LEGIT EDUCATION CONSULTANT

P.4 MATHEMATICS

LESSON NOTES AND ACTIVITIES

TERM 1

ISSUE 1 & 2

NAME:----------

P.4 MATHEMATICS LEARNERS'WORKBOOK

THEME: SETS
TOPIC: SET CONCEPT

What is a set?

- A set is a collection of well defined members put together.

Note:

- A member is an object that belongs to the given set.
- An element is another name to be a member.

DRAWING SET SYMBOLS AND NAMING THEM

Symbols	Name	Symbols	Name
{ } or $\varnothing$	Empty /null/void set	$\subset$	subset of
$\leftrightarrow$ $\equiv$ $\Leftrightarrow$	Equivalent to	$\not\subset$	not subset of
=	Equal to	$\cap$	Intersection of
$\neq$	Not equal to	$\cup$	Union set
$\sum$	Universal set	B^1	Complement of set B/Set B complement
$\not\leftrightarrow$ $\not\equiv$	Not equivalent to	n(A)	Number of elements of set A.

Activity:

1. Name the symbols below.

a) $\subset$ _____ b) $\equiv$ _____

c) $\sum$ _____ d) $\cup$ _____

e) n(K) _____

2. Draw the symbols for the sets below.

i) Set P complement _____

ii) Intersection of _____

iii) Empty set _____

iv) Equal to _____

v) Subset of _____

3. List down any four examples of sets.

EMPTY SETS

Qn. What are empty sets?

These are sets without members or elements

Note:

The symbol for empty set is { } or ∅

Examples

i) Set P = { P.4 girls without heads}

Set P is an empty OR set P ={ }

ii) Set B = {A car with four legs}

Set B is { }

iii) Set X = {glass that cannot break}

Set X is { }

iv) Set K = {rabbit without hair and fur}

Set K is { }

DESCRIPTION OF SETS

Describing and naming sets

Examples: Describe the following sets

a) Set A = {a, e, i, o, u}

Set A is a set of vowel letters.

b) Set K = {January, February, March, April}

Set K is a set of the first four months of the year.

c) Set H = {first six odd numbers}

List down the element of set H

Set H = {1, 3, 5, 7, 9, 11}

ACTIVITY:

1. Use empty or not empty set to complete the statement below.

i) Set F = {daughters who are as old as their mothers}

ii) Set Q = {cars which can fly like helicopters}

iii) Set K = {bulls which produce milk}

iv) Set A {birds without wings}

2. Describe the following sets.

i) Set Y = {October, November, December}

3. Read and workout

i) Set K = {even numbers between zero and ten}

ii) Set M = {counting numbers less than five}

iii) Set V = {multiples of 3 less than 20}

EQUIVALENT SETS AND NON EQUIVALENT SETS.

Equivalent sets

These are sets with the same number of members.

Symbol " ↔ "

Examples

a) A = {  ,  ,  } B = {  ,  ,  }

Set A has 3 members and B has 3 members

Set R ↔ set R

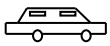
b) R = {  ,  ,  ,  } S = { m, n, t, p, q}

Set R has 4 members and set S has 5 members.

Set R ↮ set R

Exercise

Use equivalent sets or non-equivalent sets

1. A = {  ,  ,  } B= {  ,  ,  }

Set A has _____ members and set B has _____ members.

Set A and B are _____ sets.

2. D = {  ,  ,  } M = { }

Set D has _____ members but set M has _____ members.

Set D is _____ to set K.

3. L = {  ,  ,  } M = {  ,  ,  }

Set L has _____ members and set M has _____ members.

Set L is _____ to set M.

4. N = {  ,  } K = { , }

Set N has _____ members and set K has _____ members

Set N is _____ to set K.

Use ↔ or ↮ to describe the sets below.

5. A = (a, e, i, o, u} B= {1, 2, 3, 4, 5}
   Set A has _____ members and set B has _____ members.
   Set A is _____ to set B.

6. D = {P, Q, R} E = {X, Y, Z}
   Set D has _____ members and set E has _____ members.
   Set D is _____ to set G.

7. F = {0, 2, 4, 6, 8} G = {x, y, x}
   Set F has _____ members and set G has _____ members.
   Set F is _____ to set G.

8. P ={1, 2, 3, 4, 5} T = {b, e, d, f}
   Set P has _____ members and set T has _____ members
   Set P is _____ to set T

THEME: SETS (TOPIC: SET CONCEPTS)

EQUIVALENT AND EQUAL

EQUAL SETS

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

EQUIVALENT SETS

Equivalent sets have the same number of objects.

Examples

a) If set A = {a, e, i, o, u} and B= {1, 2, 3, 4, 5}
   Set A is ↔ set B

b) C = {T, O, P} and D = {P, O, T}
   Set C is = set D

Activity

Write equal or equivalent sets

a) S: 1, 2, 3, 4

b) K: 4, 2, 3, 1

Set S and set K are _____ sets.

b) P: 4, 2, 1, 3, 5

L: a, b, c, d, e

Set P and set L are _____ sets.

c) K = {boy, girl} L = {m, n} Set K is _____ to set L.

d) P = {s, u, n, a} F = {e, v, i, l} Set P is _____ to set F.

Intersection of sets

Intersection sets are sets with common members

Symbol is " ∩ "

Joint sets are also called intersection sets.

Examples

a) Set P = {a, b, c, d, e} Q = {a, e, i, o, u}

Find P ∩ Q = {a, e}

b) A = {▭, ◯, △} B = {  △, ▭,  }

A ∩ B {▭, △ }

c) D = { X, Y, Z, W} Q = {4, 5, 6, 7}

D ∩ K = ∅

ACTIVITY

Write intersection sets of these sets.

