

**RAPHELA JUNIOR SCHOOL**

**PRIMARY SIX**

**MATHEMATICS**

**LESSON NOTES TERM 1 2020**

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**TOPIC / UNIT ONE - SET CONCEPTS**

**Sub topic: - Types of sets**

**Content**:

Types of sets:

* Equal sets
* Un equal sets
* Equivalent sets
* Non equivalent sets

**Examples**

1. Equal sets

**A** **B**

1 3

2 3 2 1

1. Equivalent sets / matching sets

**X** **Y**

1 2 3 4 a b c d

3. Non equivalent sets

**P** **Z**

a e i 1 2 3 4

**ACTIVITY**

The pupils will attempt exercise 1 : 1 page 2 from A new MK primary MTC pupils’ BK 6. / Mk new edition pg 1-2 / understanding mtc pg 1-3/ fountain pg 1-8

**Sub topic: Types of sets**

**Content**

* Intersecting sets (**∩**) / joint sets

A set of common members from two or more sets.

* Union sets ( **∪**)

A set of all elements in the two or more sets.

* Universal set ( **ε** )

The biggest set from which other smaller sets are got.

* Joint and disjoint sets

**Examples**

Sets M = {a, b, c, d, e, }

K = {d, e, f, g, h, }

∴ (i) M ∩ K = {e, d}

(ii) K ∪ M = {a, b, c, d, e, f, g, h}

(iii) Universal set ( ε )

The biggest set from sets M and K i.e.

**ε** =

M K

a b c e f g

d h

ε = {a, b, c, e, d, f, g, h}

**Disjoint set**

A = {1, 2, 3, 4} B = {p, q, r, s}

**ε** =

A B

1 2 3 4 p q r s

**Activity**

Mk new edition pg 3-4

Understanding mtc pg 4-7

Fountain pg 7-8

**Sub topic** :**Types of sets**

**Content:**

1. **Difference of sets**

i) shading of regions

ii) describing regions

1. **Complement of sets**

i) find complement of sets

ii) shading regions with complement of sets

**Examples:**

(a) A B

(A-B) (B-A)

b) Complements

Given that **ε** **Find:**

(i) P1 = {b, h, g}

P Q (ii) QI = {c, e, f }

c e f a b (iii) (P n Q)1

1. **Difference of sets**:
   1. P – Q = {c, e, f}
   2. Q – P = {b, g, h}
2. **Empty sets e.g**

A = {all goats with wings}

**Activity**

Mk new edition pg 10

**Sub topics sub sets (⊂ )**

**Content:**

1. Listing / forming subsets
2. Numbers of sub sets
3. Number of proper subsets

**Examples:**

(i) Representing subsets on diagrams

i.e All cows (C) are animals (A)

A

C

1. Listing/ forming sub sets

A = {x, y}

Sub sets are { }, {x}, {y }, {x, y}

1. Find number of subsets;

**Formula**: **2n** (n stands for number of members)

E.g. set R = {1, 2, 3}

No of subsets = 2n

= 23

= 2 x 2 x 2

= 8

iv) find number of proper subsets

(2n-1)

Set P = {a, b, c, d}

No of proper subsets

(2n-1)

24-1

(2x2x2x2)-1

16-1

15 proper sub sets

**Activity**

Mk new edition pg 6-7

Fountain mtc pg 8-10

Understanding mtc pg 4-6

**Subtopic**: Finding number of elements in sets.

**Content:** (a) listing members of sets

1. Number of elements in sets.

**Examples:**

(i) Find members in set N

N = {prime numbers between O and 10}

N = {2, 3, 5, 7}

(ii) n (N) = 4

1. Use the venn diagram to answer questions

**ε** Find

X Y But x = {a, b, c, d, e, f, }

b d f a g h **∴** n (x) = 6

c e k j

p q

(b) n (y )

(c) n (X n Y)

(d) n (Y – X )

(e) n (X)1

**Activity**

Mk old edition pg 20-22

**Subtopic**: **Application of set concepts.**

**Content:** (a) Representing information on a venn diagram

Given that set A = {a, b, c, d, e, f, g} B = {a, e, i, o, u}

A B

b a i

c d e o

f u

g

1. n(A) = 7
2. n(B) = 5
3. n(AՈB) = 2
4. n(A-B) = 5
5. n(B-A) = 3
6. n(A∪B) = 10

(b) Interpreting information given on a venn diagram

**Examples:**

1. Given that n (A) = 7, n (B) = 5 and n (A n B) = 2
2. Draw a venn diagram to represent the above information

n (A) = 7 n (B ) = 5

5 2 3

**Activity**

Mk old edition pg 22-25

**SUBTOPIC** : **Application of sets:**

**Content** : Interpreting word problems using the venn diagram (real life situations)

**Examples:**

(a) In a class, 12 pupils like English (E), 15 pupils like Maths (M) and 5 pupils both Eng and Maths. Draw a venn

**diagram to represent the information above.**

**ε=** 22 pupils

n(E) = 12 n(M) = 15 (i) The class has

7 + 5 + 10 = 22

(12 – 5) 5 (15 – 5

7 10 (ii)How many like one subject only?

7 + 10 = 17 pupils

1. In a class of 30 pupils, 20 take Mirinda (M), 15 take Fanta (F) and some take both drinks while 2 take neither of the drinks.

(i) Show this information on a venn diagram

**ε = 30**

n(M) = 20 n(F) =15

20-y y 15-y

2

Let y represent those who take both.

