3	(ii) 27 \div -9
------------------	-------------------
9. Evaluate: -2×8
-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?

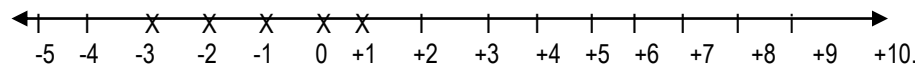
TOPIC: SOLUTION SETS:

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) $x \leq 2$
(iv) $x \geq 2$	(v) $x < 4$	
3. Write down the inequality shown on the number line below.



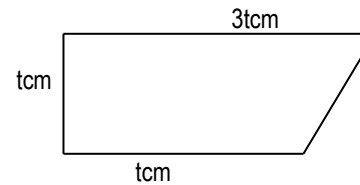
4. Solve and give the solution set for x.

(i) $-3x < -9$	(ii) $-30 < 6x$
(iii) $3x + 2 \leq 11$	(iv) $4x - 5 \leq 19$
5. Solve and find the solution set for y.
 $\frac{1}{3}y + 4 < 6$
6. Solve the inequality below:
 $8 > 2x \geq -4$

TOPICAL EXERCISE ON ALGEBRA

1. Solve: $x + \frac{1}{4}x = 5$
2. Find the value of $\frac{5a - (m - a)}{a}$ when $a = 3$ and $m = 6$.
3. Solve for b: $\frac{3}{5}(2b - 3) = 3$
4. Zahara's mother bought 8 books at shs $(x - 150)$ each and 2 Mathematical sets at $(x + 100)$ each. She spent shs 5300 altogether. Find the amount of money spent on books.
5. If $\frac{1}{6}x = 1\frac{1}{6}$ find the value of x.
6. Solve $\frac{2x + 2}{3} = \frac{x + 3}{2}$

7. What is the value of $\frac{bc-d}{c^2}$ when $b = 8$, $c = 3$ and $d = 6$?
8. Solve: $x - 1 = 2x + 5$
9. Simplify: $(3x + 5) - (x + 1)$
10. Solve: $\frac{1}{2}(3y - 2) = \frac{2}{3}(2y + 3)$
11. Tom has three daughters; Amanda, Brenda and Kate. Brenda is 2 years younger than Amanda, Kate's age is $\frac{1}{2}$ that of Brenda. The total age of the three girls is 27 years. How old is Kate?
12. Find the value of y in $2y + \frac{2}{3}t = 12$. Given that $t = \frac{1}{2}$.
13. Solve: $3(p - 4) - 2(3p - 1) = 2p - 15$
14. Simplify: $(4p - 3q) - (2q + p)$
15. Solve: $\frac{12}{x} + 2 = 6$
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.

x	1	5	...	9
y	...	1	...	3	...