Find:

a) Set A= {a, b, c} B = {b, d, e, f}

(A∩B) =

b) P = {a, e, i, o, u} Q = {a, b, c, d, e, f}

(P∩Q)=

c) M = {1, 2, 3, 4, 5} Q = {3, 4, 7}

(M∩N) =

d) L = {0, 1, 2, 3, 6, 8} K = {6, 8, 7, 5}

(L∩K) =

e) X = { △ , ◯, ▭ } Y = {□ , Ⓜ ,▭ , }

(X∩Y) =

INTERSECTION AND UNION OF SETS

Examples

1. Set P = { a , b , c , d , e } and Set Q = { a , e , i , o , u }
   Find (P ∩ Q)

Solution
P = { a , b , c , d , e }
Q = { a , e , i , o , u }

(P ∩ Q) = { a , e }

Find (P n Q)
P = { a , b , c , d , e }
Q = { d , e , i , o , u }

(P U Q) = { a , b , c , d , e , i , o , u }

2. Given that set A = { , , } and set B = { , , , }
   i) Find (A ∩ B)
   A = { , , , }
   B = { , , , }
   (A ∩ B) = { , }

   ii) What is (A U B)?
   A = { , , , }
   B = { , , , }
   (A U B) = { , , , , , }

Exercise

1. P: book , triangle , phone
   Q: star , ball
   What is (P ∩ Q)?

2. F = { Teddy, Kapere ,Okello , Teo }
   M = { Teo , Lumonde , Okello)
   a) Find (F ∩ M)

   b) What is (F U M)

3. Given M = {x , y , z , w , v}
   N = { r , s , t , u , v , w }
   Find; i) (M U N)

   ii) (M ∩ N)

4. Given that set R = {all vowels} and
   S = { first 6 alphabetical letters}
   a) List down members of set R and set S

      R=

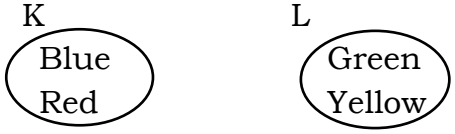
      S=

   b) Find (R ∩ S)

   c) What is n(R ∩ S)?

   d) Find (R U S)

5. K L



a) Find; i) (K ∩ L)

ii)(K U L)

6. If P = { 1 , m , n , q , r } and
7. Q = { m , p , x , r }

a) List members of (P U Q)

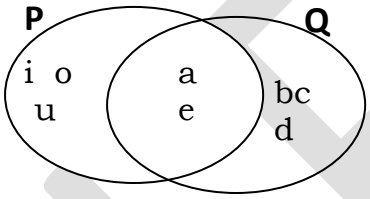
b) List members of (P ∩ Q)

THEME: SETS (TOPIC: SET CONCEPT)

Finding intersection and union sets using a venn diagram

Examples

a) If P = {a, e, i, o, u} and Q {a, b, c, d, e}

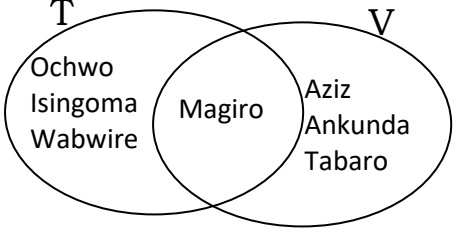


P∩Q = {a, e}

PUQ ={o, i, u, a, e, b, c,d}

b) Given T = {Wanwire, magino, Isingoma, ochwo}

V = {Aziz, Nankunda, Tabaro, Majorie}



What is TUV?

TUV = {Ochowo, Isingoma, Wabwire, Magiro, Aziz, Ankunda, Tabaro}

TnV = {Magiro}

Activity

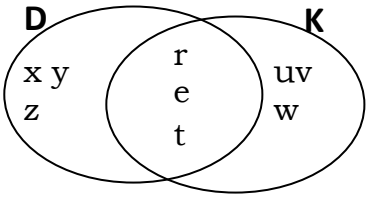
1. Given {1, 2, 3, 4, 5} B = {3, 4, 6, 8, 9}

a) Use a venn diagram to show the sets above.

b) Find i) A∩B

ii) AUB

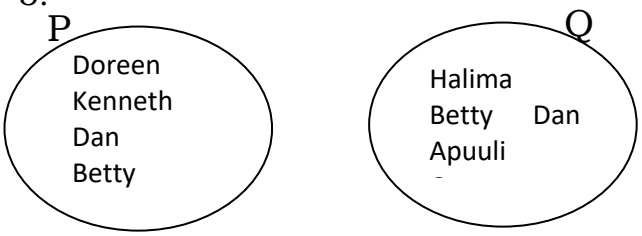
2. Use the venn diagram below to answer questions.



a) Find DUK

b) Work out D∩K

3.



a) Show the set P and Q on a venn diagram.

b) Find P∩Q

c) Find PUQ

3. A = {p, q, r, s, t}
B = {p, q, r, s, t, u, v, x}

a) Show sets A and B on a venn diagram.

c) What is AUB?

5. P = {0, 1, 2, 3, 4} Q = {2, 4, 6, 8}

a) Show sets P and Q on a venn diagram.

b) What is P∩Q?

c) Find PUQ?

FINDING NUMBER OF ELEMENTS IN THE UNION AND INTERSECTION SETS

1. Given P = {a, e, i, o, u} and Q = a, b, c, d, e}

i) Find n(P∩Q}

ii) P∩Q = {a, e}

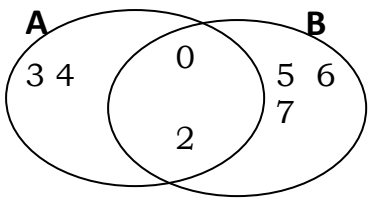
iii) n{P∩Q} = 2

b) n(PUQ)

PUQ = {i, o, u, a, e, b, c, d}

n(PUQ) = 8

2.



a) How many members are in set A n B?

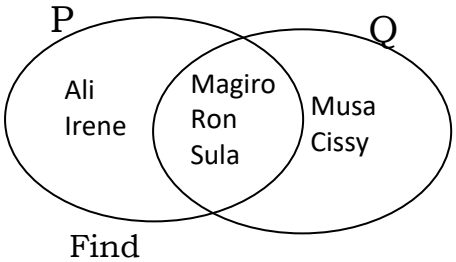
AnB = {0,2}

n(AnB) = 2

b) How many elements are in set AUB?
AUB = {3, 4, 0, 2, 5, 6, 7}
n(AUB) =7

ACTIVITY

1. Given



Find

i) PnQ

ii) n(PUQ)

iii) n(PnQ)

2. Set K = {x, y, z, t} and
Z = {a, e, i, o, u}

a) Find n(KnZ)

b) Find n(KUZ)

3. P = {1, 2, 3, 4} Q = {2, 4, 6, 8}

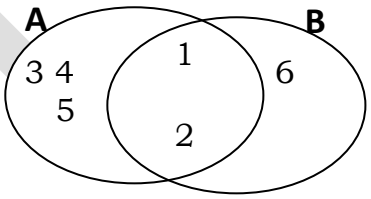
a) How many elements are in set P?

b) How many elements are in set Q?

c) How many elements are in set PnQ?

d) How many elements are in set PUQ?

4.



i) Find the number of members in set A.

ii) Find the number of members in set B.

iii) Find n(AnB)

iv) Find n(AUB)

THEME: SETS
TOPIC: SET CONCEPT

DIFFERENCE OF SETS

K-M is the read as Set K difference M.
K-M means members of set K only.