20-y+y+15-y+2=30

20+15+2+y-y-y=30

37-y=30

37-37-y=30-37

-y = -7

-1 -1

y = 7

**Activity**

1. Understanding mtc pg 13-15
2. Fountain p g 10-13
3. Mk new edition pg 8-9

**Sub topic** : **Probability**

**Content** :

1. The idea of probability / chance
2. Formular

Prob. = n (expected outcome) or n (EE)

n(possible outcomes) n (SS)

**Application**

**Example:**

If B = {counting numbers less than 10}

∴ B = {1, 2, 3, 4, 5, 6, 7, 8, 9}

(a) Find the probability of picking an even number

Even numbers = {2, 4, 6, 8}

n (Expected outcomes ) = 4

n (possible outcomes) = 9

= Prob = 4

9

1. In a class of 17 pupils, 11 like Eng (E) and 9 like Maths (M) if a pupil is picked at random from the class.
2. What is the probability of picking a pupil who likes Maths only?

n (Expected outcomes ) = 6

n (possible outcomes) = 17

Prob = 6

17

ε = 17 ii) Pupils who like both:

n(E) = 11 n (M) = 9 (11 + 9 ) – 17

20 – 17

3 3

11- 3 9-3

iii)Pupils who like Eng only and Maths only

(11 – 3) + (9 – 3)

8+6

14

**Activity**

Fountain pg 14-16

Mk new edition pg 10-12

**Revision work on set concepts**

1. Write equal, unequal or equivalent against each

P Q R S

1 2 3 1 3 9 8 9 11 3 5 1 2 4

4 5 2 7 5 7 2 1

(i) P and Q (ii) R and S (iii) Q and R

(iv) Q and S (v) P and S

1. If P = {even numbers less than ten}
   1. Find n (P)
   2. How many subsets has set P?
2. Study the venn diagram and use it to answer the questions about it.

**ε** Write down the elements for:

K M (i) K (ii) M

(iii) K n M

a b i g (v) K – M)

d e f h (iv) M u K (vi) K1

1. (a) List down all the subsets in A if A = {o, u ,i, s}
2. A set has five elements how many subsets has set A?
3. Given that a set has 16 subsets. Find the numbers elements in this set.
4. (a) Draw and shade these sets.

(i) R n P (ii) M u N (iii) Z – F

(b) Describe / name the shaded regions below:

(i) T P (ii) X Y (iii) L K

1. Set P = {2, 3, 5, 7}, Q = {1, 2, 3, 4, 6, 7, 8}
   1. Complete the venn diagram

P Q

* 1. Find n (P n Q)
  2. (ii) n (P u Q) (iii) n ( Q – P )

(iv) n (P ) only (v) n(Q) (vi) n (P)1

1. In a market 24 traders sell cloth (C), and 30 traders sell food (F). If 16 traders sell both items, draw a venn diagram and find out how many traders sell only one type of commodity.
2. In a class of 30 pupils, 18 eat meat, 10 eat beans and 5 do not eat any of the two types of food.
3. Show this information on a venn diagram
4. How many pupils eat meat only?
5. Find those who eat beans only.
6. How many pupils eat only one type of food?
7. Find the number of pupils who eat both types of food.
8. What is the probability of choosing a pupil at random who eats meat?

**THEME: NUMERACY**

**TOPIC: WHOLE NUMBERS**

**Subtopic**: Value values

**Content** : Value of digits in numerals

**Examples:**

* 1. Find the place values
  2. Find the value of each digit

|  |  |  |
| --- | --- | --- |
| **Number** | **Place value** | **value** |
| 9 4 3 8 7 2 5 | Ones  Tens  Hundreds  Thousands  Ten thousands  Hundred thousands  Million | 5 x 1 = 5  2 x 10 = 20  7 x 100 = 700  8 x 1000 = 8000  3 x 10000 = 30000  4 x 100000 = 40000  9 x 1000000 = 9000000 |

ii) Using operations to find values of digits

**Activity**

Mk new edition pg 14-15

Fountain pg 20-23

Subtopic: Expanded form

Content

(i) Expand using values / place values

(ii) Expand using powers of ten

**Examples**:

(a) Expand 6845 using values

6845 = (6 x 1000) + ( 8 x 100) + ( 4 x 10 ) + (5 x 1)

= 6000 + 800+ 40 + 5

b) Using power exponents

63824150 = (6 x 103) + ( 8 x 102) + ( 4 x 101) + 5 x 100)

6845 = 6.845 x 103

**Activity**

MK new edition pg 16-17

Understanding mtc pg 25

Fountain pg 23-24

**Scientific /standard form**

**Content** : Expanding number using scientific notation

**Example**:

1. Express 6845 in scientific form

6845 = 6845 ÷10

684.5 ÷10

68.45 ÷10

**6.845 x 103**

**SUBTOPIC**: Expressing expanded numbers as single numeral.

**Content** :

(i) Expanded form of values

(ii) Expanded form of place values

(iii) Expanded form of exponents.

**Examples:**

(a) Write in short:

4000 + 60 + 2

4 0 0 0

6 0

+ 2

**4 0 6 2**

(b) (8 x 10000) + ( 7 x 1000) + ( 5 x 100) + ( 9 x 10) + ( 3 x1)

80,000 + 7,000 + 500 + 90 + 3

8 0 0 0 0

7 0 0 0

5 0 0

9 0

+ 3

**8 7 5 9 3**

(c) (6 x 103) + (4 x 102) + ( 2 x 101) + ( 3 x 100)

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

6000 + 400 + 20 + 3

6 0 0 0

4 0 0

2 0

+ 3

**6 4 2 3**

(d) 6.42 x 102 = 6.42 x 100 = 642

**reference**

* + Fountain pg 23-24
  + Mk new edition pg 16-17

Subtopic: Reading and writing numbers in words

Content : Expressing numerals in words up to millions.

**Examples**

(a) Express 9452 in words

9452 –nine thousand four hundred fifty-two

9000 – nine thousand

400 – four hundred

52 - fifty-two

Therefore; 9452 = nine thousand four hundred fifty- two

**Examples**:

(b) write 1,486,019 in words

1,000,000 – One million

486,000 - Four hundred eighty six

19 - Nineteen

∴ 1486019 = One million, four hundred eight six thousand nineteen

**Activity:**

MK new edition pg 18-19

Fountain pg 25.

**Subtopic:** writing words in figures .

**Content:** Writing number words in figures to millions

Write in figures.

**Examples**

Four hundred thousand, seven hundred sixteen

Solution:

Four hundred thousand 4 0 0 0 0 0

Seven hundred sixteen + 7 1 6

4 0 0 7 1 6

ii) One million one hundred one thousand eleven

**Activity**

MK new edition pg 18-19

Fountain pg 25.

