

# **HORMISDALLEN SCHOOLS**

## **P.4 MATHEMATICS LESSON NOTES**

### **MATHEMATICS BREAK DOWN P.4**

#### **TOPICS**

1. Sets
2. Whole numbers
3. Operations
4. Number patterns and sequence
5. Fractions
6. Algebra
7. Geometry
8. Data handling
9. Money
10. Time
11. Length, Mass and Capacity

#### **SETS**

- Forming sets
- Describing sets
- Number of elements in a set
- Empty/void/Null sets
- Equivalent and non equivalent sets
- Equivalent and equal sets
- Intersection of sets
- Intersection of sets on a venn diagram
- Number of elements in the intersection sets
- Union of sets
- Number of elements in the union set
- Difference of sets
- Describing and showing regions on a venn diagram

#### **NUMERATION (WHOLE NUMBERS)**

- Forming numerals
- Place values
- Number words
- Writing in figures
- Expanding (values and place values)
- Writing in short
- Writing Hindu-Arabic to Roman numerals
- Writing Roman numerals to Hindu-Arabic numerals
- Application of Roman numerals

#### **OPERATION OF WHOLE NUMBERS**

- Addition up to 5-digits
- Subtraction up to 5- digits

- Multiplication to 3-digits
- Division to 4-digits

### NUMBER PATTERN AND SEQUENCE

- Groups of number (whole, counting, odd, even, prime)
- Number sequence
- Multiples of numbers
- Common multiples (CM) and lowest common multiples (LCM)
- Factors
- G.F and G.C.F

## WEEK 1

### PD 1

#### 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 $\emptyset$	Empty / null / void set	$\subset$	subset of
$\longleftrightarrow$ $\equiv$ $\longleftrightarrow$	Equivalent to	$\not\subset$	not subset of
$=$	Equal to	$\cap$	Intersection of
$\neq$	Not equal to	$\cup$	Union set
$\Sigma$	Universal set	$B^1$	Complement of set B / Set B complement
$\nleftrightarrow$ $\neq$ $\longleftrightarrow$	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.

EVALUATION:

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### ***Empty sets***

Qn. What are empty sets?

These are sets without members or elements

**Note:** The symbol for empty set is  $\{ \}$  or  $\emptyset$

### ***Examples***

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

Set P is an empty set  $\{ \}$

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. List down the elements between zero and ten
  - 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}

## **WEEK 1**

### **PD 4**

#### **TOPIC: SET CONCEPT**

#### ***Equivalent sets and non equivalent sets.***

Equivalent sets

These are sets with the same number of members.

Symbol “ $\longleftrightarrow$ ”

#### **Examples**

- a)  $A = \{\star, \square, \bigcirc\}$      $B = \{\text{🌸}, \text{🍵}, \text{📧}\}$

Set A has 3 members and B has 3 members

Set R  $\longleftrightarrow$  set R

b)  $R = \{\text{house}, \text{house}, \text{house}, \text{house}\}$   $S = \{m, n, t, p, q\}$

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

Set R  $\nleftrightarrow$  set R

### **Exercise**

Use equivalent sets or non-equivalent sets

1.  $A = \{\text{car}, \text{balloon}, \text{cup}\}$   $B = \{\text{house}, \text{house}, \text{cup}\}$

Set A has \_\_\_\_\_ members and set B has \_\_\_\_\_ members.

Set A and B are \_\_\_\_\_ sets.

2.  $D = \{\text{cup}, \text{box}, \text{wheel}\}$   $M = \{\quad\quad\quad\}$

Set D has \_\_\_\_\_ members but set M has \_\_\_\_\_ members.

Set D is \_\_\_\_\_ to set K.

3.  $L = \{\text{star}, \text{cup}, \text{apple}\}$   $M = \{\text{wheel}, \text{apple}, \text{cup}\}$

Set L has \_\_\_\_\_ members and set M has \_\_\_\_\_ members.

Set L is \_\_\_\_\_ to set M.

4.  $N = \{\text{cup}, \text{box}\}$   $K = \{\quad\quad\quad, \quad\quad\quad\}$

Set N has \_\_\_\_\_ members and set K has \_\_\_\_\_ members

Set N is \_\_\_\_\_ to set K.

**Use  $\longleftrightarrow$  or  $\nleftrightarrow$  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

## EVALUATION

### ***Self Evaluation***

Strong points:

Weak points:

Way forward:

## WEEK 1

### PD 5

### 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}

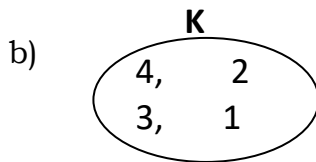
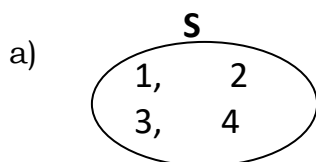
Set A is  $\longleftrightarrow$  set B

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

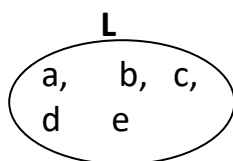
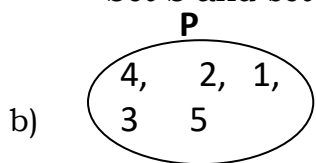
Set C is = set D

#### **Activity**

Write equal or equivalent sets



Set S and set K are \_\_\_\_ sets.



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 “  $\cap$  ”

Joint sets are also called intersection sets.

### **Examples**

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

Find  $P \cap Q = \{a, e\}$

b)  $A = \{\square, \bigcirc, \triangle\}$        $B = \{\star, \triangle, \square, \textcircled{R}\}$

$A \cap B = \{\square, \triangle\}$

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

$D \cap K = \emptyset$

### **ACTIVITY**

Write intersection sets of these sets.