Examples

1. Given A = {a, b, c, d, e} and
   B = {d, e, h,i, f,g}
   a) Find A - B
      A-B means members of set A only
      A-B= {a, b, c}

   b) Find B- A
      B-A means members of set B only
      B – A {h, i, f, g}

2. P ={1, 2, 3, 4, 5} and
   Q = {7, 5, 1, 2, 9}

a) Find Q –P
   Q – P = {7, 9}

b) Find P – Q
   P – Q {3, 4}

Activity

1. A = {a, b, c, d, e} and B = {a, e, i, o, u}

Find

i) Q - P

ii) B - A

2. P = {x, w, y, z} and Q = {w, z, p}

Find

i) P- Q

ii) Q - P

3. M = {1, 3, 5, 9}and N = {3, 2, 0, 7, 9}

Find:

i) M – N

ii) N –M

4. K = {Alex, Musa, Ali, Kigonza} and
   L = {Mao, Musa, Ali}

Find:

i) L – K

ii) K – L

iii) n(L – K)

5. F = {a, b, c, d, e} and R = {a, e, i o, u}

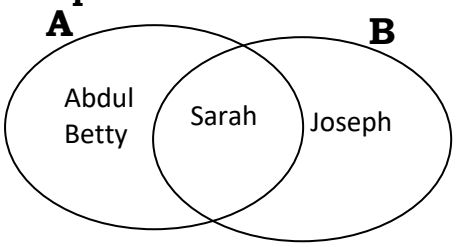
Find:

i) R –F

ii) F – R

USING A VENN – DIAGRAM TO FIND SET DIFFERENCES

Examples



a) Find i) A – B

A – B = {Abdul, Betty}

b) Find n(B– A}

B – A = {Joseph)

n(B –A) = 1

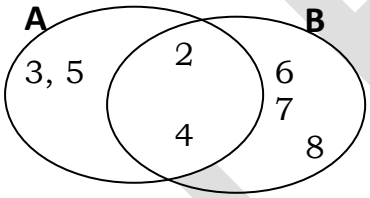
iii) How many elements are in A –B

A – B = { Abdul, Betty}

2 elements are in A-B

Exercise

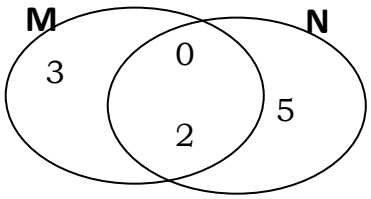
1. study the venn diagram below



a) Find n(A –B)

b) Find B- A

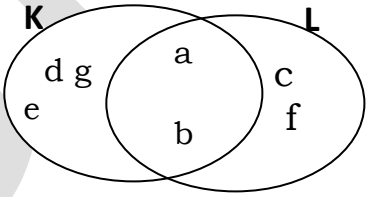
2. study the venn diagram below



a) Find n(M–N)

b) Find N – M

3. study the venn diagram below

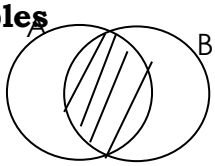


a) Find L- K

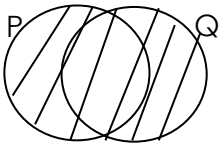
b) Find n(K – L)

THEME: SETS
TOPIC: SET CONCEPT

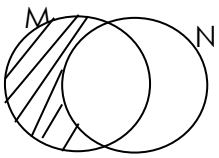
Describe shaded regions of a venn diagram in set form
Examples



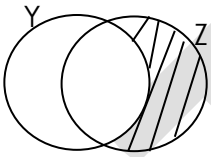
A∩B



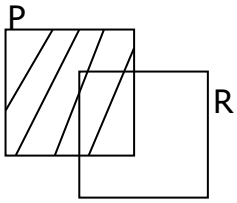
PUQ



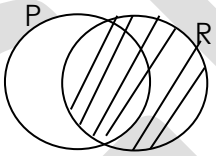
M –N



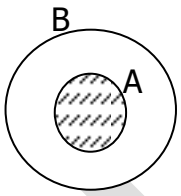
Z – Y



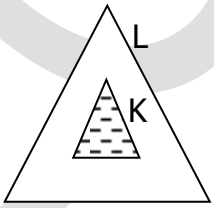
Set P



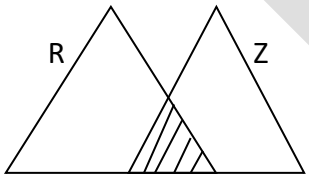
Set R



A∩B



K∩L



R∩N

EXERCISE

Draw and shade the following Regions describe below on a venn diagram.

a) K-L

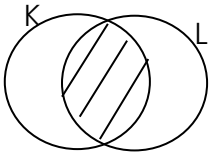
b) L - K

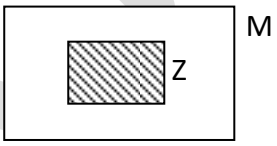
c) Set M∩Z

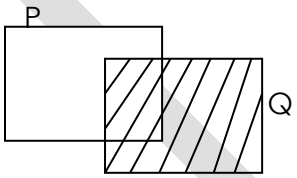
d) A∩P

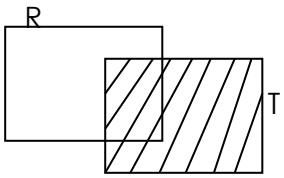
e) Set NUM

Describe the Shaded regions below.









THEME: NUMERACY

TOPIC: ***Numeration System and Place values***

Forming numerals from digits

Examples

a) Write any 3 digit figure formed by the digits 3, 7, 5
   375, 753, 573

b) Write the smallest number or numeral that can be formed using digits
   7, 2, 3, 6
   Smallest = 2367

c) What is the biggest number or numeral that can be formed from the following digits 1, 5, 2, 8, 3?
   biggest = 85, 321

d) Find the difference between the largest and smallest numeral got from 3, 7, 5
   Smallest numeral =357
   largest numeral =753

   Difference = 7 5 3
   = - 3 5 7
   3 9 6

   Sum = 7 5 3
   + 3 5 7
   1110

Exercise

1. Form two numerals from the digits 3, 9, 2

2. Form the largest numeral got from the digit 3, 1, 5

3. Form the smallest numeral got from 4, 5, 1, 8

4. Find the sum of the largest and the smallest numeral got from 1, 7, 2

5. What is the difference between the largest and smallest numeral got from digits 3, 5, 2.

6. Give any two numbers that can be formed using the digits below.
   i) 2, 5, 3, 7

   ii) 9, 2, 6, 7, 8

7. What is the difference between the smallest and the largest number that can be formed using the digits below? 2, 7 5

8. Find the sum of the largest and the smallest number that can be formed from the above digits.

THEME: NUMERACY
TOPIC: ***Numeration System and Place values***
Subtopic: ***Forming numerals from digits***

Examples

1. Given the digit 9, 3, 8.

a) List down all the possible 3 digit numbers that can be got by using the above digit.