**Subtopic:** Rounding off whole numbers

**Content:** Round off to the nearest

1. Tens
2. Hundreds
3. Thousands

**Examples:** (i) Round 677 to the nearest tens

6 7 7

+ 1 0

6 8 0

(ii) Round 1677 to the nearest hundreds

1 6 7 7

+ 1 0 0

1 7 0 0

iii) Round off 34567 to the nearest thousands

**Activity**

Mk old edition pg 47-48

Subtopic: Decimal numbers

Content: Place values of decimal in words and figures.

**Examples:** (a) 1 One tenth – 0.1

10

Place value of 1 in 0.1 is Tenths.

(b) 8 Eight hundredths – 0.8

100

(c) Find the value of each digit

4 . 6

Tenths – 6 x 1/10 (6 x 0.1) = 0.6

Ones – 4 x 1 = 4

|  |  |  |
| --- | --- | --- |
| Number | Place values | Values |
| 6.73 | 6 – ones | 6x1 = 6 |
|  | 7 – tenths | 7x1/10 = 0.7 |
|  | 3 = hundredths | 3 x 1/100 = 0.03 |

**Activity**

Mk old edition pg 42-44

Subtopic: Reading and writing decimals in words and the vice verse

**Content**:

(i) Writing decimals in words

(ii) Expressing decimals in figures from words

**Examples:**

(a) Write 0.125 in words

0.125 = One hundred twenty five thousandths

(b) 18.4

18 Eighteen

0.14 Fourteen hundredths

18.14 Eighteen and fourteen hundredths

(c) Twenty six and four tenths

Twenty six 2 6

Four tenths + 0 . 4

2 6 . 4

**Activity**

Mk old edition pg 45- 46

Subtopic: Expanding decimal numerals

Content:

(i) Expand using place values

ii) Expand using values

(iii) Expand using exponents

**Examples:** (i) Expand 3. 5 4

Hundredths – 4 x 1/100 = 0.04

Tenths – 5 x 1 = 0.5

10

Ones = 3 x 1 = 3

3.54 = 3 + 0.5 + 0.04

(ii) Expand 4.62 using exponents/

4.62 = (4 x 100) + (6 x 10-1) + ( 2 x 10-2)

(iii) Write as a single numeral

1. 3 + 0.5 + o.04

3

0 . 5

+ 0 . 0 4

3 . 5 4

(b) Express in the shortest form

(4x100) + (6x10-1) + ( 2x10-2)

4 x 100 = 4 x 1 = 4

6 x -10 = 6 x 1/10 = 0.6

2 x 10-2 = 2 x 1/100 = 0.02

4.62

**Activity**

The pupils will do exercises 8 : 8 and 8 : 9 A New MK 2000 BK 6 pg 59 (old Edn)

Subtopic: Expressing decimal in scientific notation.

Content: Expanding decimals of different place values in standard/ Scientific notation.

1. Tenths
2. Hundredths
3. Thousandths

**Examples**:

(i) 0.4 in standard form

* 1. 0.4 = 4.0 x 10-1
  2. 2.52 = 2.52 x 100
  3. 23.63 = 2.363 x 101
  4. 464.241 = 4.64244 x 102

**Activity**

Express the following to standard form:

(a) 4.8 (b) 3.25 (c) 38.06

(d) 207.4 (e) 4819.2 (f) 23.63

(g) 49 (h) 29.7

(i) 0.006 (j) 120.0

Content: Finding expanded decimals

**Example**

a) What number has been expanded

i) 3+0.5 + 0.04

ii) (4x10) + (6x1) + (7x0.01)

iii) (6x103) +(4x101) + (9x10-2)

**Ref: MK old edition pg 47-48**

Subtopic: Ordinary decimals

Content: (a) Arrange in ascending and descending order

**Example**: (i) Arrange the following in ascending and descending order

0.1, 2.0 and 0.04

1 , 2 , 4 (LCM = 100)

10 1 100

⇒ 1 x 100 = 1 x 10 = 10 (2nd )

10 1

2 x 100 = 200 = 200 (3rd )

1 1

4 x 100 = 4 x 1 = 4 (1st )

100 1

Ascending order = 0.04, 0.1, 2.0

(ii) Arrange the following in descending order

3.5, 4.05, 0.45, 0.02

35, 405, 45, 2 (LCM = 100 )

10 100 100 100

35 x 100 = 350 45 x 100 = 45

10 100

405 x 100 = 405 2 x 100 = 2

100 100

∴ Descending order = 4.05, 3.5, 0.45, 0,02

**Activity**

The pupils will do exercises below:

* 1. 1.5, 0.015, 0.015, 15.0 (Ascending order)
  2. 0.5, 5.5, 1.5, 5.1 (descending order)
  3. 0.33, 0.3, 3.3 (Ascending order)
  4. 0.2, 0.75, 0.5 (Descending order)
  5. 0.25, 0.5, 0.4, 0.6 (Ascending order)

**Ref: Trs’ collection**

Subtopic: Rounding off decimals

Content : Round off to the nearest:

1. Tenths / one place of decimal
2. Hundredths / two places of decimals
3. Thousandths / three places of decimal
4. Ones / whole number

**Example:** (i) Round off 4.25 to the nearest whole no.

4  **.** 2 5

+ 0

4 . 0 0

∴**4.25 ♎ 4**

(ii) 29.67 to nearest tenths

2 9 . 6 7

+ 1

3 0 . 0 0

∴ **29.67 ♎ 30**

(iii) 39.95 to nearest tenths

3 9 . 9 5

+ 1

4 0 . 0 0

**39.95 ♎ 40.0**

**Note: consider the answer up to the required place value**

**Ref**

MK old edition pg 48

Understanding mtc pg 33-35

Subtopic: Roman and Hindu Arabic Numerals

Content:

(i) Reading writing Roman numerals to 10,000

(ii) Expressing Hindu Arabic numerals in Roman system.