Find:

a) Set  $A = \{a, b, c\}$        $B = \{b, d, e, f\}$        $(A \cap B) =$

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

c)  $M = \{1, 2, 3, 4, 5\}$        $N = \{3, 4, 7\}$        $(M \cap N) =$

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

e)  $X = \{\triangle, \bigcirc, \square\}$        $Y = \{\square, \textcircled{R}, \square, \star\}$        $(X \cap Y) =$

### **EVALUATION**

Intersection and union of sets

### **Examples**

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

#### **Solution**

$P = \{a, b, c, d, e\}$

$Q = \{a, e, i, o, u\}$

Find  $(P \cap Q)$

$P = \{a, b, c, d, e\}$

$Q = \{a, e, i, o, u\}$

$$(P \cap Q) = \{a, e\}$$

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

2. Given that set  $A = \{\triangle, \square, \triangle, \square\}$  and set  $B = \{\bigcirc, \triangle, \square, \square\}$

i) Find  $(A \cap B)$

$$A = \{\triangle, \triangle, \triangle, \square\}$$

$$B = \{\bigcirc, \triangle, \square, \square\}$$

$$(A \cap B) = \{\triangle, \square\}$$

ii) What is  $(A \cup B)$ ?

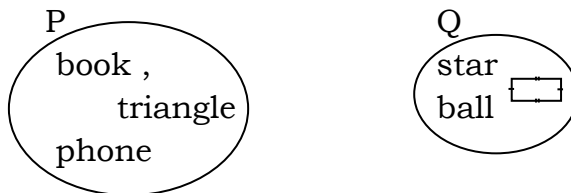
$$A = \{\triangle, \triangle, \triangle, \square\}$$

$$B = \{\bigcirc, \triangle, \square, \square\}$$

$$(A \cup B) = \{\triangle, \triangle, \triangle, \square, \bigcirc, \square\}$$

### Exercise

1.



What is  $(P \cap Q)$ ?

2.  $F = \{\text{Teddy}, \text{Kapere}, \text{Okello}, \text{Teo}\}$

$M = \{\text{Teo}, \text{Lumonde}, \text{Okello}\}$

a) Find  $(F \cap M)$

b) What is  $(F \cup M)$

3. Given  $M = \{x, y, z, w, v\}$

$N = \{r, s, t, u, v, w\}$

Find; i)  $(M \cup N)$

ii)  $(M \cap N)$

4. Given that set  $R = \{\text{all vowels}\}$  and  $S = \{\text{first 6 alphabetical letters}\}$

a) List down members of set  $R$  and set  $S$

b) Find  $(R \cap S)$

c) What is  $n(R \cap S)$ ?

d) Find  $(R \cup S)$

5.



a) Find; i)  $(K \cap L)$

ii)  $(K \cup L)$

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

a) List members of  $(P \cup Q)$

b) List members of  $(P \cap Q)$



## WEEK 1:

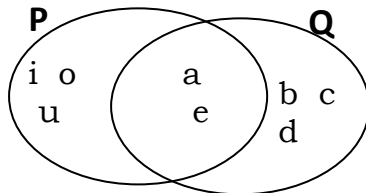
### PD 7

#### THEME: SETS (TOPIC: SET CONCEPT)

Finding intersection and union sets using a venn diagram

#### Examples

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

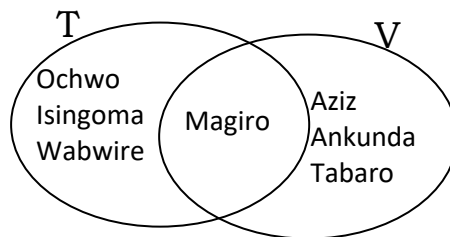


$$P \cap Q = \{a, e\}$$

$$P \cup Q = \{a, e, i, o, u, b, c, d\}$$

- b) Given  $T = \{\text{Wanwire, magino, Isingoma, ochwo}\}$

$$V = \{\text{Aziz, Nankunda, Tabaro, Majorie}\}$$



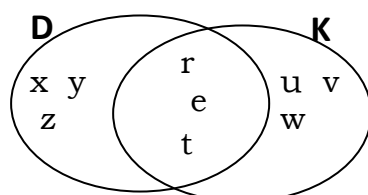
What is  $T \cup V$ ?

$$T \cup V = \{\text{Ochwo, Isingoma, Wabwire, Magiro, Aziz, Ankunda, Tabaro}\}$$

$$T \cap V = \{\text{Magiro}\}$$

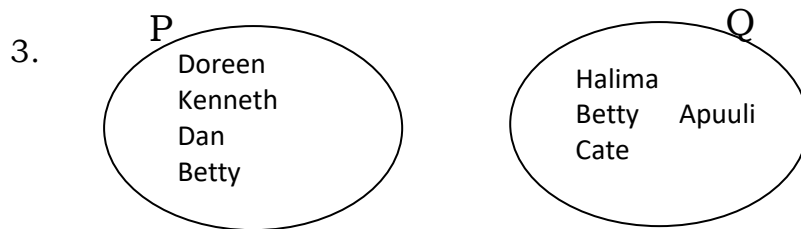
#### Activity

- Given  $\{1, 2, 3, 4, 5\}$   $B = \{3, 4, 6, 8, 9\}$ 
  - Use a venn diagram to show the sets above.
  - Find i)  $A \cap B$  ii)  $A \cup B$
- Use the venn diagram below to answer questions.



- a) Find  $D \cup K$

- b) Work out  $D \cap K$



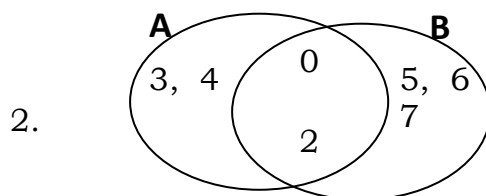
- Show the set P and Q on a venn diagram.
- Find  $P \cap Q$
- Find  $P \cup Q$

4.  $A = \{p, q, r, s, t\}$   $B = \{p, q, r, s, t, u, v, x\}$
- Show sets A and B on a venn diagram.
  - What is  $A \cup B$ ?