Soln: 9, 3,8. First re-arrange the digits in order of their size i.e

3,8,9./

The numbers are : 389 839 938

398 893 983

b) find the difference between the largest and the smallest numbers formed in i) above.

soln: Difference = 8 17 13
9 ~~8~~ 3
- 3 8 9
5 9 4

c) What is the sum of the largest and the smallest numbers formed above?

soln: Sum = 9 8 3
+ 3 8 9
1372

ACTIVITY:

1. Given the digits 7, 2, 5.

a) List down all possible 3 digit numerals that can be formed using the digits above.

b) Find the sum of the largest and the smallest numbers formed in a) above.

c) Workout the difference between the largest and smallest numbers formed in a) above.

d) Write the number formed in a) above in expanded form.

2. Use the digits 4, 7, 8 and 2 to answer questions that follow.

a) Write down the largest numeral that can be formed using the above digits.

b) Find the place value of the largest digit.

c) What is the value of the smallest digit?

4. Give the digits 5, 1, 3. Write down all the numbers that are greater than 350.

THEME: NUMERACY

TOPIC: *Numeration System and Place values*

Place values of numbers

Examples

a) What is the place value of the each digit in the number below?

32065.

T.TH	TH	H	T	O
3	2	0	6	5

Ones
Tens
Hundreds
Thousands
Ten thousands

b) What is the place value of 3 in the number 3 4 9 2?

TH H T O

3 4 9 2

Thousands

The place value of 3 is thousands.

Exercise

1. Find the place value of the underlined digits.

i) 40561

ii) 93812

iii) 72554

iv) 34500

v) 12645

vi) 67821

2. In the number 382, what is the place value of?

a) 3

b) 8

c) 2

3. Find the place value of each digit in the number.

a) 2483

b) 403

c) 67821

THEME: NUMERACY

TOPIC: *Numeration System and Place values*

Values of numbers

Examples

What is the value of each digit in the number?

a) 7 4 6 3 2

7 4 6 3 2

2 x 1 = 2

3 x 10 = 30

6 x 100 = 600

4 x 1000 = 4000

7 x 10,000 = 70000

b) What is the value of 3 in the number 2345?

2 3 4 5

5x 1 = 5

4 x 10= 40

3 x 100 = 300

The value of 3 = 300

Examples

1. Find the value of each digit in the number.

a) 249

b) 2483

2. Find he value of the underlined digits givern below

a) 5 4 1

b) 7 0 3 2

c) 1 1 9 3 6

d) 4 0 5 6 1

e) 7 2 5 5 4

f) 3 4 5 0 0

g) 5 8 0 42

h) 9 3 2

THEME: NUMERACY

TOPIC: *NUMERATION SYSTEM AND PLACE VALUES*

Expanding numbers using place values

Examples

1. Expand 7,432 using place values

Th	H	T	O
7	4	3	2

(7x1000) + (4x100) + (3x10) + (2x1)

2. Expand 93,458 using place values

T/Th	Th	H	T	O
9	3	4	5	8

(9 x 10,000) + (3 x 1000) + (4 x 100) + (5 x10) + (8 x 1)

Exercise

Expand the following numbers using place values.

a) 235

b) 677

c) 645

d) 3,786

e) 4,538

f) 6, 781

g) 86,862

h) 78,764

i) 7,845

j) 99,845

EXPANDING WHOLE NUMBERS

Expanding whole numbers using values

Examples

Expand 7, 432 using values

Th	H	T	O
7	4	3	2

(7x1000) + (4x100) + (3x10) + (2x1)

7000 + 400 + 30 + 2

b) Expand 93,458 using values

T/Th	Th	H	T	O
9	3	4	5	8

(9 x 10,000) + (3 x 1000) + (4 x 100) + (5 x10) + (8 x 1)

90,000 + 3000 + 400 + 50 + 8

Exercise

Expand the following numbers using values

a) 340

b) 342

c) 1,245

d) 5,347

e) 3,672

f) 235

g) 62,894

h) 7,845

i) 78,764

THEME: NUMERACY

TOPIC: NUMERACY SYSTEM AND PLACE VALUES

Writing numbers in short

Examples

1. Write in short

7000 + 400 + 30+ 2

7 0 0 0
4 0 0
3 0
+ 2
7 4 3 2

2. (9 x 10,000) + (3 x 1000) + (4 x 100) + (5 x 10) + (8 x 1)

90,000 + 3000 + 400 + 50 + 8

90,000
3,000
400
50
+ 8
93,458

3. $(7 \times 10^3) + (4 \times 10^2) + (3 \times 10^1) + (2 \times 10^0)$

7 x 10 x 10 x 10 + 4 x 10 x 10 + 3 x 10 + 2 x 1

7000 + 400 + 30 + 2

7000
400
30
+ 2
7432

Exercise

Write the following as single numbers

1. (4 x 100) + (8 x 10) + (6 x 1)

2. (3 x1000) + (0 x100) + (7x10)+ (5 x 1)

3. (8 x 100) + (6 x 10) + (3 x 1)

4. 500 + 90 + 1

5. 20,000 + 4000 + 800 + 10 + 5

6. 90,000 + 600 + 4

7. 6000 + 5

8. (9 x 1000) + (3x100) + (2 x10) + (1x 1)

9. (7x10000)+(4x1000)+(3 x100)+(2x10)

10. (2 x 1000) + (3 x 1)

THEME: NUMERACY
TOPIC: NUMERATION SYSTEM AND PLACE VALUE

Write figures in words

1. Write in words 841

Thousands			Units		
h	T	O	H	T	O
			8	4	1

841 **Eight hundred forty one**

2. 2, 841

Thousands			Units		
h	T	O	H	T	O
		2	8	4	1

2841 ***Two thousand eight hundred forty one***

2. 45,617

Thousands			Units		
h	T	O	H	T	O
	4	5	6	1	7

45,617 ***Forty five thousand six hundred seventeen***

Exercise

Write the following in words

a) 364

b) 3, 528

c) 7,801

d) 12,214

e) 18,146

f) 23, 113

g) 67, 678

h) 99, 466

i) 9,999

THEME: NUMERACY SYSTEM AND PLACE VALUES

Writing numbers in figures

Examples

1. Write "Twelve thousand eight hundred thirty two" in figures.
   Twelve thousand = 12, 000
   Eight hundred = + 800
   Thirty two = 12,832
   Twelve thousand eight hundred thirty two = 12,832

2. Write eight hundred fifty two in figures
   Eight hundred 800
   Fight hundred + 52
   Eighty hundred fifty two **852**

3. Nine thousand six

Nine thousand	=	9000
Six		+ 6
Nine thousand six		**9006**

Exercise

Write the following in figures.

