

Tekart Learning

MTC LESSON NOTES

FOR TERM I

P.4.

Tekart Learning

SETS (Theme 1)

Week I

Lesson 1 and 2

Review of types of sets.

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

TYPES OF SETS (Review)

1. Empty set or null set.

This is a set without any members.

Symbol: $\{ \}$ or Φ

e.g. Pupils in a class without heads.

2. Equivalent sets

These are sets with the same number of members but the members may be different.

Symbol: \Leftrightarrow

e.g. $A = \{b, c, d, e\}$ $B = \{0, 1, 2, 3\}$

set A is equivalent to set B

$A \Leftrightarrow B$

N.B. \nLeftrightarrow means “not equivalent to”

3. Equal sets

These are sets with the same number of members which are exactly the same.

Symbol: $=$

e.g. $K = \{a, b, c, c\}$ $L = \{b, a, c\}$

Set K is equal to set L because they have the same number and the same members.

$K = L$

4. Disjoint sets

These are sets without any common members.

e.g. $M = \{6, 7, 8\}$

$N = \{2, 3, 4, 5\}$

Set M and set N don't have any common members.

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- REF: Primary MTC Bk 4 pg 1
- Understanding MTC bk 4 pg 1
 - Primary MTC Bk 4 pg 9
 - Primary school MTC bk 4 pg 1

UNION, INTERSECTION AND NUMBER OF MEMBERS

UNION SETS (Review)

This is a set which contains all the members in the given sets.

N.B. Common members are written once.

Symbol: \cup

e.g. Set $P = \{a, e, , o, u\}$
 $Q = \{2, 4, 6, 8\}$

Set $P \cup Q = \{a, e, , o, u, 2, 4, 6, 8\}$

INTERSECTION SET (Review)

This set with the common members of the given set.

Symbol: " \cap "

e.g. $P = \{1, 2, 3, 4, 5\}$

$B = \{0, 1, 3, 4, 5\}$

Find:

a) $P \cap B = \{2, 3, 4, 5\}$

b) $P \cup B = \{0, 1, 2, 3, 4, 5\}$

5. $A = \{\text{Banana, Orange}\}$

$B = \{\text{Apple, Orange}\}$

Find:

a) $A \cap B = \{\text{Orange}\}$

b) $A \cup B = \{\text{Banana, Orange, Apple}\}$

Week two lesson one

NUMBER OF MEMBERS (Review)

Symbol: $n()$

Examples

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1. $P = \{a, b, c\}$

How many members are in set P.

$n(P) = 3$ members.

2. $M = \{\text{days of the week}\}$

Find $n(M)$

$M = \{\text{Mon, Tue, Wed, Thur, Fri, Sat, Sub}\}$

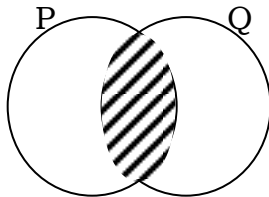
Find: $n(M) = 7$

- REF:
- Understanding
 - Primary MTC bk 4 pg 14 – 15
 - Kenya Primary MTC Bk 4 4 pg 15 – 16

Week two lesson two

VENN DIAGRAM (Review)

Representing information on a Venn diagram:



Members
Of Set P
Only

$P \cap Q$

Members of
Set Q only

Example:

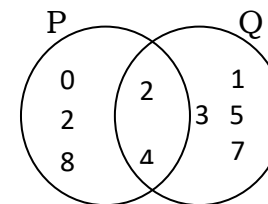
Given $P = \{0, 2, 4, 6, 8\}$

$Q = \{1, 2, 3, 4, 5, 7, 8\}$

Find: $P \cap Q = \{2, 4\}$

$A \cup B = \{0, 1, 2, 3, 4, 5, 6, 7, 8\}$

Represent the sets on a Venn diagram.



REF: MK bk 5 Pg 12

Primary MTC for Uganda bk 4

Pg 60 – 62

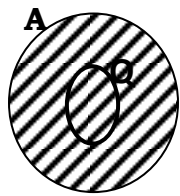
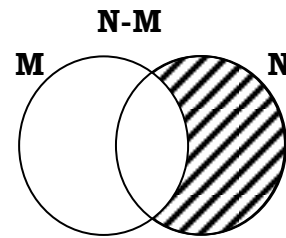
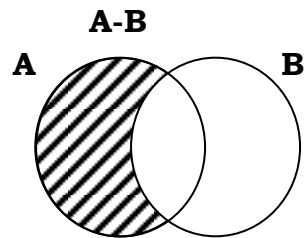
MK Bk 4 Pg 11 – 14

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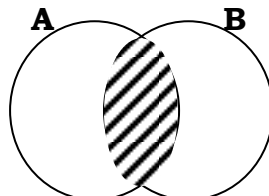
Week two lesson three

Shading Venn Diagrams (Review)

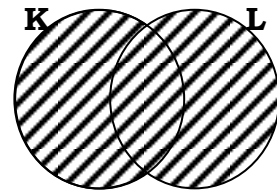
Example:



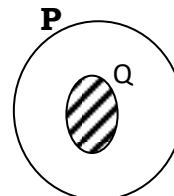
$A \cup B$



$A \cap B$

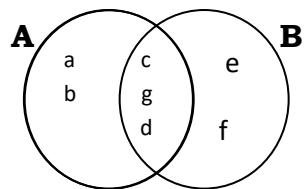


$K \cup L$



$P \cap B$

Getting information from a Venn Diagram (Review)



List down all members of Set;

$A = \{a, b, c, d, g\}$

$B = \{c, g, d, e, f\}$

$A \cap B = \{c, d, g\}$

$A \cup B = \{a, b, c, d, g, e, f\}$

$n(A \cap B) = 3$ members

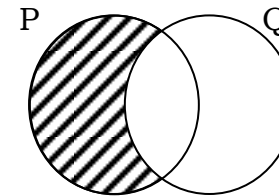
REF: MK Bk 5 pg 7

MK Bk 4 pgs 11 – 14

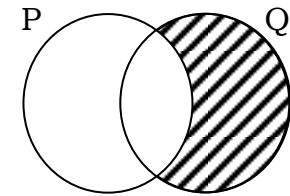
Week two lesson four

Difference of sets (Review)

$P - Q$ means members of set P which are not in Set Q, that is, members found in Set P only.