5.  $P = \{0, 1, 2, 3, 4\}$   $Q = \{2, 4, 6, 8\}$
- Show sets P and Q on a venn diagram.
  - What is  $P \cap Q$ ?
  - Find  $P \cup Q$ ?

Finding number of elements in the union and intersection sets

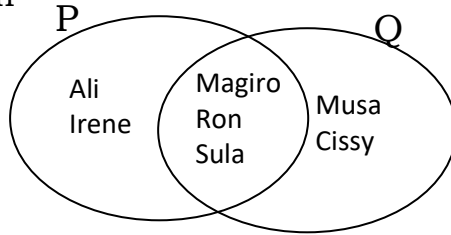
1. Given  $P = \{a, e, i, o, u\}$  and  $Q = \{a, b, c, d, e\}$
- Find  $n(P \cap Q)$
  - $P \cap Q = \{a, e\}$
  - $n(P \cap Q) = 2$
- b)  $n(P \cup Q)$   
 $P \cup Q = \{i, o, u, a, e, b, c, d\}$   
 $n(P \cup Q) = 8$



- How many members are in set  $A \cap B$ ?  
 $A \cap B = \{0, 2\}$   
 $n(A \cap B) = 2$
- How many elements are in set  $A \cup B$ ?  
 $A \cup B = \{3, 4, 0, 2, 5, 6, 7\}$   
 $n(A \cup B) = 7$

### Activity

a) Given



Find i)  $P \cap Q$       ii)  $n(P \cup Q)$       iii)  $n(P \cap Q)$

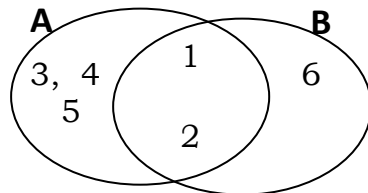
b) Set  $K = \{x, y, z, t\}$  and  $Z = \{a, e, I, o, u\}$

Find  $n(K \cap Z)$        $n(K \cup Z)$

c)  $P = \{1, 2, 3, 4\}$        $Q = \{2, 4, 6, 8\}$

- i) How many elements are in set P?
- ii) How many elements are in set Q?
- iii) How many elements are in set  $P \cap Q$ ?
- iv) How many elements are in set  $P \cup Q$ ?

d)



- i) Find the number of members in set A.
- ii) Find the number of members in set B.
- iii) Find  $n(A \cap B)$
- iv) Find  $n(A \cup B)$

EVALUATION

### Self Evaluation

Strong points:

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Weak points:

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Way forward:

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**WEEK 1: PERIOD 8**  
**THEME: SETS**  
**TOPIC: SET CONCEPT**

Difference of sets

Examples

a) Given  $A = \{a, b, c, d, e\}$        $B = \{d, e, h, i, f, g\}$   
 Find  $A - B = \{a, b, c\}$   
 $B - A = \{h, i, f, g\}$

b)  $P = \{1, 2, 3, 4, 5\}$        $Q = \{7, 5, 1, 2, 9\}$   
 Find i)  $Q - P$       ii)  $P - Q$   
 $Q - P = \{7, 9\}$        $P - Q = \{3, 4\}$

**Activity**

a)  $A = \{a, b, c, d, e\}$        $B = \{a, e, i, o, u\}$   
 Find i)  $Q - P$   
 ii)  $B - A$

b)  $P = \{x, w, y, z\}$        $Q = \{w, z, p\}$   
 Find i)  $P - Q$       ii)  $Q - P$

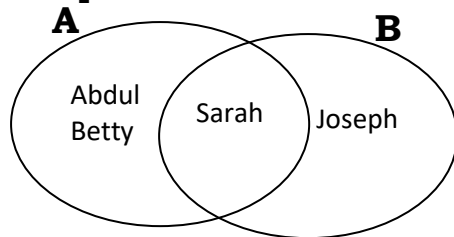
c)  $M = \{1, 3, 5, 9\}$        $N = \{3, 2, 0, 7, 9\}$   
 Find: i)  $M - N$       ii)  $N - M$

d)  $K = \{\text{Alex, Musa, Ali, Kigonza}\}$        $L = \{\text{Mao, Musa, Ali}\}$   
 Find: i)  $L - K$       ii)  $K - L$       iii)  $n(L - K)$

e)  $F = \{a, b, c, d, e\}$        $R = \{a, e, i, o, u\}$   
 Find: i)  $R - F$       ii)  $F - R$

**Using a venn - diagram**

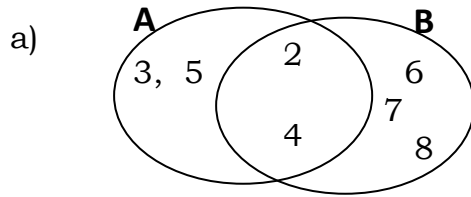
**Examples**



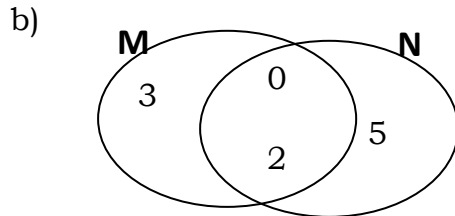
Find i)  $A - B$   
 $A = \{\text{Abdul, Betty}\}$   
 ii)  $n(B - A)$   
 $B - A = \{\text{Joseph}\}$   
 $n(B - A) = 1$

iii) How many elements are in  $A - B$   
 $A - B = \{\text{Abdul, Betty}\}$   
 $n(A - B) = 2$