**Example**: (i) Basic digits / numerals

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Hindu Arabic | 1 | 5 | 10 | 50 | 100 | 500 | 1000 |
| Roman | 1 | V | X | L | C | D | M |

(ii) 75 = 70 + 5

LXX + V

**LXXV**

(iii) 555 = 500 + 50 + 5

D + L + V

**DLV**

**Activity**

* + Mk old edition pg 49-51
  + Understanding pg 36-39
  + Fountain pg 26-30

Subtopic: Expressing Roman Numerals to Hindu Arabic numerals

Content: Convert from Roman numerals to Hindu Arabic numerals

**Examples:**

(i) Write LXXV in Hindu Arabic system

LXXV

L = 5 0

XX = 2 0

V = + 5

7 5

1. CCCXCIX

CCC = 3 0 0

XC = 9 0

IX + 9

3 9 9

(iii) CMLXIX

CM = 9 0 0

LX = 6 0

IX = + 9

9 6 9

**Activity**

* + Mk old edition pg 49-51
  + Understanding mtc pg 36-39
  + Fountain pg 26-30

Subtopic: Operations on Roman Numerals

Content:

(a) Addition

(b) Subtraction

**Examples**:

(i) Work out and answer in Hindu Arabic

XL + XV

XL = 4 0

XV = + 1 5

5 5

(ii) Simplify in Roman system

LXXX – XX subtract ∴60 = LX

LXXX = 80 8 0

XX = 20 - 2 0

6 0

(iii) Peter had LIX goats and sold XIV goats

How many goats remained (answer in Hindu Arabic)

LIX 6 9

XIV - 1 4

5 5 goats

**Activity**

The pupils will do exercises below.

(1) XI + IX (6) XXV – XV

(2) VII + L (7) XL – VII

(3) CD + XIV (8) XIX – IX

(4) XVI + XIV (9) CM – CL

(6) XX + III (10) Word problems

**Ref: Mk old edition pg 50-51**

Subtopic: conversing from base ten to base five

Content: (a) Change from base ten to base five

**Examples:** (i) Change 23 to base five

5 23 3

4

∴ 23 = 43five

b) Converting from base ten to binary base

19 ten

BW BT R

2 19 1

2 9 1

2 4 0

2 2 0

1

**19 ten = 10011two**

Subtopic: Changing to decimal / base ten

Content:

**Examples:**

(a) Express 412 five to base ten

2 1 0

4 1 2 five = (4 x 52) + 1 x 51) + ( 2 x 50)

= (4x5x5) + (1x5)+(2x1)

= 100 + 5 + 2

= 107ten

**Examples:**

(ii) Change 1011two to base ten

1011two = (1x23) +(1x21) +(1x20)

(1x2x2x2) + (1x2) + (1x1)

8 + 2 + 1

11ten

**Activity**

Trs’ collection

Subtopic: Operations on bases

Content: Addition of same non decimal base numerals

**Examples:** (i) 2 3 five + 21five

2 3 five

+ 2 1 five

**4 4 five**

(ii) Add: 1101 + 11two

1 1 0 1two

+ 1 1 two

1 0 0 0 0 two

**Activity**

Trs’ collection

Subtopic : Subtraction of bases

Content: Subtraction in non-decimal bases in the same base.

**Examples:**

(i) Subtract 34five – 13five

3 4 five

- 1 3 five

2 1 five

(ii) Subtract 1 0 1 1 two

- 1 1 1two

0 1 0 0 two

**Activity**

Trs’ collection

Subtopic: Multiplication in Binary system

Content: Multiply (i) 2 by 2

(ii) 3 by 2

(iii) to 4 b 3 digit numerals

**Examples:** (i) 10two x 11two

1 0 two

x 1 1 two

1 0

+ 1 0 0

1 1 0 two

(ii) 11two x 11two 1 1 1two

x 1 1two

1 1 1

+ 1 1 1

1 0 1 0 1two

**Activity**

Trs’ collection

Subtopic: Operations on finites

Content: Addition in finite/modular system

Examples:

(i) Add: 3 + 4 = \_\_\_(finite 5)

(a) (b) 3 + 4 = \_\_\_\_(finite 5)

3 + 4 = 7

7 ÷ 5 = 1 r 2

3 + 4 = 2 (finite 5)

**= 2 (finite 5)**

(ii) 6 + 8 = y (finite 12)

**Activity**

SUBTOPIC: Multiplication in finite systems

**Examples:**

(i) Work out 3 x 4 = **x** (finite 5)

3 x 4 means

3 groups of 4

∴ 3 x 4 = **2** (finite 5)

So x = 2 (finite 5)

(ii) 3 x 4 = **x** (finite 5)

3 x 4 = 12

12 ÷ 5 = 2 r 2

3 x 4 = 2 (finite 5)

∴ x = **2** (finite 5)

**Activity**

Ref: MK old edition pg 245-253

Subtopic: Subtraction in finite system.

Content:

(a) Using the dial

(b) By calculation method

**Example:**

(i) Subtract 3 – 4 = - (finite 5)

∴ 3 – 4 = **4** (finite 5)

(ii) 3 – 4 = - (finite 5)

(3 + 5) – 4

8 – 4

= 4

∴ 3 – 4 = **4** (finite 5)

**Activity**

Mk old edition pg 245-253

Subtopic: Algebra in finite system

Content: Solve equations in finite system

**Examples:**

(i) Solve: p – 4 = 3 (finite 6)

P – 4 + 4 = 3 + 4 (finite 6

P + 0 = 7 (finite 6)

P = 7 ÷ 6 = 1 r 1

P = 1 (finite 6)

(ii) Find x if 2x – 3 = 3 (finite 4)

2x – 3 = 3 (finite 4)

2x – 3 + 3 = 3 + 3 (finite 4)

2x + 0 = 6 (finite 4)

2x = 6

2 2

X = 3 (finite 4)

ii) 2x-3=4(finite 5)

2x-3+3 = 4+3 (finite 5)

2x = 7 (finite 5)

2x = 7 + 5) (finite 5)

2x = 12 (finite 5)

2 2

X = 6 (finite 5)

**Activity**

Trs’ collection

Subtopic: Application of finites.

Contents: Use ideas on finites to solve everyday life problems: (weeks, months)

**Examples:**

(a) If today is a Friday, what day of the week will it be after 23 days.

Day + 23 = - (finite 7)

5 + 23 = 28

28 ÷ 7 = 4 r 0

0 (finite 7)

**∴ The day will be Sunday.**

(b) If today is Friday, what day of the week was 45 days ago?