$P - Q$



$Q - P$

Example:

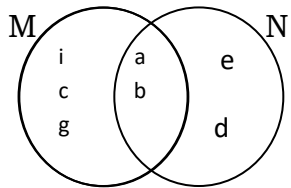
Given : $P = \{2, 3, 4, 6, 8, 9\}$

$Q = \{1, 2, 5, 6, 7, 10\}$

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Find: $P - Q = \{3, 4, 8, 9\}$
 $Q - P = \{1, 5, 7, 10\}$

Example II



Find: $M - N = \{i, c, g\}$

$N - M = \{d, e\}$

Week two lesson five

SUBSETS

A subset is a small set got from the main set.

Symbol: "C"
"⊄" means not a subset of.

Example:

Given; $E = \{\text{all pupils in P.4}\}$
 $K = \{\text{all boys in P.4}\}$
 $B = \{\text{all girls in P.4}\}$

Set B and set K are subsets of set E

Example

If: $D = \{1, 2, 3, 4\}$
 $T = \{2, 4\}$
 $S = \{1, 3\}$
 $K = \{5, 6\}$

T is a subset of D

$(T \subset D)$

S is a subset of D

$(S \subset D)$

K is not a subset of D

$(K \not\subset D)$

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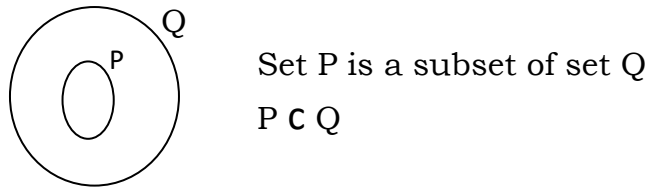
Given: $B = \{s, t, v\}$ Form subsets from set B

$\{s\}, \{t\}, \{v\}, \{s, t\}, \{t, v\}, \{s, v\}, \{s, t, v\}, \{\}$

N.B. - An empty set is a subset of the main set.
- A set itself is a subset of that set.

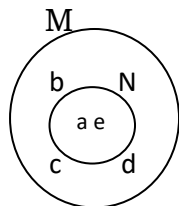
Using a Venn diagram to represent a subset

Using a Venn diagram to represent subsets.

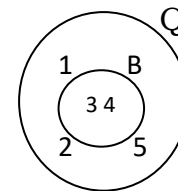


Given: $M = \{a, b, c, d, e\}$
 $N = \{a, e\}$

Represent the sets on a Venn diagram.



Find: $M \cap N = \{a, e\}$
 $M \cup N = \{a, b, c, d, e\}$
 $n(M \cup N) = 5$ Members



What is the relationship between P and B?

B is a subset of P

Find: $P \cap B = \{3, 4\}$

REF: MK Bk 4 pg 17 (old edition)
MK Bk 4 pg 17 (new edition)

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NUMERACY (theme 2)

Week three lesson one

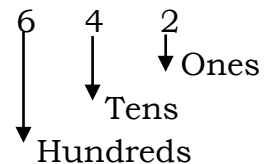
Whole Numbers

Place value and value of whole numbers (Review)

Numeral	Hundred Thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
7041			7	0	4	1
24,678		2	4	6	7	8
132,407	1	3	2	4	0	7

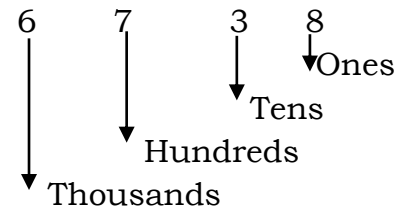
Finding the place value of the given digits.

What is the place value of 4 in 642?



∴ The place value of 4 is Tens.

Find the place value of each digit in 6738.



∴ The place value of 6 is Thousands

The place value of 7 is Hundreds

The place value of 3 is Tens

The place value of 8 is Ones

REF: - Primary School MTC Bk 4 pg 8

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- Learning MTC Bk 4 pg 5
- MK Bk 4 pg 20 (Old edition)

Week three lesson two

Value of wholes(Review)

$$\text{Value} = \text{digit} \times \text{place value}$$

Find the value of each of the digits in 672

H	T	O		
6	7	2		
↓	↓	↓ 2 x 1	=	2
	7 x 10		=	70
6 x 100			=	600

Find the value of 0 in 6042

$$\begin{array}{cccc} 6 & 0 & 4 & 2 \\ & \downarrow & & \\ & 0 \times 100 & = & 0 \end{array}$$

What is the value of 2 in 432?

$$\begin{array}{ccc} \text{H} & \text{T} & \text{O} \\ 4 & 3 & 2 \\ & & \downarrow 2 \times 1 \end{array} = 2$$

REF: MK Bk 4 pg 20

Learning MTC Bk 4 pg 6

Primary Science MTC Bk 4 pg 8

Week three lesson three

Application of values and place values

Example:

Find the sum of the value of 2 and 3 in the number 623.

$$\begin{array}{rcl}
 \text{H} & \text{T} & \text{O} \\
 6 & 2 & 3 \\
 \downarrow & & \downarrow 3 \times 1 \\
 & 2 \times 10 & \\
 & & = 3 \\
 & & = + \underline{20} \\
 & & \underline{23}
 \end{array}$$

What is the sum of the place value of 6 and 2 in the number 632?

H T O

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$$\begin{array}{rcl}
 6 & 3 & 2 \\
 \downarrow & \downarrow & \downarrow \text{Ones} \\
 \text{Hundreds} & & = 1 \\
 & & = + \frac{100}{101}
 \end{array}$$

Find the product of the value of 2 and place value of 3 in 362.

$$\begin{array}{rcl}
 \text{H} & \text{T} & \text{O} \\
 3 & 6 & 2 \\
 \downarrow & \downarrow & \downarrow 2 \times 1 \\
 \text{Hundreds} & & = 2 \\
 & & = 100 \\
 & & = 2 \times 100 \\
 & & = 200
 \end{array}$$

The place value of 2 is tens. What is its value.

$$\begin{array}{rcl}
 \text{Value} & = & \text{Digit} \times \text{Place value} \\
 & = & 2 \times 10 \\
 & = & 20
 \end{array}$$

Week three lesson four

Writing whole numbers in words(Review)-up to thousands

1. Write 6438 in words.

Thousands	Hundreds	Units
6	4	38

6438 → Six thousand four hundred thirty eight.