1. Fourteen thousand, eight hundred sixty two.
2. Seventeen thousand, eight hundred forty nine.
3. Twenty thousand, eight hundred fifteen.
4. Twenty six thousand, three hundred eight.
5. Nineteen thousand, four hundred eighty.
6. Nineteen thousand, four hundred thirty three.
7. Thirty four thousand, two hundred seventy one.
8. Thirty six thousand, ninety eight.
9. Forty nine thousand, four hundred.
10. Forty four thousand, four.

THEME: NUMERACY
TOPIC: NUMERACY SYSTEM AND PLACE VALUES

Roman numerals

1	I	80	LXXX
5	V	90	XC
10	X	100	C
40	XL	200	CC
50	L	300	CCC
60	LX	400	CD
70	LXX	500	D

Roman numerals got by adding to 5.

6	= 5 + 1	7	= 5 + 2	8	= 5 + 3
C	= V + I		= V + II		= V + III
	= VI		= VII		= VIII

The roman numerals got by subtracting from 5 or from 50

4 = 1 subtracted from 5 40 = 10 subtracted from 50
4 = IV 40 = XL

The Roman numerals got by subtracting from 10

9 = 1 subtracted from 10
9 = IX

Changing Hindu –Arabic to roman numerals

a) 19 = 10 + 9
= X + IX
= **XIX**

b) 36 = 30 + 6
= XXX + VI
= **XXXVI**

c) 192 = 100 + 90 + 2
= C + XC + II
= **CXCII**

Exercise

Change the following in roman numerals.

a) 11

b) 15

c) 64

d) 12

e) 20

f) 72

g) 19

h) 41

i) 84

j) 25

k) 50

l) 93

m) 30

n) 35

THEME: NUMERACY

TOPIC: NUMERACY SYSTEM AND PLACE VALUES

Changing roman numerals to Hindu Arabic

Examples

1. Write XIV in Hindu – Arabic

   XIV = X + IV
   = 10+ 4
   = **14**

2. Change XXXIX to Hindu – Arabic

   XXXIX = XXX + IX
   = 30 + 9
   = **39**

3. Change CI to Hindu –Arabic

   CI = 100 + 1
   = **101**

EXERCISE

1. X

2. XXVI

3. XXXI

4. XLVII

5. XIII

6. XXIX

7. XLIV

8. LV

9. XXIX

10. XLVII

11. LX

12. LXIII

13. LXXXI

14. LXXXVII

15. CXV

THEME: NUMERACY
TOPIC: NUMERACY SYSTEM AND PLACE VALUES

Application

Examples

1. James is 20 years old. What is James' age in Roman numerals?
   20 = 20
   = XX

22. Namwenika is 11 years. What is her ager in Roman numerals?
   11 years = 10 + 1
   = X + I
   Namwenika = XI

3. Daddy is XLVI years. What is his years in Hindu Arabic?
   XLVI = XL + VI
   = 40 + 6
   Daddy is = 46 years

Exercise

1. Apire is 13 years old. Change her age in Roman numerals.

2. Babirye is 12 years. Change her age to Roman numerals.

3. Achen is 20 years. Change her age to Roman numerals.

4. Nakintu is 14 years. What is her age in Roman numerals?

5. There are 74 pupils in Aduku Primary 5. Write the number of pupils in Roman numerals.

6. Nakazzi had 44 goats. Write this number in Roman numerals.

7. Mummy is XL years old. Write mummy's age in Hindu Arabic.

8. Mugwanya has XXIX chicken. Write this number in Hindu Arabic numerals.

9. Opio harvested XV bags of rice last season. Express his harvest in Hindu Arabic numerals.

10. Kizito planted 34 trees last year. Write the number of trees he planted in Roman numerals.

11. Express LXXIII in Arabic numerals.

THEME: NUMERACY
TOPIC: WHOLE NUMBERS (ROUNDING OFF)

Rounding off whole numbers
Examples:

1. Round off 268 to the nearest tens.

T	**H**	O
2	**6**	8
		R

Rounder (8)
0,1 , 2, 3, 4 add 0 ten (00)
5, 6, 7, ⑧ 9 add 1ten (10)

2 6 0
\+ 1 0
2 7 0

268 Ω 270

2. Round of 623 to the nearest tens.

T	**H**	O
6	**2**	3
		R

Rounder (3)
0,1 , 2, ③ 4 add 0 ten (00)
5, 6, 7, 8, 9 add 1ten (10)

6 2 0
\+ 0 0
6 2 0

623 Ω 620

3. Round of 1356 to the nearest hundreds

Th	**H**	T	O
1	**3**	5	6

Rounder (5)
0,1 , 2, 3, 4 add 0hundred (000)
⑤ 6, 7, 8, 9 add 1hundred (100)

1 3 0 0
\+ 1 0 0
1 4 0 0

1326 Ω 1400

4. Round off 1999 to the hundreds

Th	**H**	T	O
1	**9**	9	9

Rounder (5)
0,1 , 2, 3, 4 add 0hundred (000)
5, 6, 7, 8, ⑨ add 1hundred (100)

$$\begin{array}{r} 1\ 9\ 0\ 0 \\ +\quad 1\ 0\ 0 \\ \hline 2\ 0\ 0\ 0 \end{array}$$

1999 Ω 2000

Activity

Round off the following numbers as instructed in brackets.