### **Exercise**

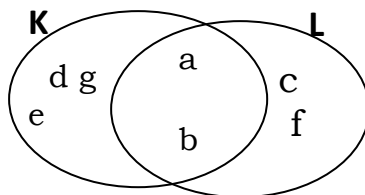


Find i)  $n(A - B)$                       ii)  $B - A$



Find i)  $n(M - N)$                       ii)  $N - M$

c) Find: i)  $L - K$                       ii)  $n(K - L)$



EVALUATION

### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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### **WEEK 2:**

#### **PD 1**

#### **THEME: SETS**

#### **TOPIC: SET CONCEPT**

**Describe shaded regions of a venn diagram in set form**

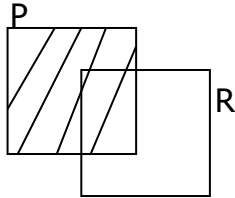
**Examples**



**$A \cap B$**

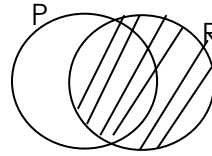
**$P \cup Q$**

**$M - N$**

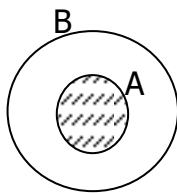


**Set P**

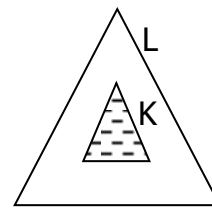
**$Z - Y$**



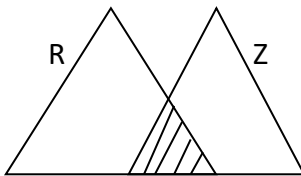
**Set R**



**$A \cap B$**



**$K \cap L$**



**$R \cap N$**

**Exercise**

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

a)  $K - L$

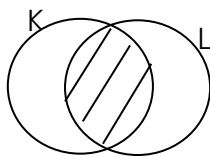
b)  $L - K$

c) Set  $M \cap Z$

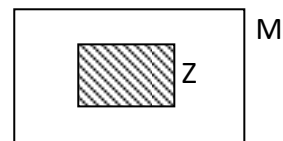
d)  $A \cap P$

e) Set NUM

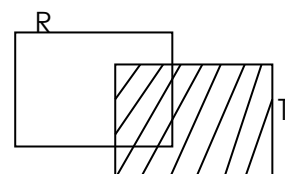
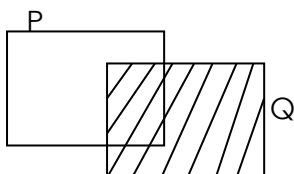
Describe the Shaded regions below.



\_\_\_\_\_



\_\_\_\_\_



## EVALUATION

### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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## **WEEK 2:**

### **PD 4**

### **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 = 2, 3, 6, 7  
= 2, 367
- c) What is the biggest number or numeral that can be formed from the  
following:  
digits = 1, 5, 2, 8, 3?  
biggest = 8, 5, 3, 2, 1  
= 85, 321
- d) Find the difference between the largest and smallest numeral got from  
3, 7, 5

Smallest numeral	3, 5, 7	largest numeral	7, 5, 3
	3 5 7		7 5 3
Difference	=		7 5 3
	=		<u>- 3 5 7</u>
			<u>3 9 6</u>

Sum	=	7 5 3
	+	<u>3 5 7</u>
		<u><u>1 1 1 0</u></u>

#### ***Exercise***

- a) Form two numerals from the digits 3, 9, 2
- b) Form the largest numeral got from the digit 3, 1, 5





$$\begin{array}{r} \text{soln: Sum} = 983 \\ + 389 \\ \hline 1372 \end{array}$$

**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.
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?
  - d) Write the number formed in a) above in expanded form.
3. Give the digits 5, 1, 3. Write down all the numbers that are greater than 350.

**EVALUATION**

**Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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**WEEK 2:****PD 6****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.

<b>T.TH</b>	<b>TH</b>	<b>H</b>	<b>T</b>	<b>O</b>
3	2	0	6	5

Ten thousands  
 Thousands  
 Hundreds  
 Tens  
 Ones

- 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**

- a) Find the place value of the underlined digits.

- i) 40561                      ii) 93812  
 iii) 72554                      iv) 34500  
 iv) 12645                      v) 67821

- b) In the number 382, what is the place value of?

- i) 3                      ii) 8                      iii) 2

- c) Find the place value of each digit in the number.

- i) 2483                      ii) 403                      iii) 67821

**EVALUATION****Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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**WEEK 2:**

**PD 7**

**THEME: NUMERACY**

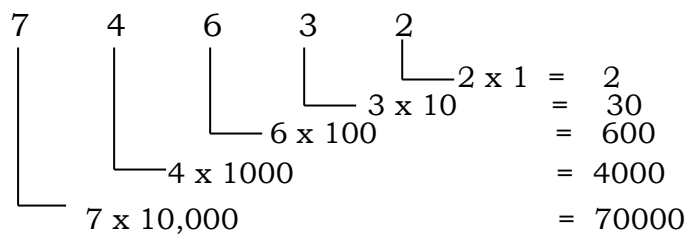
**TOPIC: Numeration System and Place values**

**Values of numbers**

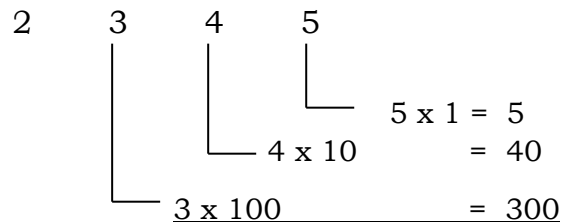
**Examples**

What is the value of each digit in the number?