Day - 45 (finite 7)

5 - 45 6 r 3

7

5 – 3 (finite 7)

2 finite 7

**∴ It was Tuesday**

(c) It is April now, which month will it be after 18 months

Month – 18 (finite 12)

4 – 18 1 r 6

12

4 – 6

(4 + 12) – 6

16 – 6 = 10 (finite 120

**It will be October.**

**Activity**

MK old edition 252-253

**REVISION WORK ON WHOLE NUMBERS**

1. Given digits 8, 4, 2
   1. Write down all the numerals you can form using the digits.
   2. Find the difference between the highest and the lowest numeral formed.
2. Find the place value and value of the underlined digits.

(a) 4 6657 (b) 16785 (c) 16345

1. Expand 8739 using

(a) values (b) place values (c) Powers

1. Write 7432 in standard/ scientific form
2. Express the following in single form
   1. 5000 + 70 + 3
   2. (7 x 10000) + ( 8 x 1000) + ( 3 x 100) + ( 7 x 10 ) + ( 2 x 1)
   3. (7 x 103 ) + ( 4 x 102) + ( 3 x 101) + 5 x 100)
   4. 8.56 x 102
3. Write 2592028 in words
4. Write: six million, eight hundred thousand, nine hundred sixteen
5. (a) Round off 4867 to the nearest tens

(b) Round off 79581 to the nearest hundreds.

(c) Round off 79581 to the nearest thousands.

1. Write the place value and value of the underlined digits

(a) 0.784 (b) 3.782 (c) 5.948

1. Write 0.328 in words
2. Write Twenty seven and six tenths in figures.
3. Expand 5.78 using

(a) place values (b) values (c) exponents

1. Express 0.432 in standard form
2. Arrange 0.44, 0.4, 4.4 in ascending order.
3. Arrange 0.35, 0.5, 0.7, 0.33 in descending order.
4. Round off 39.96 to the nearest tenth.
5. Write 99 in Roman Numerals.
6. Write XLV in Hindu Arabic system.
7. Work out: XI = IX
8. Change 26ten to base six .
9. Write 346seven in words.
10. Give the place value of each digit in 243five.
11. Expand 462 seven using powers.
12. Change 341six to base ten
13. Change 124five to base six.
14. If 17X = 16ten find value of x
15. Add 55seven + 33 seven = \_\_\_\_\_ seven.
16. Subtract: 44five – 12 five
17. Multiply 10two x 11two
18. Change 13 to finite 7.
19. Add: 4 + 4 = \_\_\_\_\_\_ finite 5
20. Multiply: 2 x 4 = \_\_\_\_\_\_ finite 5
21. Subtract: 2 – 4 = \_\_\_\_\_\_\_ finite 6
22. Divide 5 ÷ 3 = \_\_\_\_\_\_\_\_ finite 7
23. Solve: x – 4 = 3 finite 6
24. If today is Friday, what day of the week will it be after 22 days?
25. If today is Thursday, what day of the week was it 44 days ago?
26. It is 2.00 pm what time of the day will it be after 400 hours?

**TOPIC / UNIT OPERATIONS ON WHOLE NUMBERS.**

**LESSON 1**

Subtopic: Addition of whole numbers up to millions.

Content: Adding large whole numbers up to millions with and without carrying.

1 1 1 1 1 1

**Examples 1 :** (a) 7 8 6 4 7 6 2

+ 1 9 7 9 8 6 8

9 8 4 4 6 3 0

**Example: 2** (b) There were 246 240 books in a library and 167 645 more books were donated to the same library. How many

books are these altogether?

2 4 6 2 4 0

+ 1 6 7 6 4 5

4 1 3 8 8 5 books

**Activity**

Understanding mtc pg 40-42

Fountain pg 32-35

MK new edition pg 24-25

**LESSON 2**.

Subtopic: Subtraction of whole numbers ot millions.

Content: Subtract large numbers up to millions.

**Examples**:

* 1. 2 3 3 1 8 6

- 4 5 1 0 2

3 8 8 8 0 8 4

. Examples: (b) A dairy processed 6500 650 litres of milk and sold 5650945 litres. How many litres were left?

6 5 0 0 6 5 0 litres

- 5 6 5 0 9 4 5 litres

8 4 9 7 0 5 litres

**Activity**

MK new edition pg 27

Fountain pg 33-34

Understanding mtc pg 43-45 .

**LESSON 3**

1

0

|  |  |  |
| --- | --- | --- |
| 0  1 | 01  4 | 0  3 |
| 0  8 | 3  2 | 2  4 |
| 5 | 7 | 4 |

143x18 = 02574

= 2574

Subtopic: Multiplication

8

2

Content: Multiplication of large numbers

* + By 2 digit number
  + By 3 digit number

**Examples: a** (i) 1 4 3

x 1 8

1 1 4 4

+ 1 4 3 0

2 5 7 4

**Example: (b)**

1. A company has 850 workers who earn sh 5460 each a day.

How much does the company spend on wages everyday?

6

4

5

0

|  |  |  |  |
| --- | --- | --- | --- |
| 4  0 | 31  2 | 4  8 | 0  0 |
| 2  5 | 2  0 | 3  0 | 0  0 |
| 0  0 | 0  0 | 0  0 | 0  0 |
| 1 | 0 | 0 | 0 |

= 4641000

5 4 6 0

x 8 5 0

8

4

0 0 0 0

2 7 3 0 0

5

+ 4 3 6 8 0

6

4 6 4 1 0 0 0

0

4

**Activity**

Fountain pg 34-36 / understanding mtc pg 46-49/ MK new edition pg 28

Subtopic: Division

Content: Divide large numbers.

* + By 2 digit
  + By 3 digit

**Examples**:

1. 152

13 1976

- 13

67

- 65

26

- 26

00

(ii) 53

120 6360

- 600

360

- 360

000

**Activity**

Mk new edition pg 37-38

Fountain pg 37-38

Understanding MTCpg 49-53

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Division

Content: Word problems involving division of large numbers.

Example:

* + 1. A petrol station manger bought 2200 litres of motor oil. If she put equal amount of oil in 440 drums. How many litres of oil were in each drum?