1. 2240 (to the nearest hundreds)
2. 5283 (to the nearest tens)
3. 7628 (to the nearest hundreds)
4. 2995 (to the nearest hundreds)
5. 41 (to the nearest tens)
6. 1879 (to the nearest tens)
7. 159 (to the nearest hundreds)

8. 967 (to the nearest tens)

9. 3193 (to the nearest hundreds)

10. 4999 (to the nearest tens)

11. 5087 (to the nearest hundreds)

12. 3346 (to the nearest tens)

THEME: NUMERACY
TOPIC:

Operation on numbers
Addition

Examples

1. Add 7464 + 4425

	TH	H	T	O
	7	4	6	4
+	4	4	2	5
	11	8	8	9

2. Add: 4622 + 5043 + 6237

	TH	H	T	O
	4	6	2	2
	5	0	4	3
+	6	2	3	7
	15	9	0	2

Activity

Add the following

1) Add:

	TH	H	T	O
	1	4	2	6
+	2	3	5	3

2)

	TH	H	T	O
	1	1	2	4
+	7	3	2	1

3)

	H	T	O
	4	2	6
+	3	5	3

4)

	TH	H	T	O
	9	8	8	7
+	1	1	1	3

5)

	TH	H	T	O
	6	0	4	9
+	4	9	6	3

6)

	TH	H	T	O
	2	0	4	9
+	1	7	7	9
	3	6	4	8

7)

	TH	H	T	O
	1	4	5	6
+		8	6	5

8)

	H	T	O
	4	9	7
+	2	3	5

THEME: NUMERACY

TOPIC: OPERATION ON NUMBERS

More about addition

What is the sum of 4,234 and 204

	TH	H	T	O
	4	2	3	4
+		2	0	4
	4	4	3	8

2. Amos carried 359 books, his brother carried 578 books. How many books were carried altogether.

	3	4	9	books
+	5	7	8	books
	9	2	7	books

Exercise

1. A boy counted 268 cans on Monday and 454 cans the next day. How many cans did he count in the two days?

2. What is the sum of 13696 and 5345?

3. Kangi earns shs.192800 a day and sinabulya earns shs11,34500. How much money do Kangi and Sinabulya earn altogether?

4. At a petrol station one can was filled with fuel of sh.11,600 and another of sh. 4860. How much money did both drivers pay?

5. Maria bought suager at shs.1200, soap at shs. 800 and matooke at shs.3000. What was her total expenditure?

6. A school has 440 boys and 839 girls. How many pupils are there altogether?

7. In a village there are 804 men and 1011 women. What is the total number of men and women in the village?

8. Musa had sh. 12,500, he got shs. 6800 more, how much money does he have now?

9. A farmer had 1475 cows, he later bought 867 more. How many cows has he got altogether?

THEME: NUMERACY
TOPIC: OPERATION ON NUMBERS

SUBTRACTION
Examples

a) Subtract: 246 - 192

	H	T	O
	2	4	6
-	1	9	2
	0	5	4

b) Subtract 500 - 254

	H	T	O	
		5	0	0
-	2	5	4	
	2	4	6	

Exercise
Subtract the following

1.

	TO
	3 9
-	2 5

2.

	H	T	O
	1	3	2
-		2	9

3.

	H	T	O
	1	2	0
-		2	3

4.

	H	T	O
	3	6	1
-	1	7	3

5.

	H	T	O
	3	7	2
-	1	2	3

	H	T	O
	3	8	4
-		7	3

7.

	TH	H	T	O
	3	4	6	5
-	2	3	4	3

	TH	H	T	O
	7	8	9	2
-	1	2	1	3

THEME: NUMERACY
TOPIC: OPERATION ON NUMBERS

More about subtraction
Examples

1. Muguni had shs.2,570,00 he brought a book for shs.84300 What was his balance?
   Shs. 2 5 7 000
   - Shs. 3 4 400
   Shs. 2 2 2 600

2. What is the difference between 243 and 37?
   2 4 3
   - 3 7
   2 0 6

Activity

1. Juma had shs. 63000 he brought a toy car shs. 5600. How much money was he left with?

2. Take a way 53 from 111.

3. What number must you add 36 to get 176?

4. A man earns shs43,800 and spends shs.1,8300, how much does he save?

5. Subtract 678 from 3,456.

6. A man had 8,790 heads of cattle, 3,021 died, how many remained?

7. By how much is shs. 165,300 smaller than shs.20,400.

8. Find the difference between 13,850 and 4,040

9. Out of a man's salary of shs.125,000. If shs. 80,750 was spent on school fees, how much money remained?

THEME: NUMERACY

TOPIC: OPERATION ON NUMBERS

Multiplication

Examples

1. Multiply 135 by 2

$$\begin{array}{r} 135 \\ \times\ \ 2 \\ \hline 270 \end{array}$$

2. What is the product of 148 and 4?

$$\begin{array}{r} 148 \\ \times\ \ 4 \\ \hline 592 \end{array}$$

Activity

Multiply the following numbers

a) $\begin{array}{r} 314 \\ \times\ \ 5 \\ \hline \end{array}$

b) $\begin{array}{r} 624 \\ \times\ \ 5 \\ \hline \end{array}$

c) $\begin{array}{r} 425 \\ \times\ \ 6 \\ \hline \end{array}$

d) $\begin{array}{r} 736 \\ \times\ \ 6 \\ \hline \end{array}$

e) $\begin{array}{r} 730 \\ \times\ \ 4 \\ \hline \end{array}$

f) $\begin{array}{r} 654 \\ \times\ \ 9 \\ \hline \end{array}$

d) $\begin{array}{r} 510 \\ \times\ \ 7 \\ \hline \end{array}$

e) $\begin{array}{r} 321 \\ \times\ \ 8 \\ \hline \end{array}$

f) $\begin{array}{r} 745 \\ \times\ \ 7 \\ \hline \end{array}$

THEME: NUMERACY
TOPIC: OPERATION ON NUMBERS

1. Find the product of 12 and 4.

   1 2
   x 4
   4 8

2. A loaf of bread costs shs.900, if 1 buys 8 loaves of bread, how much money shall I pay?

   Shs. 9 0 0
   x 8
   shs. 7200

Exercise

a) Multiply 14 by 3

b) What is the product of 20 and 8?

c) Multiply 128 by 6

d) I bought 4 books at shs. 1500 each, how much did I pay?

e) Each of the 7 classes in a school has 110 pupils. How many pupils are in the school?

f) A worker is paid shs.96000 a day. How much will he collect if he works for 7 days?

g) 5 classes are contributing money to buy a ball. If each class is to contribute shs.87600, how much does the ball cost?

h) A box contains 196 oranges, how many oranges can 9 boxes carry?

i) Nambole stadium has 4 gates. If 436 people enter through each gate, how many people will enter in the stadium?