a) 7 4 6 3 2



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



The value of 3 = 300

**Examples**

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

a) 249

b) 2483

2. Find the value of the underlined digits given 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

**EVALUATION**

**Self Evaluation**

Strong points:

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Weak points:

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## Expanding numbers

## Examples

[illegible]

$$93458 = \begin{array}{ccccc} 9 & 3 & 4 & 5 & 8 \\ | & | & | & | & | \\ | & | & | & | & 8 \times 1 = 8 \\ | & | & | & 5 \times 10 = 50 \\ | & | & 4 \times 100 = 400 \\ | & 3 \times 1000 = 3000 \\ 9 \times 10,000 = 90,000 \end{array}$$

a) 340                      b) 342                      c) 1,245                      d) 5,347

e) 3,672                      f) 235                      g) 62,894                      h) 7,845

i) 78,764                      j) 99,845

### Examples

$$\begin{array}{rcccc}
 7432 = & 7 & 4 & 3 & 2 \\
 & | & | & | & | \\
 & | & | & | & \text{---} (2 \times 1) \\
 & | & | & \text{---} (3 \times 10) & \\
 & | & \text{---} (4 \times 100) & & \\
 & \text{---} (7 \times 1000) & & & 
 \end{array}$$

$$\underline{7432 = (7 \times 1000) + (4 \times 100) + (3 \times 10) + (2 \times 1)}$$

2. Expand 93,458 using place values

$$\begin{array}{cccccc}
 9 & 3 & 4 & 5 & 8 & \\
 | & | & | & | & | & \\
 | & | & | & | & | & (8 \times 10) \\
 | & | & | & | & | & (5 \times 10) \\
 | & | & | & | & | & (4 \times 100) \\
 | & | & | & | & | & (3 \times 1000) \\
 | & | & | & | & | & (9 \times 10,000)
 \end{array}$$

$$\underline{93,458 = (9 \times 10,000) + (3 \times 1000) + (4 \times 100) + (5 \times 10) + (8 \times 1)}$$

### **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 |           |           |

### **EVALUATION**

#### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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### **WEEK 3:**

#### **PD 1**

#### **THEME: NUMERACY**

#### **TOPIC: NUMERACY SYSTEM AND PLACE VALUES**

#### **Writing numbers in short**

#### ***Examples***

1. Write in short

$$\begin{array}{r}
 7000 + 400 + 30 + 2 \\
 7000 \\
 400 \\
 30 \\
 + 2 \\
 \hline
 \underline{\underline{7432}}
 \end{array}$$

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

$$\begin{array}{r}
 90,000 + 3000 + 400 + 50 + 8 \\
 90,000 \\
 3,000 \\
 400 \\
 50 \\
 + 8 \\
 \hline
 \underline{\underline{93,458}}
 \end{array}$$

$$\begin{array}{r}
 3. \quad (7 \times 10^3) + (4 \times 10^2) + (3 \times 10^1) + (2 \times 10^0) \\
 7 \times 10 \times 10 \times 10 + 4 \times 10 \times 10 + 3 \times 10 + 2 \times 1 \\
 7000 \quad + \quad 400 \quad + \quad 30 \quad + \quad 2 \\
 7000 \\
 400 \\
 30 \\
 + 2 \\
 \hline
 \hline
 7432
 \end{array}$$

### **Exercise**

*Write the following as single numbers*

1.  $(4 \times 100) + (8 \times 10) + (6 \times 1)$
2.  $(3 \times 1000) + (0 \times 100) + (7 \times 10) + (5 \times 1)$
3.  $(8 \times 100) + (6 \times 10) + (3 \times 1)$
4.  $500 + 90 + 1$
5.  $20,000 + 4000 + 800 + 10 + 5$
6.  $90,000 + 600 + 4$
7.  $6000 + 5$
8.  $(9 \times 1000) + (3 \times 100) + (2 \times 10) + (1 \times 1)$
9.  $(7 \times 10000) + (4 \times 1000) + (3 \times 100) + (2 \times 10)$
10.  $(2 \times 1000) (3 \times 1)$

## **EVALUATION**

### **WEEK 3**

#### **PD 2**

#### **THEME: NUMERACY**

#### **TOPIC: NUMERATION SYSTEM AND PLACE VALUE**

#### **Write figures in words**

1. Write in words 841

841                      800 Eighty hundred  
                              41 Forty one  
                              841 **Eight hundred forty one**

2. 2, 841

2841                      2000 Two thousand  
                              800 Eight hundred  
                              41 Forty one  
                              2841 **Two thousand eight hundred forty one**

2. 45,617

45,617                      45,000 Forty five thousand  
                              600 Six hundred  
                              17 Seventeen  
                              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 |
| 67, 678   | h) 99, 466 | i) 9,999   |

## **EVALUATION**

### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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## **WEEK 3**

### **PD 3**

#### **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

Fifty 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.

### **EVALUATION**

#### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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#### ***Writing decimals in words***

##### **Examples**

1. Write 7.5 in words  
7.5 = Seven point five  
= **Seven and five tenths**
2. Write 27.24 in words  
27. 24 = Twenty seven point two four  
= **Twenty seven and twenty four hundredths**
3. Write 107. 2 in words  
107.2 = **One hundred seven point two**  
  
**OR**  
  
= **One hundred seven and two tenths**
4. 2381. 9 = Two thousand three hundred eighty one point nine

**OR**

**Two thousand three hundred eighty one and nine tenths.**

##### **Exercise**



Write the following in words

- a) 3.9                      b) 73.5                      c) 506. 3  
d) 813. 2                      e) 62.4                      f) 91.72  
g) 5.32                      h) 121.5                      i) 813.2  
j) 1468.3

***Writing the following in words***

**Examples**

1. Twenty five and three tenths

Twenty five    25.  
Three tenths    0.3  
*Twenty five and three tenths* = 275.1

2. Write two hundred seventy five and one tenths in figures

Two hundred    200.  
Seventy five    75.  
One tenth    0.1  
*Two hundred seventy five and one tenths* = 275. 1

***Exercise***

*Write the following in figures*

1. Thirty four and three tenths
2. Sixty two and one tenths
3. Eighty one and seven tenths
4. One hundred eleven and four tenths
5. Nine and six tenths.
6. Two hundred sixty two and five tenths
7. One hundred sixty two and five tenths.
8. Three hundred eighty and fifteen hundredths
9. Two hundred seventy one and nineteen hundredths
10. Six thousand three hundred twelve and six tenths.