50

440

880

1320

1760

440 220000

2200

0

-0

0

**Activity**

Mk new edition pg 37-38

Fountain pg 37-38

Understanding MTCpg 49-53

Remarks\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Combined operations on numbers

Content: Use of BODMAS

**Examples:**

(i) Work out: 9 – 15 + 6

(9 + 6 ) – 15

15 – 15

0

(ii) 8 ÷ 4 x 3 (iii) 18 – ( 4 x 3) ÷ 6

B O D M A S

(8 ÷ 4) x 2

2 x 2

4

iv) Kawoya got 32 mangoes in the morning and ate 28 of them .

½ of 32 was got in the evening. How many mangoes did he have at the end of the day?

**Activity**

Fountain pg 38-39

MK new edition pg31-32

Understanding mtc pg 54-59

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Properties of numbers.

Content: (i) Commutative properties

(ii) Distributive property

(iii) Associative property

**Example:**

(i) Commutative

Order of addition or multiplication does not change the results

(a) 3 + 4 = 4 + 3 (b) 4 x 5 = 5 x 4

7 = 7 20 = 20

(ii) Associative property

Order of grouping two numbers in addition or

Multiplication does not change results

e.g 3 + ( 8 + 9 ) = (3 + 8 ) + 9

3 + 17 = 11 + 9

20 = 20

(iii) Distribution property

e.g Work out using distributive property

(2 x 3 ) + ( 2 x 4 )

2 ( 3 + 4)

2 (7)

2 x 7 = 14

**Activity**

Trs’ collection

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**REVISION WEEK ON OPERATIONS ON NUMBERS**

1. Add: 8 9 7 5 6 3 1

+ 2 8 6 7 5 4 2

1. Add: 231 048 + 524 628
2. There were 351 272 books in a library and 189 242 more books were donated to the same library. How many books are there altogether?
3. Subtract: 6 4 3 2 2 7 8

- 2 3 2 1 1 0 1

1. Subtract 452 367 from 872 291
2. A dairy processed 5300 450 litres of milk and sold 3450833 litres. How many litres were left?
3. Multiply 145 by 19?
4. Multiply 1238 by 134
5. A bus carries 84 passengers each trip. How many people will it carry if it makes 18 trips?
6. Divide 5984 ÷ 68
7. A farmer has sh. 688640 to pay to 32 workers. How much money does each worker get?
8. Work out 18 – ( 3 x 2) ÷ 6

**TOPIC / UNIT 4: PATTERNS AND SEQUENCES:**

Subtopic: Divisibility tests

Content: - Divisibility tests of 2, 5, 10

- Divisibility by 3, 6, 9

- Divisibility by 4 and 8

**Example:**

(a) By 3

A Number is divisible by 3 when the sum of its digits 15 a multiple of 3.

E. g 612

6 + 1 + 2

9 ÷ 3 = 3

**∴ 612 is divisible by 3**

(b) Divisibility by 8:

A number is divisible by 8 when the last three digits form a multiple of eight.

e.g 6248 last 3 are 248

**∴ 6248 is divisible by 8**

**Activity**

MK new edition pg 34-36

Fountain pg 41-42

Understanding pg 60-61

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Developing number patterns

Content: -

- Odd and even numbers

- Triangular numbers

- Rectangular numbers

- square numbers

**Examples:**

(i) Lists down the following:

1. Counting / natural numbers less than 15.
2. Whole numbers up to ten
3. Even numbers between ten and 20.
4. Odd numbers less than twenty

(ii) Triangular numbers E.g

0 1 0 3 0

0 0 0 0

1 + 2 = 3 0 0 0

1 + 2 + 3 = 6

N.B Find triangular numbers by adding the consecutive natural numbers

i. e (1, 3, 6, 10, 15, ---------)

(iii) Rectangular numbers

2 x 1 2 x 3 2 x 5

2 6 10

(iv) Square numbers

e.g. 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0

1 x 1 = 1 2 x 2 = 4 3 x 3 = 9 4 x 4 = 16

**Activity**

Fountain pg 43-48

MK new edition pg 37

Understanding pg 62-65

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Prime and composite numbers.

Content: - List prime numbers

- Composite numbers

**Examples:**

(i) What is the sum of the 3rd and the 7th prime numbers

Prime numbers are:

3rd 7th

2, 3, 5, 7, 11, 13, 17, 19, 23

Sum = 5 + 17

= 22

(ii) Work out the sum of the first five composite numbers

Composite numbers are;

4, 6, 8, 9, 10, 12, 14, 15,

Sum is 4 + 6 + 8 + 9 + 10 = 37

**Activity**

The Pupils will do exercise 4 : 13 and 4 : 14 from pgs 79 and 80. A New MK BK 6. .

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Consecutive numbers / natural numbers / integers

Content: Find the consecutive counting numbers

**Example:** The sum of 3 consecutive whole numbers is 36. What are these numbers.

Let the 1st number be n.

2nd number = n + 1

3rd number = n + 2

But: n + n + 1 + n + 2 = 36

n + n + n + n + 1 + 2 = 36

3n + 3 = 36

3n + 3 – 3 = 36 – 3

3n = 33

3 = 3

∴ n = 11

1st number = n 2nd number (n + 1) 3rd number is

and n = 11 11 + 1 = 12 (n + 2)

11 + 2

13

**Activity**

Mk old edition pg 76-78

**Remarks** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Consecutive numbers

Content: Find the consecutive EVEN and ODD numbers

Example: **N.B** Even and Odd numbers increase in intervals of 2

(i) The sum of three consecutive Even numbers is 24. list down the 3 numbers

Let the 1st number by (x)

2nd number be (x + 2)

3rd number be (x + 4)

X + x + 2 + x + 4 = 24

X + x + x + 2 + 4 = 24

3x + 6 = 24

3x + 6 – 6 = 24 – 6

3x = 18

3 3

X = 6

These EVEN Numbers are:

1st is 6, 2nd is , 3rd

X + 2 x + 4

6 + 2 6 + 4

8 10

**Activity**

MK old edition pg 77-78

Mk New Edition 43

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Factors

Content: - Listing factors

- The common factors (CF)

- The HCF / GCF

- The LCF

**Examples:**

(i) How many factors does 18 have?