2. Write 14,008 in words

Thousands	Hundreds	Units
14	0	08

14,008 → Fourteen thousand eight.

3. Express 240,402 in words

Thousands	Hundreds	Units
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240	4	02
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240,402 → Two hundred forty thousand four
Hundred two.

REF: MK Bk 4 pg 22

Learning MTC Bk 4 pg 6

Understanding MTC Bk 4 pg 11

Week three lesson five

Writing in figures (Review)

Write “three thousand six hundred in figures”.

Three thousand	3000
Six hundred	<u>+600</u>
	<u>3600</u>

Write in figures; “Sixty thousand five hundred twenty.

Sixty thousand	60000
Five hundred	500
Twenty	<u>+ 20</u>
	<u>60,520</u>

REF: Understanding MTC bk 4 pg 13

Primary School MTC BK 4 PG 8

Learning MTC bk 4 pg 6

MK Bk 4 pg 23

Week four lesson one

Writing numerals in expanded form(Review)

Expand 3485 using place values

3485 = (3 x 1000) + (4 x 100) + (8 x 10) + (5 x 1)

Expand 3485 using values

3485 = 3000 + 400 + 80 + 5

Expand: 46,246

46,246 = 40,000 + 6000 + 200 + 40 + 5

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REF: - MK Bk 4 pg 23
 - Learning MTC Bk 4 pg 6
 - Understanding MTC Bk 4 pg 14

Week four lesson two

Writing the expanded numbers in short. (Review)

Find the number which has been expanded to get;

$$\begin{array}{r} 1. \quad 4000 \times 200 \times 40 \times 7 \\ \quad \quad \quad 4000 \\ \quad \quad \quad 200 \\ \quad \quad \quad 40 \\ \quad \quad + \quad 7 \\ \hline \quad \quad 4347 \end{array}$$

$$2. \quad (5 \times 100) + (6 \times 1000) + (4 \times 1)$$

$$500 + 6000 + 4$$

$$\begin{array}{r} 6000 \\ 500 \\ + \quad 4 \\ \hline 6504 \end{array}$$

$$3. \quad (9 \times 10000) + (4 \times 1000) + (7 \times 10)$$

$$90000 + 4000 + 70$$

$$\begin{array}{r} 90000 \\ 4000 \\ + \quad 70 \\ \hline 94070 \end{array}$$

REF: - Learning MTC Bk 4 pg 6
 - Understanding MTC bk 4 pg 4

Week four lesson three

ROMAN NUMERALS (Review) – up to one hundred.

Basic Roman Numerals are;

1 = I	50 = L	1000 = M
5 = V	100 = C	
10 = X	500 = D	

Roman numerals from 1 to 1000

Hindu Arabic	Roman numeral		Hindu Arabic	Roman numeral
1	I		8	VIII
2	II		9	IX
3	III		10	X
4	IV		50	L
5	V		100	C
6	VI		500	D
7	VII		1000	M

Roman numerals got by repeating 1 and X;

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Examples: 2 = 1 + 1 = II
 3 = 1 + 1 + 1 = III
 20 = 10 + 10 = XX
 30 = 10 + 10 + 10 = XXX
 300 = 100 + 100 + 100 = CCC

Roman numerals got by adding.

6 = 5 + 1	7 = 5 + 2
= V + I	= V + II
= VI	= VII
60 = 50 + 10	700 = 500 + 200
= L + X	= D + CC
= LX	= DCC

Roman numerals got by subtracting from 5, 50, 100, 500 and 1000:

4 = (1 subtracted from 5)
 = IV

40 = (10 subtracted from 50)
 = XL

90 = (10 subtracted from 100)
 = XC

400 = (100 subtracted from 500)
 = CD

900 = (100 subtracted from 1000)
 = CM

REF: MK Bk 4 pg 32

Primary MTC for Uganda Bk 4 pg 14-17

Week four lesson four

Expressing Roman numerals into Hindu Arabic numbers.

Convert the following to Hindu Arabic numerals:

- XIV = X + IV
 = 10 + 4
 = 14
- XXXIX = XXX + IX
 = 30 + 9
 = 39
- XLV = XL + V

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$$\begin{aligned} &= 40 + 5 \\ &= \underline{45} \end{aligned}$$

$$\begin{aligned} 4. \text{ XCVIII} &= \text{XC} + \text{VIII} \\ &= 90 + 8 \\ &= 98 \end{aligned}$$

$$\begin{aligned} 5. \text{ DCCVII} &= \text{DCC} + \text{VII} \\ &= 700 + 7 \\ &= 707 \end{aligned}$$

REF: - MK Bk 4 pg 34
- Primary MTC for Uganda Bk 4 pg 17

Week four lesson five

Writing Hindu Arabic in Roman numerals Examples

1. Change 25 into Roman numerals
 $25 = 20 + 5$
 $= \text{XX} + \text{V}$
 $= \text{XXV}$

2. Express 49 in Roman numerals
 $49 = 40 + 9$
 $= \text{XL} + \text{IX}$
 $= \text{XLIX}$

REF: - MK Bk 4 pg 34
- Primary MTC for Uganda Bk 4 pg 17

Week five lesson one

Topical questions: MK Bk 4 pg 35

Week five lesson two

OPERATION ON NUMBERS

Addition:

Words used in addition include; Sum, Total, Increase, Altogether, Add, e.t.c.

Examples:

1. Find the sum of;

$$\begin{array}{r} \text{a) } 7464 \\ + 4425 \\ \hline \mathbf{11889} \end{array}$$

$$\begin{array}{r} \text{b) } 146708 \\ + 52614 \\ \hline \mathbf{199322} \end{array}$$

2. There are 469 goats, 943 cows and 6401 chicken on the farm. How many animals are there altogether?

$$\begin{array}{r} 469 \\ 943 \\ + 6401 \\ \hline \mathbf{7813} \end{array}$$

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∴ There are 7813 animals altogether.