**EVALUATION**

***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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### WEEK 3

#### PD 4/5

#### 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) 63 | d) 12 |
| e) 20 | f) 72 | g) 19 | h) 41 |
| i) 87 | j) 25 | k) 50 | l) 93 |
| m) 30 | n) 35 |       |       |

### **EVALUATION**

#### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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### **WEEK 3**

#### **PD 6**

#### **THEME: NUMERACY**

#### **TOPIC: NUMERACY SYSTEM AND PLACE VALUES**

#### **Changing roman numerals to Hindu Arabic**

Examples

1. Write XIV in Hindu - Arabic

$$\begin{aligned} \text{XIV} &= \text{X} + \text{IV} \\ &= 10 + 4 \\ &= \underline{\underline{14}} \end{aligned}$$

2. Change XXXIX to Hindu - Arabic

$$\begin{aligned} \text{XXXIX} &= \text{XXX} + \text{IX} \\ &= 30 + 9 \\ &= \underline{\underline{39}} \end{aligned}$$

3. Change CI to Hindu - Arabic

$$\begin{aligned} \text{CI} &= 100 + 1 \\ &= \underline{\underline{101}} \end{aligned}$$

#### **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 |           |

## EVALUATION

### *Self Evaluation*

Strong points:

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Weak points:

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Way forward:

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## WEEK 3

### PD 7

#### 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 age in Roman numerals?  
 $11 \text{ years} = 10 + 1$   
 $= X + I$   
 $Namwenika = XI$
3. Daddy is XLVI years. What is his age in Hindu Arabic?  
 $XLVI = XL + VI$   
 $= 40 + 6$   
 $Daddy \text{ is } = \underline{46 \text{ years}}$

### **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 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.

## EVALUATION

### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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## WEEK 3

### PD 8

#### THEME: NUMERACY

#### TOPIC: WHOLE NUMBERS (ROUNDING OFF)

#### **Rounding off whole numbers**

**Examples:** Round off 268 to the nearest tens.

Solution:

$$\begin{array}{r} 268 \\ + \quad \overline{10} \quad \swarrow \\ \hline 270 \end{array}$$

**268 approximately 270**

2. Round off 623 to the nearest tens.

$$\begin{array}{r} 62\cancel{3} \\ + \quad \overline{00} \quad \swarrow \\ \hline 620 \end{array}$$

**623 approximately 620**

3. Round off 1356 to the nearest tens.

$$\begin{array}{r} 135\cancel{6} \\ + \quad \overline{10} \quad \swarrow \\ \hline 1360 \end{array}$$

**1356 approximately 1360**

4. Round off 1999 to the nearest tens.

$$\begin{array}{r} 199\cancel{9} \\ + \quad \overline{10} \quad \swarrow \\ \hline 2000 \end{array}$$

**1999 approximately 2000**

### **Activity**

Round off the following numbers as instructed in brackets.

1. 2240 (to the nearest tens)
2. 5286 (to the nearest tens)
3. 7628 (to the nearest tens)
4. 2995 (to the nearest tens)
5. 47 (to the nearest tens)
6. 1879 (to the nearest tens)
7. 159 (to the nearest tens)
8. 967 (to the nearest tens)
9. 3193 (to the nearest tens)
10. 4999 (to the nearest tens)
11. 5087 (to the nearest tens)
12. 3346 (to the nearest tens)

### **EVALUATION**

#### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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### **WEEK 4**

#### **PD 1**

#### **THEME: NUMERACY**

TOPIC:

#### **Operation on numbers**

##### **Addition**

##### Examples

1. Add 7464 + 4425

	TH	H	T	O
	7	4	6	4
+	4	4	2	5
	<u>11</u>	<u>8</u>	<u>8</u>	<u>9</u>

2. Add: 4622 + 5043 + 6237

	TH	H	T	O
	4	6	2	2
	5	0	4	3
+	6	2	3	7
	<u>15</u>	<u>9</u>	<u>0</u>	<u>2</u>

### Activity

Add the following

1) Add: 4622 + 5043 + 6237

	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

### EVALUATION

#### Self Evaluation

Strong points:

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Weak points:

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Way forward:

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### WEEK 4

#### PD 2

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.

$$\begin{array}{r} 3 \ 4 \ 9 \text{ books} \\ + \ 5 \ 7 \ 8 \text{ books} \\ \hline 9 \ 2 \ 7 \text{ books} \end{array}$$

### **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 1928/= a day and sinabulya earns 11,345/=. 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 1200/=:, soap at 800/= and matooke at 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?

### **EVALUATION**

#### **Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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**WEEK 4:**  
**PD 3**  
**THEME: NUMERACY**  
**TOPIC: OPERATION ON NUMBERS**

***SUBTRACTION***

***Examples***

a) Subtract: 246 - 192

	<b>H</b>	<b>T</b>	<b>O</b>
	2	4	6
-	1	9	2
	0	5	4

b) Subtract 500 - 254

	<b>H</b>	<b>T</b>	<b>O</b>
	5	0	0
-	2	5	4
	2	4	6

**Exercise**

Subtract the following

1.