THEME: NUMERACY
TOPIC: OPERATION ON NUMBERS

Multiplication by a two digit number
Examples

1. Multiply 18 by 12.

```
   1  8        18 x  2  = 36
 x 1  2        18  x 1 =  18
   3  6
+ 1 8 0
  2 1 6
```

2.
```
   20  x  36
    2  0
  x 3  6
   1 2  0
 +6  0  0
  7 2  0
```

Exercise
Multiply the following numbers

a) 12 by 11

b) 15 by 11

c) 13 by 12

d) 16 by 12

e) 28 by 11

f) 2 2 x1 5

g) 7 7 x 12

h) 5 6 x 23

i) 28 x 20

THEME: NUMERACY
TOPIC: OPERATION ON NUMBERS

Division
Examples

1. Divide 125 by 5

```
        0 2 5
    5 | 125
0 x 5 = - 0
        1 2      = 25
2 x 5 = - 1 0
          2 5
5 x 5 = - 2 5
```

2. Divide 7760 by 2

```
        3 8 8 0
    2 | 7 7 6 0
2 x 3 = - 6
          1 7      = 3880
8 x 2 = - 1 6
          1 6
8 x 2 = - 1 6
            0
0 x 2 =   - 0
```

Activity

Divide the following numbers.

a) $2\overline{)130}$

b) $5\overline{)365}$

c) $2\overline{)148}$

d) $5\overline{)380}$

e) $3\overline{)150}$

f) $6\overline{)666}$

g) $4\overline{)264}$

h) $3\overline{)174}$

i) $4\overline{)268}$

j) $4\overline{)256}$ k) $3\overline{)159}$ l) $7\overline{)721}$

THEME: NUMERACY
TOPIC: OPERATION ON NUMBERS

Word problem

1. Share 120 oranges among 2 girls.

```
      0 6 0
   2 | 120
0 x 2 = - 0
        1 2   = each will get 60 mangoes
6 x 2 = - 1 2
          0
0 x 2 = -   0
```

2. A man had 392 goats, he shared them equally among 7 sons. How many goats did each son get?

```
      0 5 6
   7 | 3 9 2
0 x 7 = - 0
        3 9        56 goats each.
5 x 7 =  -3 5
          4 2
6 x 7 =    4 2
```

Activity

a) Divide 124 by 4

b) Share 346 books among 6 pupils.

c) I shared 1440/= among 8 children. How much did each get?

d) A man had 9 workers, he pays tham at total of 3,645/= aday. How much does each worker get?

e) A total of 1344 books were given to Mpumudde Primary School wihci has 6 classes? How many books did each get?

f) 8 cars used 728 litres of petrol equally. How many litres did each can use?

g) A school bursar collected a total of 46,249 from 7 pupils. How much did each pupil pay?

h) A district officer paid 7,200/= to 100 workers, how much did each get?

i) After 7 minutes, Kyagaba had typed 5649 words. How many words did she type?

j) Share 232 sweets among 8 boys.

THEME: NUMERACY
TOPIC: OPERATION ON NUMBERS

Comparing numbers using is less than, is greater than or equals to (<, > or =)
Examples
Replace the star with the correct symbol.

1. 2 + 3 * 3 + 2
   5 is equal to 5
   5 = 5
   Therefore 2 + 3 = 3 + 2

2. 5 x 5 * 5 x 2
   25 is greater than 10
   25 > 10
   Therefore 5 x 5 > 5 x 2

3. 269 * 962
   269 is less than 962
   269 < 962

Activity
Replace the star (……) with a correct symbol >, < or =

a) 2 x 2 …… 2 + 2

b) 4 + 2 …… 4 x 2

c) 378 …… 872

d) XXIX …… 29

e) 3 weeks …… 14 days

f) 1 kg of stones ……1 kg of feather

g) 3 x 3 x 3……3 + 3 + 3

h) 2m ……100 cm

i) 14 days .....fortnight

j) 20 ÷ 4 ..... 20 - 4

THEME: NUMERACY
TOPIC: OPERATION ON NUMBERS

Number patterns and sequences
Whole numbers
These are numbers that begin with zero.
e.g 1, 2, 3, 4, 5, 6, ...

Even numbers

These are numbers that are exactly divisible by 2.
e.g.0, 2, 4, 6, 8, 10, 12, 14, 16, etc.

Odd numbers
these are numbers that are not exactly divisible by 2
e.g 0,1, 3, 5, 7, 9, 11, 13, 15, etc.

Prime numbers
Numbers with two factors one and its self.
e.g 2,3,5,7,11,13,17,19,23,29, etc.

Examples
a) Find the sum of the first two composite numbers
1st two composite numbers = 4, 6
Sum = 4 + 6
= 10

b) Find the difference between the 4th whole number and the 2nd whole number
2nd number = 1 and 4th number = 3
Difference = 3 – 1
= 2

c) Find the sum of the first five counting numbers
Counting numbers 1, 2, 3, 4, 5
Sum = 1 + 2 + 3 + 4 + 5
= 15

Activity
1. List the first whole numbers.
2. Write the first five even numbers

3. Work out the sum of first five whole numbers

4. List down the first ten counting numbers.

5. List all the counting numbers less than 10

6. List all the whole numbers less than 10.

7. Write all the even numbers between 10 and 20

8. List all the whole numbers between 5 and 15.

9. List the first five composite numbers.

10. Write all the prime numbers less than 20.

11. Find the sum of the first two composite numbers.

12. Work out the first five prime numbers.

THEME: NUMERACY

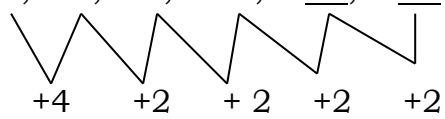
TOPIC: OPERATION ON NUMBERS

Sequences

Examples

1. Find the next two numbers in the sequence given below.

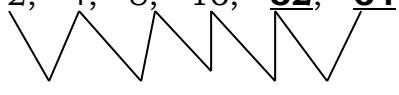
2, 6, 8, 10, **12**, **14**



10 + 2 = 12

12 + 2 = 14

2. 2, 4, 8, 16, **32**, **64**

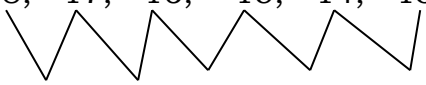


2 x 2 = 4
4 x 2 = 8
8 x 2 = 16
16 x 2 = 32
23 x 2 = 36

3. 5, 10, 15, **20**, **25**

15 + 5 = 20
20 + 5 = 25

4. 18, 17, 16, 15, 14, 13



14 - 13
15 - 14

Exercise

Fill in the missing numbers in the sequence given below.