REF: - Primary MTC for Uganda Bk 4 pg 23
 - MK Bk 4 pg 38
 - Primary School MTC bk 4 pg 14

Week five lesson three

Subtraction of wholes numbers

Words used include; **Reduce, Decrease, Difference, e.t.c.**

1. Subtract:

$$\begin{array}{r} \text{a)} \quad 8432 \\ - 4732 \\ \hline \mathbf{3700} \end{array}$$

$$\begin{array}{r} \text{b)} \quad 532867 \\ - 314658 \\ \hline \mathbf{218209} \end{array}$$

2. Subtract 94 from 342.

$$\begin{array}{r} 342 \\ - 94 \\ \hline \mathbf{248} \end{array}$$

3. What is the difference of 143 and 36?

$$143$$

$$\begin{array}{r} - 36 \\ \hline \mathbf{107} \end{array}$$

4. Okot had Shs. 630. He bought a toy car for Shs. 560.
 How much money remained?

$$\begin{array}{r} \text{Sh. } 630 \\ - \text{Sh. } 560 \\ \hline \mathbf{\text{Sh. } 070} \end{array}$$

REF: - Primary MTC Bk 4 pg 30
 - Primary MTC for Uganda bk 4 pg 20-32
 - Understanding MTC Bk 4 pg 18-25

Week five lesson four

Multiplication of wholes.

Multiplying of a 3/2 digit number by 1 digit number.

1.	$\begin{array}{r} 13 \\ \times 2 \\ \hline \mathbf{26} \end{array}$	2.	$\begin{array}{r} 43 \\ \times 4 \\ \hline \mathbf{172} \end{array}$	3.	$\begin{array}{r} 120 \\ \times 5 \\ \hline \mathbf{600} \end{array}$
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REF: Primary MTC for Uganda bk 4 pg 36
 MK Bk 4 pg 46

Week five lesson five

Multiplying numbers by 10 and 20.

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$$\begin{array}{r} 2. \quad 42 \\ \times 10 \\ \hline 420 \end{array}$$

$$\begin{array}{r} 2. \quad 54 \\ \times 10 \\ \hline 540 \end{array}$$

$$\begin{array}{r} 3. \quad 32 \\ \times 20 \\ \hline 640 \end{array}$$

REF: MK bk 4 pg 50

Week six lesson one

Multiplying 2-digit numbers by 2 digit numbers

$$\begin{array}{r} 1. \quad 13 \\ \times 12 \\ \hline 026 \\ 130 \\ \hline 156 \end{array}$$

OR;

$$\begin{array}{r} 13 \\ 12 \rightarrow 10 + 2 \\ (13 \times 10) + (13 \times 2) \\ 30 \quad + \quad 26 \\ \hline 130 \\ + 26 \\ \hline 156 \end{array}$$

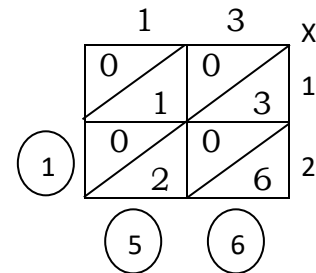
$$\begin{array}{r} 2. \quad 45 \\ \times 12 \\ \hline 090 \\ 450 \\ \hline 540 \end{array}$$

$$\begin{array}{r} 45 \\ \times 12 \rightarrow 10 + 2 \\ 45 \times 10 \quad 450 \\ 45 \times 2 \quad + 90 \\ \hline 540 \end{array}$$

Week six lesson two

Multiplying using lattice method:

e.g. 13×12



$$= 156$$

REF: Primary MTC for Uganda bk 4 pg 40

MK Bk 4 pg 50

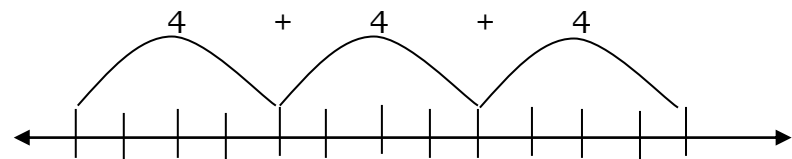
Understanding MTC BK 4 pg 26-30

Week six lesson three

MULTIPLICATION OF NUMBERS ON A NUMBERLINE

E.g.

$$1. \quad 3 \times 4$$

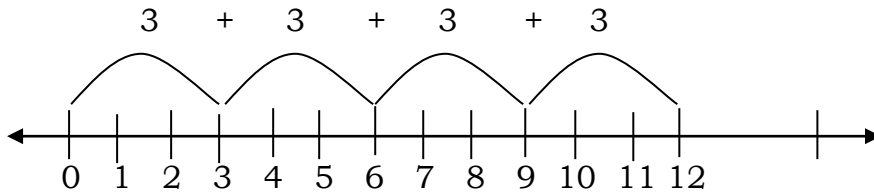


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0 1 2 3 4 5 6 7 8 9 10 11 12

$$= \underline{\underline{12}}$$

2. 4×3



$$= \underline{\underline{12}}$$

Week six lesson four

Divisions of 3 digit numbers by one digit

Use of long division

Exp: 1 $468 \div 2$

$$\begin{array}{r} 234 \\ 2 \overline{) 468} \\ \underline{2 \times 2 = 4} \end{array}$$

$$\begin{array}{r} \overline{x} \ 2 \\ 0 \ 0 \\ 1 \ 2 \end{array}$$

$$\begin{array}{r} 0 \ 6 \\ 2 \times 3 = \underline{0 \ 6} \\ \quad \underline{0 \ 8} \\ 4 \times 2 = \underline{0 \ 8} \\ \quad \underline{0 \ 0} \end{array}$$

$$\begin{array}{r} \underline{2 \ 4} \\ \underline{3 \ 6} \\ \underline{4 \ 8} \\ 5 \ 10 \\ 6 \ 12 \\ 7 \ 14 \\ 8 \ 16 \\ \underline{9 \ 18} \end{array}$$

Exp: 2 Share 570/= among 5 girls

$$\begin{array}{r} 114 \\ 5 \overline{) 570} \\ \underline{1 \times 5 = 5} \quad \underline{0 \ 7} \\ 1 \times 5 = \underline{0 \ 5} \\ \quad \underline{2 \ 0} \\ 4 \times 5 = \underline{2 \ 0} \\ \quad \underline{0 \ 0} \end{array}$$

$$\begin{array}{r} \overline{x} \ 2 \\ 0 \ 0 \\ \underline{1 \ 5} \\ 2 \ 10 \\ \underline{3 \ 15} \\ 4 \ 20 \\ \underline{5 \ 25} \\ 6 \ 30 \\ \underline{7 \ 35} \\ 8 \ 40 \\ \underline{9 \ 45} \end{array}$$

$$= \underline{\underline{114}}$$

Week six lesson five

DIVISIBILITY TEST

Divisibility test of 2:

A number is divisible by 2 when the last digit is even.

e.g. 50, 22, 94, 108, etc.