	<b>T</b>	<b>O</b>
	3	9
-	2	5

2.

	<b>H</b>	<b>T</b>	<b>O</b>
	1	3	2
-		2	9

3.

	<b>H</b>	<b>T</b>	<b>O</b>
	1	2	0
-		2	3

4.

	<b>H</b>	<b>T</b>	<b>O</b>
	3	6	1
-	1	7	3

5.

	<b>H</b>	<b>T</b>	<b>O</b>
	3	7	2
-	1	2	3

	<b>H</b>	<b>T</b>	<b>O</b>
	3	8	4
-		7	3

7.

	<b>TH</b>	<b>H</b>	<b>T</b>	<b>O</b>
	3	4	6	5
-	2	3	4	3

	<b>TH</b>	<b>H</b>	<b>T</b>	<b>O</b>
	7	8	9	2
-	1	2	1	3

**EVALUATION**

***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**WEEK 4:**  
**PD 4**  
**THEME: NUMERACY**  
**TOPIC: OPERATION ON NUMBERS**

**More about subtraction**

**Examples**

1. Muguni had 2,570/=, he brought a book for 843/=. What was his balance?

$$\begin{array}{r} 2\ 5\ 7\ 0/= \\ -\ 8\ 4\ 3/= \\ \hline 1\ 7\ 3\ 7/= \end{array}$$

2. What is the difference between 243 and 37?

$$\begin{array}{r} 2\ 4\ 3= \\ -\ 3\ 7= \\ \hline 2\ 0\ 6= \end{array}$$

**Activity**

1. Juma had 630/= he brought a toy car 56/=. How much money was he left with?
2. Take away 53 from 111.
4. What number must you add 36 to get 176?
5. A man earns 4,380/= and spends 1,830/=. how much does he save?
6. Subtract 678 from 3,456.
7. A man had 8,790 heads of cattle, 3,021 died, how many remained?
8. By how much is 1653/= smaller than 2,040/=.
9. Find the difference between 13,850 and 4,040/=
10. Out of a man's salary of 12,500/=. 8,075/= was spent on school fees, how much money remained?

**EVALUATION**

***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**WEEK 4:****PD 5****THEME: NUMERACY****TOPIC: OPERATION ON NUMBERS****Multiplication*****Examples***

1. Multiply 135 by 2  
4?

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

2. What is the product of 148 and

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

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

**EVALUATION*****Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**WEEK 4:****PD 6****THEME: NUMERACY****TOPIC: OPERATION ON NUMBERS**

1. Find the product of 12 and 4.

$$\begin{array}{r} 12 \\ \times 4 \\ \hline 48 \end{array}$$

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

$$\begin{array}{r} 900 \\ \times 8 \\ \hline 7200 \end{array}$$

**Exercise**

- Multiply 14 by 3
- What is the product of 16 and 15?
- What is the product of 20 and 8?
- Multiply 128 by 6
- I bought 4 books at 150 each, how much did I pay?
- Each of the 7 classes in a school has 110 pupils. How many pupils are in the school?
- A worker is paid 960 a day. How much will he collect if he works for 7 days?
- 5 classes are contributing money to buy a ball. If each class is to contribute 876, how much does the ball cost?
- A box contains 196 oranges, how many oranges can 9 boxes carry?
- Nambole stadium has 4 gates. If 436 people enter through each gate, how many people will enter in the stadium?

**EVALUATION****Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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**WEEK 4:****PD 7****THEME: NUMERACY****TOPIC: OPERATION ON NUMBERS****More about multiplication****Examples**

1. Multiply 18 by 12.

$$\begin{array}{r}
 18 \\
 \times 12 \\
 \hline
 36 \\
 + 280 \\
 \hline
 216
 \end{array}$$

$$\begin{array}{l}
 18 \times 2 = 36 \\
 18 \times 1 = 18
 \end{array}$$

- 2.
- $20 \times 36$

$$\begin{array}{r}
 20 \\
 \times 36 \\
 \hline
 120 \\
 + 600 \\
 \hline
 720
 \end{array}$$

**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)
- $\begin{array}{r} 2 \\ 2 \end{array}$

- g)
- $\begin{array}{r} 7 \\ 7 \end{array}$

- h)
- $\begin{array}{r} 5 \\ 6 \end{array}$

$$\begin{array}{r}
 12 \\
 \times 11 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 15 \\
 \times 11 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 13 \\
 \times 12 \\
 \hline
 \end{array}$$

- i) Workout

- j) 28 by 20

$$\begin{array}{r}
 24 \\
 \times 13 \\
 \hline
 \end{array}$$

**EVALUATION*****Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**WEEK 4:**  
**PD 8**  
**THEME: NUMERACY**  
**TOPIC: OPERATION ON NUMBERS**

**Division**  
**Examples**

1. Divide 125 by 5

$$\begin{array}{r}
 025 \\
 5 \overline{) 125} \\
 \underline{0} \phantom{0} \phantom{0} \\
 12 \phantom{0} \\
 \underline{10} \phantom{0} \\
 25 \\
 \underline{25} \\
 0
 \end{array}
 = 25$$

2. Divide 7760 by 2

$$\begin{array}{r}
 3880 \\
 2 \overline{) 7760} \\
 \underline{6} \phantom{0} \phantom{0} \phantom{0} \\
 17 \phantom{0} \phantom{0} \\
 \underline{16} \phantom{0} \\
 16 \phantom{0} \\
 \underline{16} \\
 0 \\
 0 \\
 \underline{0} \\
 0
 \end{array}
 = 3880$$

**Activity**

Divide the following numbers.