F 18 = {1, 2, 3, 6, 9, 18}

∴ 18 has 6 factors

(ii) Work out the sum of all the F20

F20 = {1, 2, 4, 5, 10, 20}

Sum = 1 + 2 + 4 + 5 + 10 + 20 = 42

(iii) Work out the GCF of 12 and 18

F12 = {1, 2, 3, 4, 6, 12}

F18 = {1, 2, 3, 6, 9, 18}

CF = {1, 2, 3, 6 }

GCF = 6

N.B (iv) The LCF is always 1

**Activity**

Mk old edition pg 81

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Prime factorization

Content: - Using (a) Multiplication

(b) Subscript method

(c) Powers/ exponents

- Find number prime factorised.

Examples: (i) Find the prime factors of 60.

(a) By ladder (b) by factors tree

2 60

2 30

5 15

3 3

Pf 60 are (a) 2 x 2 x 3 x 5

Or {21, 22, 31, 51}

Or 22 x 31 x 51

**Activity**

MK old edition pg 82

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Content:**

i) Finding prime factorized number

ii) Finding the missing prime factors

**Examples**

i) What number has been prime factorised

ii) Prime factories and find missing factors

The prime factorization f 30 is 2 x y x 5 , find y

a = {21.22.51}

b = 22 x 31 x 51

(i) If 2 x 3 x y = 30 find y

2 x 3 x y = 30

6y = 30

6 6

y = 5

(ii) If 144 = a4 x b2 find ‘a’ and ‘b’

2 144 ∴ 24 x 32 = a4 x b2

2 72

3 36

2 18

3 9

3 3 ∴ a = 2 and b = 3

1

(iii) Given that 22x x 2 = 32 find the value of x.

(1st prime factorise 32) 32

i.e 22x x 21 = 25 2 16

2x + 1 = 5 2 8

2x + 1 – 1 = 5 – 1 2 4

2x = 4

2 2 2 2

X = 22

**Activity**

Mk old edition pg 83

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Multiples of numbers

Content: - Listing multiples.

- The common multiples

- The LCM

Examples:

(i) List the multiples of 4 between ten and 30.

M4 = {4, 8/ 12, 16, 20, 24, 28/ ----}

M4 between 10 and 30 are

{12, 16, 20, 24, 28}

(ii) Work out the LCM of 24 and 36

(a) Using multiples

(b) By prime factorization method.

i.e 2 24 36

2 12 18 LCM = 2 x 2 x 2 x3 x 3

2 6 9

3 3 9 = 72

3 1 1

1 1

**Activity**

Mk old edition pg 86 .

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Finding LCM and GCF by prime factorization using a venn diagram

Content: - Representing prime factors on the venn diagrams.

- Find the GCF/HCF and LCM from the venn diagram

**Examples:**

(i) Work out the prime factors of 30 and 36

30 and 36 F 30 {21, 31, 51}

2 15 2 18

3 2 9

5 1 3 3 F 36 = {21, 22, 31, 32}

3 1

(ii) Complete

F30 ∩ F36 = (21, 31}

F30 F 36

51 21 22

31

(iii) Use the venn diagram to find the:

1. GCF of 30 and 36

GCF = F30 ∩ F 36 = {21, 31}

= 2 x 3 = 6

1. LCM of 30 and 36

LCM = F 30 ∪ F 36 = (21, 22, 31, 32, 51}

= 2 x 2 x 3 x 3 x 5 = 180

**Activity**

Mk old edition pg 86-87

**Remarks**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subtopic: Unknown values/ factors

Content: (i) Find the missing number

(ii) Find the unknown factors

(iii) Work out HCF and LCM

**Example:**

(i) Find x and y below

F x F y factors of y are

23 21 22 32 {21, 22, 31, 32, 33}

31 33  y = 2 x 2 x 3 x 3 x 3

y = 108

Factors of x = (21, 22, 31, 23}

2 x 2 x 3 x 2

X = 24

GCF = Fx ∩ F y = {21, 22, 31} LCM = Fx ∪ F y

= 2 x 2 x 3 = 21, 22, 23, 31, 32, 33,

GCF = 12 2 x 2 x 2 x 3 x 3 x 3

LCM = 216

(ii) Find the unknowns

F20 F 30

X 21 Y

51

F20 = {x, 21, 51} F30 = {21, 51, y} GCF of 20 and 30

20 = x + 2 x 5 30 = 2 x 5 x y GCF = F20 ∩ F 30

20 = 10 x 30 = 10 y GCF = {21, 51}

10 10 10 10 = 2 x 5

2 = x 3 = y ∴ GCF = 10

∴ x = 22 ∴ y = 31

LCM = F 20 ∪ F 30

= {21, 22, 31, 51}

= 2 x 2 x 3 x 5

∴ LCM = 60

**Activity**

Mk old edition pg 88-89

Subtopic: Application of GCF / LCM

Content: -Relationship between GCF and LCM

-Other problem related to HCF/GCF

**Examples:**

(i) The LCM of two numbers is 144 their GCF is 12 and one of these numbers is 48. Find the other number

Solution: Let 2nd No be y

1st No x 2nd No = LCM x GCF

48 x y = 144 x 42

48 48

y = 36

(ii) What is the largest possible divisor of 24 and 36.

Largest possible divisor is GCF

2 24 36 2 x 2 x 3 = 12

2 12 18 largest divisor = 12

3 6 9

2 3

**Activity**

Oxford primary MTC BK 6 pgs 34 – 41

Subtopic: Application of LCM

Content: - Find the smallest number which when divided by 9 and 12 leaves

1. No remainder?
2. Remainder of 1?
3. Remainder of 5?

Get LCM of 9 and 12 i.e

2 9 12 LCM = 2 x 2 x 3 x 3 = 36

2 9 6 ∴ Number is LCM + RCM

3 3 1 = 36 + 1 = 37

1 1

1. Kelvin has a stride of 40cm and his father has a stride of 60cm. What is the width of the narrowest path that they can both cross in a whole number of strides?

LCM of 40cm and 60 cm

M40 = {40, 80, 120, 160, ----}

M60 = {60, 120, 180, ---------}

LCM = 120

∴ The width is 120 cm

**Activity**

- Oxford primary MTC pupils BK 6 pgs 34 - 36 .