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Divisibility test of 3:

A number is divisible by 3 when the sum of digits is divisible by 3.

e.g. a) 21

$$= 2 + 1$$

$$= 3$$

$$= 3 \div 3$$

$$= \underline{\underline{1}}$$

b) 144

$$= 1 + 4 + 4$$

$$= 9$$

$$= 9 \div 3$$

$$= \underline{\underline{3}}$$

Divisibility test of 5:

A number is divisible by 5 when the last digit is 5 or 0.

e.g. 95, 240,

Week seven lesson one

INTRODUCTION OF COMBINED OPERATIONS

Use BODMAS

B - Brackets
O - Of

D - Division
M - Multiplication
A - Addition
S - Subtraction

Exp. 1. Work out: $4 + 1 - 2$
 $= (4 + 1) - 2$
 $= 5 - 2$
 $= \underline{\underline{3}}$

2. Simplify: $4 + 2 + 5$
 $= 4 + (2 \times 5)$
 $= 4 + 10$
 $= \underline{\underline{14}}$

Week seven lesson two

Properties of zero:

1. $0 \times 0 = 0$

2. Zero multiplied by any number gives 0.

i.e. $0 \times 25 = 0$ $k \times 0 = 0$

$$7 \times 0 = 0$$

3. Zero added to any number gives the number to itself.

i.e. $0 + 40 = 40$

$$8 + 0 = 8$$

4. Any number to the power of zero gives one.

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$$\begin{aligned}\text{i.e.} \quad 4^0 &= 1 \\ 100^0 &= 1\end{aligned}$$

5. Zero divided by any number gives zero.

$$\begin{aligned}\text{i.e.} \quad 0 \div 5 &= 0 \\ \frac{0}{21} &= 0\end{aligned}$$

Properties of one:

1. Any number multiplied by one give the number itself.

$$\begin{aligned}\text{i.e.} \quad 1 \times 20 &= 20 \\ y \times 1 &= y \\ 0 \times 1 &= 0\end{aligned}$$

2. Any number divided by one except zero gives the same number.

$$\begin{aligned}\text{i.e.} \quad \frac{4}{1} &= 4 \\ y \div 1 &= y\end{aligned}$$

Week seven lesson three

Magic square:

Identify the sum or magic number.

Exp. Given the magic square below, find the values of the letters.

6	a	8
b	5	c
2	d	4

$$\begin{aligned}\text{Magic number} &= 2 + 5 + 8 \\ &= 15\end{aligned}$$

$$\begin{aligned}a &= 15 - (8 + 6) \\ &= 15 - 14 \\ &= \underline{\underline{1}}\end{aligned}$$

Week seven lesson four

ARRANGING NUMBERS IN ASCENDING OR DESCENDING ORDER.

Ascending order (from small to big)

- 10, 25, 8, 125
8, 10, 25, 125

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2. 75, 38, 146, 238
38, 75, 146, 238

Descending order (from big to small)

1. 68, 29, 180, 140
180, 140, 68, 28
2. 758, 587, 857, 875
875, 857, 758, 587

Week seven lesson five

FORMING NUMBERS FROM GIVEN DIGITS UP TO THOUSANDS

Examples:

1. 1, 3, 2
123, 132, 213, 231, 312, 321
2. 2, 5, 1, 4:
Find the smallest and highest number formed.

1245, 1254, 1425, 1452, 1524, 1542, 5421,

The smallest is 1245

The highest is 5421

Week eight lesson one

Estimating number

Examples to tens:

1. 23 \approx 20
2. 46 \approx 50
3. 125 \approx 130

Examples to hundreds:

1. 142 \approx 100
2. 361 \approx 400

N.B. Use a number line.

Rounding off:

1. Round off to the nearest tens:

a) 47 T O
 4 7

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$$\begin{array}{r} + 10 \\ 50 \\ \hline \end{array} \quad 47 \approx 50$$

b) 63

$$\begin{array}{r} \text{H T O} \\ 63 \\ + 00 \\ \hline 60 \end{array} \quad 63 \approx 60$$

2. Round off to the nearest hundreds.

a) 349

$$\begin{array}{r} \text{H T O} \\ 349 \\ + 000 \\ \hline 300 \end{array} \quad 349 \approx 300$$

b) 473

$$\begin{array}{r} \text{H T O} \\ 473 \\ + 100 \\ \hline 500 \end{array} \quad 473 \approx 500$$

Week eight lesson two

INTRODUCTION TO POWERS / INDICES

Using the formula for area of a square:

$$\begin{array}{lcl} \text{e.g. } A & = & 5 \times 5 \\ & = & 5^2 \end{array}$$

$$\begin{array}{lcl} \text{a) } 4^2 & = & 4 \times 4 \\ & = & 16 \end{array}$$

$$\begin{array}{lcl} \text{b) } 10^2 & = & 10 \times 10 \\ & = & 100 \end{array}$$

$$\begin{array}{lcl} \text{c) } 3^2 & = & 3 \times 3 \\ & = & 9 \end{array}$$

$$\begin{array}{lcl} \text{d) } 5^2 & = & 5 \times 5 \\ & = & 25 \end{array}$$

Week eight lesson three

NUMBER PATTERNS AND SEQUENCE

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A multiple is a product got after multiplying factors.

6 is a multiple of 2 since $2 \times 3 = 6$ where 2 and 3 are factors.

18 is a multiple of 1, 3, 6, 9 and 2 since

$$1 \times 18 = 18$$

$$2 \times 9 = 18$$

$$3 \times 6 = 18$$

List down all the multiples of 5 less than 27.

$$M5 = (1 \times 5), (2 \times 5), (3 \times 5), (4 \times 5), (5 \times 5)$$

$$= 5 \quad 10 \quad 15 \quad 20 \quad 25$$

$$\therefore M5 = \{5, 10, 15, 20, 25\}$$

REF: Learning MTC bk 4 pg

MK Bk 4 pg 67

Week eight lesson four

Finding the Lowest Common Multiples

1. List down 7 multiples of 6 and 3

$$M6 = \{6, 12, 18, 24, 30, 36, 42, \dots\}$$

$$M3 = \{3, 6, 9, 12, 15, 18, 21, \dots\}$$

-
2. Find the Common multiples from the above set of multiples.