a) 1, 2, 3, __, 5, ___, 7, __, 9, 10

b) 5, 10, __, 20, 25, __, 35

c) 0, 1, 3, 4, 6, 7, 9, ___, ___

d) 18, 15, 12, 9, ___, ___, ___

e) 30, 28, 26, ___, ___

f) 11, 22, 33, 44, ___, ___

g) 0, 2, 4, 6, ___, ___, ___, ___, 16

h) 32, 16, 8, 4, ___

i) 10, 20, 30, ___, ___

j) 1, 3, 6, 10, ___, 21, ___, 36

k) 30, 25, 20, 15, ____, ____

l) 1, ,3 9, 27, ___, ___

THEME: NUMERACY
TOPIC: NUMBER PATTERNS AND SEQUENCES

Multiples of numbers

Examples

1. List down all the multiples of 2 less than 12.

   M_2 1 x 2 = 2
   2 x 2 = 4
   2 x 3 = 6
   2 x 4 = 8
   2 x 2 = 10
   2 x 6 = 12

   M_2 less than 12 = {2, 4, 6, 8, 10}

2. List the multiples of 2 between 10 and 20

   6 x 2 = 12
   7 x 2 = 14
   8 x 3 = 16
   9 x 4 = 18

   M_2 between 10 and 20 = {12, 14, 16, 18}

3. List multiples of 9 less than 40.

   1 x 9 = 9
   2 x 9 = 18
   3 x 9 = 27
   4 x 9 = 36

   M_9 less than 40= {9, 18, 27, 36}

Activity

List the multiples of the following.

1. Multiples of 2 less than 10
2. Multiples of 8 less than 30
3. Multiples of 3 between 20 and 30

4. Multiples of 8 between 10 and 20

5. Multiples of 6 less than 25

6. Multiples of 5 less than 40

7. Multiples of 7 between 30 and 50

8. Multiples of 10 less than 80

9. List all the odd multiples of 5 less than 50

10. List all the even multiples of 3 less than 50.

THEME: NUMERACY
TOPIC: NUMBER PATTERNS AND SEQUENCES

Common Multiples

Examples

1. Find the common multiples of 3 and 6.

   M_3 = {3, (6), 9, (12), 16, (18), 21, (24), 27, (30), ……..}

   M_6 = {(6), (12), (18), (24), (30), 36, 42, …..}

   C.M = {6, 12, 18, 24, 30, ……..}

2. Find the common multiples of 5 and 10.

M_5 = {5, (10), 15, (20), 25, 30, ……..}

M_{10} = {(10), (20), (30), (40), 50, 60, …..}

C.M = { 10, 20, 30, ……..}

Activity

Find the any two common multiples of the following numbers.

a) 2 and 4

b) 2 and 6

c) 4 and 8

d) 5 and 10

e) 4 and 12

f) 6 and 12

g) 3 and 9

h) 2 and 8

i) 3 and 15

THEME: NUMERACY

TOPIC: NUMBER PATTERNS AND SEQUENCES

Finding LCM (Lowest Common Multiple)

Examples

1. Find the LCM of 2 and 4.

   M2 = { 2, (4), 6, (8), 10, (12), 14 …}

   M4 = {(4), (8), (12), 16, …}

   C.M 4, 8, 12

   LCM = 4

   The LCM of 2 and 4 is 4.

2. Find the LCM of 4 and 12

   M_4 = { 4, 8, (12), 16, 20, (24), 28, 32, (36)}

   M_{12} = { (12), (24), (36), 48 …}

   C.m = (12, 24, 36, …}

   LCM = 12

Exercise

Find the LCM of the following numbers.

a) 3 and 6

b) 5 and 10

c) 3 and 9

d) 2 and 8

e) 4 and 8

f) 2 and 6

g) 4 and 3

h) 3 and 5

i) 6 and 12

THEME: NUMERACY
TOPIC: NUMBER PATTERNS AND SEQUENCES

Finding factors of numbers

Examples

1. List all the factors of 6.

   F_6 1 x 6 = 6

   2 x 6 = 12

   = {1, 2, 3, 6}

2. List all the factors of 18.

   F_{18} 1 x 18 = 18

   2 x 9 = 18

   3 x 6 = 18

   = {1, 2, 3, 6, 7, 18}

3. List all the factors of 30.

   F_{30} 1 x 30 = 30

   2 x 15 = 30

   3 x 10 = 30

   5 x 6 = 30

   = { 1, 2, 3, 5, 6, 10, 15, 30}

Exercise

List all the factors of the following numbers

a) 2

b) 3

c) 8

d) 10

e) 4

f) 9

g) 12

h) 14

i) 15

j) 20

k) 24

l) 28

m) 32

n) 40

o) 48

THEME: NUMERACY
TOPIC: NUMBER PATTERNS AND SEQUENCES

Finding common factors

Examples

Find the common factor of 2 and 4

1. F_2 1 x 2 = 2 F_4 1 x 4 = 4
   =(~~1~~, ~~2~~) 2 x 2 = 4
   = {~~1~~, ~~2~~, 4 }

   C.F of 2 and 4 = {1, 2}

2. Find the common factors of 12 and 24

   F_{12} 1 x 12 = 12 F_{24} 1 x 24 = 24
   2 x 6 = 12 2 x 12 = 24
   3 x 4 = 12 3 x 18 = 24
   4 x 6 = 24

   ={ ~~1~~, ~~2~~, ~~3~~, ~~4~~, ~~6~~, ~~12~~} = { ~~1~~, ~~2~~, ~~3~~, ~~4~~, ~~6~~, 8, ~~12~~, 24}

   C.F of 12 and 24 = { 1, 2, 3, 4, 6, 12}

Exercise

Find the common factor of the following numbers

a) 3 and 9

b) 2 and 6

c) 3 and 6

d) 5 and 10

e) 6 and 12

f) 4 and 8

g) 2 and 8

h) 10 and 20

i) 6 and 8

THEME: NUMERACY

TOPIC: NUMBER PATTERNS AND SEQUENCES

Finding H.C.F of 6 and 9

(Highest Common Factor or Greatest Common Factor)

Examples

1. Find the HCF of 6 and 9

F6	F9
1 x 6 = 6	1 x 9 = 9
2 x 3 = 6	3 x 3 = 9
= {1, 2, 3, 6}	= {1, 3, 9}
CF = {1, 3}	= {1, 3, 9}

H.C.F of 6 and 9 = 3

2. Find the GCF of 7 and 14

F_7	F_{14}
1 x 7 = 7	1 x 4 = 14
= {1, 7}	2 x 7 = 14
	= {1, 2, 7, 14}

C.F = {1, 7}

H.C.F of 7 and 14 = 7

EXERCISE

Find the H.C.F of the following numbers

a) 3 and 9

b) 2 and 6

c) 3 and 6

d) 5 and 10

e) 6 and 12

f) 4 and 8

g) 2 and 8

h) 10 and 20

i) 6 and 8

k) 9 and 18

l) 12 and 18

j) 12 and 24