Subtopic: Working with powers of whole numbers.

Content: - Find a number from powers

- Express number as product of powers of a given numbers

- Operation on powers.

**Example:**

(i) What is 73.

73 = 7 x 7 x 7 = 343

(ii) Express 64 using powers of fours

4 64

4 16

4 4 ∴ 64 = 4 x 4 x 4

1 64 = 43

(iii) Work out: 23 + 32 + 50

(2 x 2 x 2 ) + ( 3 x 3) + 1

8 + 9 + 1

= 18

**Activity**

A New MK pupils’ BK 6 pgs 84 and 85.

Subtopic: Squares of numbers

Content: - Squares of

1. whole numbers
2. fractions
3. mixed fractions
4. decimal

**Example:**

(i) What is the square of 12?

122 = 12 x 12 = 144

(ii) Work out the square of ¾

3 2 = 3 x 3 = 9

4 4 4 16

(iii) Calculate the square of 11 ½

1 ½ x 1 ½ = 1 x 2 + 1 x 1 x 2 + 1 = 3 x 3 = 9 = 1 1

2 2 2 2 4

(iv) Find (0.15)2

(0.15)2 = 15 = 15 x 15 = 225 = 0.0225

100 100 100 1000

(v) In general M x M = M2

**Activity**

* + The Pupils will do exercise 9 on pg 42 from Oxford primary MTC BK 6.
  + Exercise 4 : 37 pg 95, 4 : 39 pg 98 and 4 : 42 pg 101 of MK BK 6.
  + Mk new edition pg 37

**Subtopic: Square roots.**

Content: Square roots of whole numbers.

**Example**: Find the square roots of √ 36

2 36 ∴√36 = √ x 2 x 2 x 3 x 3

2 18 √ (2 x 2 ) x ( 3 x 3 )

3 9 2 x 3

3 3 ∴ √ 36 = 6

1

(ii) Work out √ 324

2 324 √324 = √ (2 x 2) x (3 x 3) x (3 x 3)

2 162

3 81 √ 324 = 2 x 3 x 3

3 27

3 9 ∴ √ 324 = 18

3 3

1

**Activity**

A New MK pupils’ MTC BK 6 pg 38.

Subtopic: Square roots of fractions

Content: - Find square roots of fractions

1. Proper fractions
2. Mixed numbers
3. Decimals

**Examples:** (i) Work out the 4

4 = √2 x 2 = 2

9 √ 3 x 3 3

(ii) What is the square root √6 ¼

2

√6 x 4 + 1 =√25 = √ 5 x 5 = 5 2 1

4 √ 4 √ 2 2 2

(iii) Find the square root of 1.44

44 = 144 = √144 = 12 x 12 = 12 = 1.2

100 √100 10 x 10 10

**Activity**

New MK pupils BOOK 6 pages 39-40

**Subtopic: Application of squares and square roots**.

Content: - Solve problems using square

- Solve problems involving use of square roots.

**Examples:**

1. A square garden has a length of 3 ½ m. What out its area.

Area of sq = S x S

3 ½ m 3 ½ m x 3 ½ m

7 m x 7 m = 49m2 = 12 ¼ m2

2 2 4

∴ Area = 12 ¼ m2.

(ii) If a square has an area of 576.

(a) Calculate its side

Area = side x side 24 = side

576 = S x S

√ 576 = √S2 ∴ side = 24

2 576

2 288

2 144

2 72

2 36

2 18

2 9

3 3

1 = √ S2

2 X 2 X 2 X 3 = √ S x S

(b) Find the perimeter of the square.

P = 4 x side

4 x 24

∴ P = 96

**Activity**

The Pupils will do exercise 4 : 41 and 4 : 43 pages 100 and 102.

A old MK pupils’ BK 6 pages 100 to 102.

New mk pg 39

Subtopic: Cubes and cube roots

Content: - Find the cubes

- Find the cube roots

**Examples:**

(i) What is the cube of: 5?

53 = 5 x 5 x 5 = 125

(ii) Find the volume of the cube below:

Vol of cube = S x S x S

V = 6cm x 6cm x 6 cm

V = 216 cm3

(iii) Work out the cube root of

(a) 64 = 2 64 3√64 = 3√ (2 x 2 x 2) x (2 x 2 x 2)

2 32

2 16 = 2 x 2

2 8

2 4

2 2 3√64 = 4

1

**Activity**

The Pupils will do exercise below

1. Work out 23
2. Find the number of cubes in the figure:

(a) (b)

1. Work out the volume of a cube of side.

(i) side = 4cm (ii) side = 10 cm (iii) side = 5

1. Work out the cube root of each of these numbers

(a) 8 (b) 27 (c) 64 (d) 216

**Subtopic: Number patterns and sequences**

Content: Complete series and sequences

**Examples:**

Find the missing number:

1. 2, 3, 5, 7, \_\_\_

11 is the next number

(prime numbers)

1. 4, 9, 16, 25, \_\_\_\_\_

2 x 2 3 x 3 4 x 4 5 x 5 6 x 6

(square numbers)

1. 1, 2, 4, 5, 7, 8, 10, 11

+ 1 +2, +2, +1, +2, +1, +2, +1

10 + 1 = 11

1. 22, 16, 20, 14, 18, 12

-6, +4, -6, +4, -6

18 – 6 = 12

(e) ½ , ¼, 1/8 , \_\_\_\_\_

**Activity**

A New Mk primary MTC BK 6 pages 90 – 91.

Fountain pg 49

Subtopic: Puzzles/ magic square

Content: -Dealing with puzzles

- -The magic squares:

**Examples:** (i) Find the missing numbers

1. Magic numbers is

**8** X 6 8 + 5 + 2 = 15

3 **5** Y

W 9 **2**

(ii) x = 15 – (9 + 5) Y = 15 – (3 + 5) W = 15 – ( 8 + 3)

X = 15 – 14 Y = 15 – 8 W = 15 – 11

X = 1 Y = 7 W = 4

N.B Vary the squares to 16 squares.

**Activity**

Work on magic squares from Understanding MTC BKs 5 and 6

Understanding mtc pg 74

**THE END**