3. Find the L.C.M. of 3 and 6

The L.C.M of 3 and 6 is 6

REF: MK Bk 4 pg 67

Understanding MTC bk 4 pg 101

Learning MTC Bk 4 pg 19

Week eight lesson five

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FACTORS

Example

1. List down all the factors of 6.

$$\begin{array}{l} 1 \times 6 = 6 \\ 2 \times 3 = 6 \\ F_6 = \{1, 2, 3, 6\} \end{array}$$

2. List down all the factors of 12.

$$\begin{array}{l} 1 \times 12 = 12 \\ 2 \times 6 = 12 \\ 3 \times 4 = 12 \\ F_{12} = \{1, 2, 3, 4, 6, 12\} \end{array}$$

3. List down all the factors of 48.

$$\begin{array}{l} 1 \times 48 = 48 \\ 2 \times 24 = 48 \\ 3 \times 16 = 48 \\ 4 \times 12 = 48 \\ 6 \times 8 = 48 \\ F_{48} = \{1, 2, 3, 4, 6, 8, 12, 16, 24, 48\} \end{array}$$

REF: MK Bk 4 pg 73

Week nine lesson one

GREATEST COMMON FACTORS

Find the G.C.F. of 12 and 15

$$\begin{array}{l} F_{12} \\ 1 \times 12 \\ 2 \times 6 \\ 3 \times 4 \end{array} \quad \begin{array}{l} F_{15} \\ 1 \times 15 \\ 3 \times 5 \end{array}$$

$$F_{12} = \{1, 2, 3, 4, 6, 12\} \quad F_{15} = \{1, 3, 5, 15\}$$
$$\text{G.C.F.} = 3$$

REF: MK Bk 5 pg 82

Week nine lesson two

OF TYPES NUMBERS

1. Whole numbers

These start from 0: $\{0, 1, 2, 3, 4, 5, 6, 7, \dots\}$

2. Counting numbers

Start from one: $\{1, 2, 3, 4, 5, 6, 7, 8, \dots\}$

3. Even numbers

These are numbers which are exactly divisible by 2 or a number when divided by 2 leaves 0 as a remainder.

$\{2, 4, 6, 8, 10, \dots\}$

N.B. The first even number is 2.

REF: MK Bk 4 pg 60

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Supplementary MTC Bk 4 pg
Learning MTC Bk 4 pg 17

4. Odd numbers

These are numbers which are not exactly divisible by 2 or when divided by 2 leave a remainder as one.

Example: {3, 5, 7, 9, 11, 13, 15, 17 ...}

5. Prime numbers

A prime number is a number which has only two factors, that is, one and itself.

Prime numbers less than 50 are:

{2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47}

6. Composite numbers

These are numbers that have more than two factors.

Example: {4, 6, 8, 9, 10, 12, 14, 15,}

REF: Supplementary MTC bk 4 pg

SEQUENCE

1. What is the next number in the sequence?

2, 6, 10, 14, 18, 22 i.e. 18

+4 +4 +4 +4 +4 +4 $\frac{+4}{22}$

2. What is the next number in the sequence?

21, 18, 15, 12, 9 i.e. 12
-3 -3 -3 -3 -3 $\frac{-3}{9}$

3. Find the missing number.

2, 3, 5, 7, 11 (Prime numbers)

4. Find the missing number;

64, 32, 16, 8, _____

5. Find the next number.

1, 3, 9, 27, _____

REF: Understanding MTK Bk 4 pg 38

ALGEBRA

Week two lesson one

Addition and subtraction of letters

1. Add: $(2y + 3y) + 4y$

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$$\begin{aligned} &= 5y + 4y \\ &= 9y \end{aligned}$$

$$\begin{aligned} 2. \text{ Subtract: } &10k - k \\ &= 10k - 1k \\ &= 9k \end{aligned}$$

REF: MK Bk 4 pg 248
Understanding MTC Bk 4 pg 157
Learning MTC Bk 4 pg 102

Week three lesson one

Collecting like terms

$$\begin{aligned} 1. \text{ Collect like terms: } &4x + 8y + 2x + 5y \\ &= (4x + 2x) + (8y + 5y) \\ &= 6x + 13y \end{aligned}$$
$$\begin{aligned} 2. \text{ Collect like terms: } &9m + 7n - 2m - 3n \\ &= (9m - 2m) + (7n - 3n) \\ &= 7m + 4n \end{aligned}$$

REF: MK Bk 4 pg 252
Understanding MTC Bk 4 pg 156

Week four lesson one

Substitution

Substitution means to replace:

$$\begin{aligned} 1. \text{ If } x = 3, y = 4 \text{ and } z = 5, \text{ Find the value of} \\ &= x + y + z \\ &= (3 + 4) + 5 \\ &= 7 + 5 \\ &= 12 \end{aligned}$$

$$2. \text{ If } h = 12, \text{ find the value of } 5h$$

$$\begin{aligned} 5h \text{ means } &5 \times h \\ &= 5 \times 12 \\ &= 60 \end{aligned}$$

REF: MK Bk 4 pg 253 – 254
Learning MTC bk 4 pg 102 – 103

Week five lesson one

Solving equations involving addition

$$1. \text{ Find the missing number}$$

$$\begin{aligned} \square + 3 &= 9 \\ \square + 3 - 3 &= 9 - 3 \\ \square &= 6 \end{aligned}$$

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∴ The missing number is 6

2. Solve for k

$$K + 4 = 9$$

$$K + 4 - 4 = 9 - 4$$

$$K = 5$$

8

5

$$\text{If } 3 + m = 8$$

What is m?

$$3 + m =$$

$$3 - 3 + m =$$

$$8 - 3$$

$$m =$$

REF: MK Bk 4 pg 246 – 247

Understanding MTC Bk 4 pg 159

Week six lesson one

Forming and solving equations with addition

Wamala had some books. He got 3 more books. Altogether he had 7 books. How many books did he have before?

8 - 159

Let the books he had be x.

$$x + 3 = 7$$

$$x + 3 - 3 = 7 - 3$$

$$x = 4$$

∴ He
had 4
books.

REF: MK Bk 4 pg 257

Understanding MTC Bk 4 pg 159

Week seven lesson one

Equations involving subtraction

1. If $\square - 4 = 6$, Find the value of what is in the box

$$\square - 4 = 6,$$

$$\square - 4 + 4 = 6 + 4$$

$$\square = 10$$

∴ The value of what is in the box is 10.

2. Solve for m:

$$m - 3 = 2$$

$$m - 3 + 3 = 2 + 3$$

$$m = 5$$

REF: MK Bk 4 pg 247

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Forming and solving equations with subtraction

Mulloli had some goats. When he sold them he remained with 9 goats. How many goats had he before?

Let the number of goats he had be g.

$$g - 5 = 9$$

$$g - 5 + 5 = 9 + 5$$

$$g = 14$$

∴ He
had 14 goats.

REF: MK Bk 4 pg 258

Week eight lesson one

Equations involving multiplication

1. If $\square \times 3 = 12$, What is in the box?

$$\square \times 3 = 12$$

$$\square \times 3 \div 3 = 12 \div 3$$

$$\square \times 1 = 4$$

$$\square = 4$$

∴ The box has got 4

2. If $3P = 21$, Find P

$$3P = 21$$

$$\frac{3P}{3} = \frac{21}{3}$$

$$P = 7$$

REF: MK Bk 4 pg 225

Understanding MTC Bk 4 pg 160

Forming equations with multiplication

There are 4 groups in a class. Each group has the same number of pupils. Altogether there are 40 pupils. How many pupils are in each group?

Let the pupils in each group be c.

$$4 \times c = 40$$

$$\frac{4c}{4} = \frac{40}{4}$$

$$c = 10$$

∴ Each group has 10 pupils.

REF: MK Bk 4 pg 259

Week nine lesson one

Tekart Learning

Equations involving division

3. If $\square \div 2 = 4$, What is in the box?

$$\square \div 2 = 4$$

$$\square \div 2 \times 2 = 4 \times 2$$

$$\square \div 1 = 8$$

$$\square = 8$$

\therefore The box has got 8

4. Solve for x:

$$x \div 3 = 6$$

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

$$x \times 1 = 3 \times 6$$

$$x = 18$$

5. $a/2 = 3$

$$\frac{a}{2} \xrightarrow{\quad = \quad} \frac{3}{1}$$

$$a \times 1 = 2 \times 3$$

$$a = 6$$

REF: MK Bk 4 pg 256

Forming equations involving division

Nakandi had some balls. She divided them into 4 groups. If there were 12 balls in each group, how many balls did she have altogether?

Let the balls she had be b.

$$b \div 4 = 12$$

$$b \div 4 \times 4 = 12 \times 4$$

$$b = 48$$

\therefore She had 48 balls altogether.

Week ten lesson one

Equations involving more than one operation

1. Solve for y.

$$2y + 5 = 17$$

$$= 12$$

2. Solve for m

$$3m - 9$$

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$$2y + 5 - 5 = 17 - 5$$

$$= 12 + 9$$

$$2y = 12$$

$$= 21$$

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

$$y = 6$$

$$= 7$$

REF: MK Bk 5 Pg 278 – 279
of Algebra

GEOMETRY

Week two lesson one

Drawing line segments using rulers.

LINES

A line is a set of points illustrated as



Ray

$$3m - 9 + 9$$

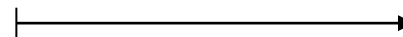
$$3m$$

$$\frac{3m}{3}$$

$$m$$

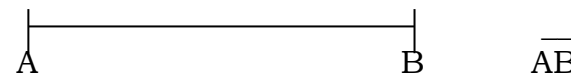
End

A ray is a line with one end point.



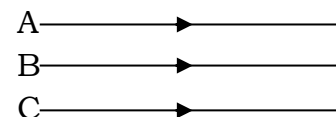
A line segment has two end points.

A line segment is named by its end points



Parallel lines

Parallel lines are lines which do not meet.
They have the same distance apart at every point.



REF: MK BK 5 PG 175

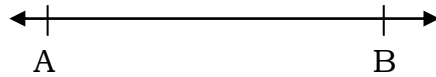
Week three lesson one

Naming lines, rays and line segments.

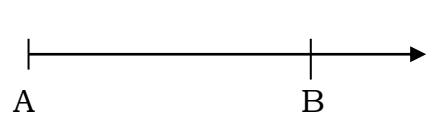
Lines are named according to the points through which they pass.

Name the following: _____

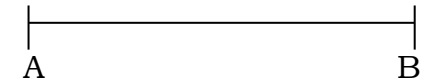
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Line AB or \overleftrightarrow{AB}



Ray AB or \overrightarrow{AB}

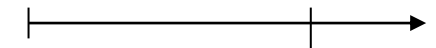


Line segment AB

Drawing rays and lines

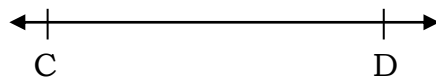
Example

Draw ray AB



A B

Draw line CD



Drawing line segments of given length

Instruments to use:

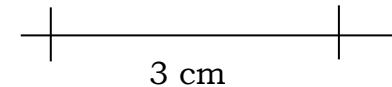
- A sharp pencil
- A ruler
- A pair of compasses
-

Example:

Draw a line segment of length 3 cm.

Procedure:

- Draw a line of any length
- Mark a point at the beginning of the line.
- Place a ruler on the marked point such that the point is marked "0" cm on the ruler and a marked point on the paper.
- Measure 3 cm.



Measuring line segments

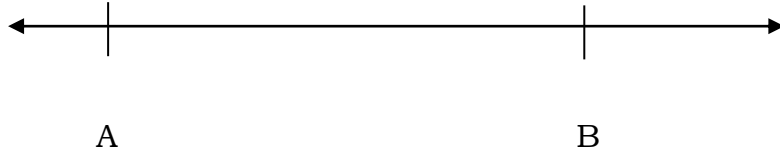
Instruments used:

- Ruler

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Example:

Measure line AB



Procedure:

- Place the ruler at A such that the point marked 0cm is at point A.
- Take the reading which corresponds with point B, i.e.,
- $AB = 5\text{cm}$

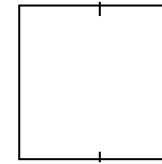
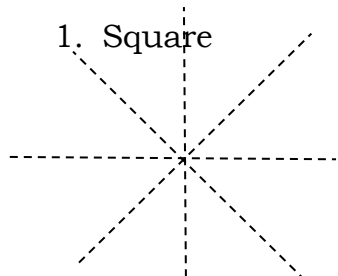
REF: Understanding MTC Bk 4 pg 7

Week four lesson one

Drawing and naming quadrilaterals.

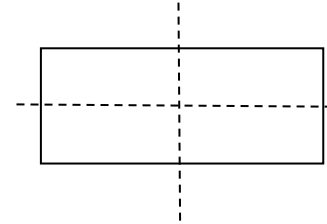
These are 4 sided figures e.g. squares, rectangles, rhombus, parallelograms, kites, trapeziums, etc.

1. Square



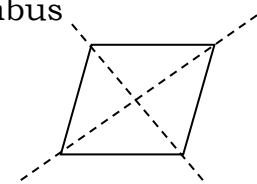
- It has 4 equal sides
- It has 4 lines of symmetry.

2. Rectangle



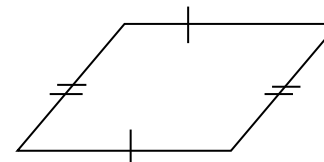
- It has 4 sides
- Opposite sides are equal
- Has two lines of symmetry

3. Rhombus



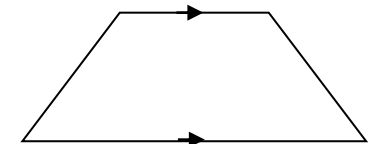
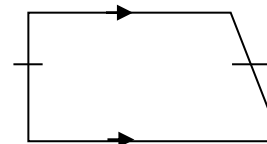
- It has 4 equal sides
- It has 2 lines of symmetry.

4. Parallelogram



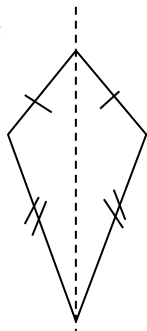
- It has 4 sides
- Opposite sides are equal and parallel
- Has one line of symmetry.

5. Trapezium



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6. Kite



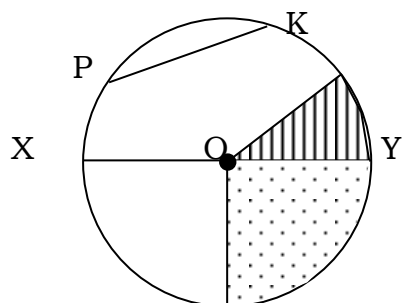
- Opposite sides are equal
- Has one line of symmetry

REF: MK BK 5 pg 184.

Understanding MTK bk 4 pg

Week five lesson one

Parts of a circle.



- | | | |
|---------------|---|----------|
| PK | - | Chord |
| XO | - | Radius |
| XY | - | Diameter |
| Shaded part- | | Sector |
| Dotted part - | | Quadrant |

Week six lesson one

Finding diameter when radius is given.

$$D = r \times 2$$

e.g. Find the diameter of circle whose radius is 5cm

$$\begin{aligned} \text{Diameter} &= r \times 2 \\ &= 5 \text{ cm} \times 2 \\ &= \underline{\underline{10 \text{ cm}}} \end{aligned}$$

1. Finding radius when diameter is given.

$$R = D \div 2$$

e.g. Find the radius of circle whose diameter is 14cm

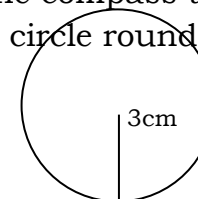
$$\begin{aligned} \text{Radius} &= D \div 2 \\ &= 14 \text{ cm} \div 2 \\ &= \underline{\underline{7 \text{ cm}}} \end{aligned}$$

Week seven lesson one

Drawing circles using a ruler and a pair of compass.

Exp. Construct a circle of radius 3cm.

- Draw a line and mark a point to be the centre of the circle.
- Open the compass to radius of 3cm.
- Draw a circle round the centre.



Week eight lesson one

Types of angles:

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1. **Acute angle:**

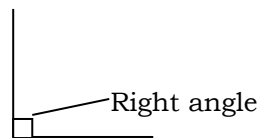
It is an angle which measures between 0° and 90° .

e.g. 30° , 45° , 15° , 89° , etc.

2. **Right angle:**

It is an angle measuring exactly 90° .

Symbol used:



3. **Obtuse angle.**

It is an angle which measures more than 90° but less than 180° .

4. **Reflex angle.**

It is an angle which measures more than 180° but less than 360° .

e.g. 185° , 240° , 350° , etc.

REF: MK BK 5 pg 193.

Week nine and ten

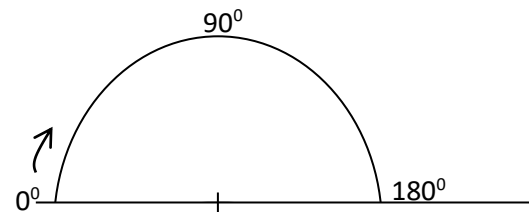
Drawing and measuring angles using a protractor.

1. Using outer scale.

Procedure:

- Draw a line
- Mark a point on the line

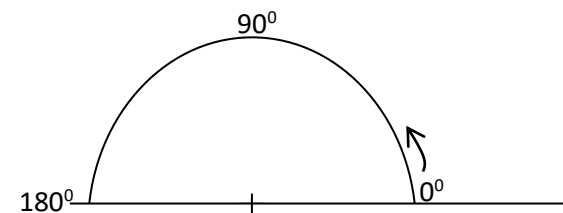
- Place the protractor such that its centre is on the point marked on the line.
- Take the reading starting from zero clockwise.



2. Using inner scale.

Procedure:

- Draw a line
- Mark a point on the line
- Place the protractor such that its centre is on the point marked on the line.
- Take the reading starting from zero anticlockwise.



REF:

MK Mathematics Bk 5 pg 195

Understanding MTC BK 4 pg 87.

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