a)  $\underline{2} \overline{) 130}$

b)  $\underline{5} \overline{) 365}$

c)  $\underline{2} \overline{) 148}$

d)  $\underline{5} \overline{) 380}$

e)  $\underline{3} \overline{) 150}$

f)  $\underline{6} \overline{) 666}$

g)  $\underline{4} \overline{) 264}$

h)  $\underline{3} \overline{) 174}$

i)  $\underline{4} \overline{) 268}$

j)  $\underline{4} \overline{) 256}$

k)  $\underline{3} \overline{) 159}$

l)  $\underline{7} \overline{) 721}$

**EVALUATION**

***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**WEEK 5:****PD 1****THEME: NUMERACY****TOPIC: OPERATION ON NUMBERS****Word problem**

1. Share 120 oranges among 2 girls.

$$\begin{array}{r}
 060 \\
 2 \overline{) 120} \\
 0 \times 2 = - 0 \quad \downarrow \\
 12 \quad \downarrow \\
 6 \times 2 = - 12 \quad \downarrow \\
 0 \quad \downarrow \\
 0 \times 2 = - 0
 \end{array}
 = \text{each will get 60 mangoes}$$

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

$$\begin{array}{r}
 056 \\
 7 \overline{) 392} \\
 0 \times 7 = - 0 \quad \downarrow \\
 39 \quad \downarrow \\
 5 \times 7 = - 35 \quad \downarrow \\
 42 \quad \downarrow \\
 6 \times 7 = 42
 \end{array}
 \quad 56 \text{ goats each.}$$

**Activity**

- Divide 124 by 4
- Share 346 books among 6 pupils.
- I shared 1440/= among 8 children. How much did each get?
- A man had 9 workers, he pays them at total of 3,645/= a day. How much does each worker get?
- A total of 1344 books were given to Mpumudde Primary School which has 6 classes? How many books did each get?
- 8 cars used 728 litres of petrol equally. How many litres did each car use?
- A school bursar collected a total of 46,249 from 7 pupils. How much did each pupil pay?
- A district officer paid 7,200/= to 100 workers, how much did each get?
- After 7 minutes, Kyagaba had typed 5649 words. How many words did she type?
- Share 232 sweets among 8 boys.

## EVALUATION

### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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## **WEEK 5:**

### **PD 3**

#### **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.  $5 \times 5$  \*  $5 \times 2$   
25 is greater than 10  
 $25 > 10$   
Therefore  $5 \times 5 > 5 \times 2$
3. 269 \* 962  
269 is less than 962  
 $269 < 962$

#### **Activity**

Replace the star (\*) with a correct symbol >, < or =

- a)  $2 \times 2$  .....  $2 + 2$
- b)  $4 + 2$  .....  $4 \times 2$
- c) 378 ..... 872
- d) XXIX ..... 29
- e) 3 weeks ..... 14 days
- f) 1 kg of stones \* 1 kg of feather
- g)  $3 \times 3 \times 3$  \*  $3 + 3 + 3$
- h) 2m \* 100 cm
- i) 14 days \* fortnight
- j)  $20 \div 4$  \*  $20 - 4$



## EVALUATION

### *Self Evaluation*

Strong points:

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Weak points:

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Way forward:

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## WEEK 5:

### PD 4

### THEME: NUMERACY

### TOPIC: OPERATION ON NUMBERS

#### Number patterns and sequences

##### Whole numbers

These are numbers that begin with one.

e.g 1, 2, 3, 4, 5, 6, .....

##### ***Even numbers***

These are numbers that are exactly divisible by 2.

e.g. 2, 4, 6, 8, 10, 12, 14, 16, etc.

##### ***Odd numbers***

these are numbers that are not exactly divisible by 2

e.g 1, 3, 5, 7, 9, 11, 13, 15, etc.

##### ***Prime numbers***

Numbers with two factors one and its self.

e.g 4, 6, 8, 9, 10, 12, 14, etc.

##### ***Examples***

a) Find the sum of the first two composite numbers

$$\begin{array}{rcl} 1^{\text{st}} \text{ two composite numbers} & = & 4, 6 \\ \text{Sum} & = & 4 + 6 \\ & = & \mathbf{10} \end{array}$$

b) Find the difference between the 4<sup>th</sup> whole number and the 2<sup>nd</sup> whole number

$$\begin{array}{rcl} 2^{\text{nd}} \text{ number} & = & 1 \text{ and } 4^{\text{th}} \text{ number} = 3 \\ \text{Difference} & = & 3 - 1 \\ & = & \mathbf{2} \end{array}$$

c) Find the sum of the first five counting numbers

$$\begin{array}{rcl} \text{Counting numbers} & 1, 2, 3, 4, 5 \\ \text{Sum} & = & 1 + 2 + 3 + 4 + 5 \\ & = & \mathbf{15} \end{array}$$

### 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.

### EVALUATION

#### Self Evaluation

Strong points: \_\_\_\_\_

Weak points: \_\_\_\_\_

Way forward: \_\_\_\_\_

### WEEK 5:

#### PD 5

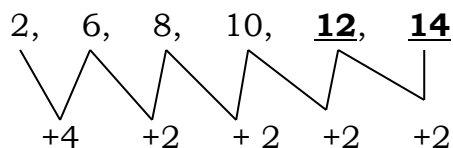
#### THEME: NUMERACY

#### TOPIC: OPERATION ON NUMBERS

#### Sequences

Examples

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



$$10 + 2 = 12$$

$$12 + 2 = 14$$

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



$$2 \times 2 = 4$$

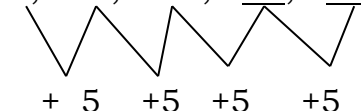
$$4 \times 2 = 8$$

$$8 \times 2 = 16$$

$$16 \times 2 = 32$$

$$32 \times 2 = 64$$

3. 5, 10, 15, 20, 25



$$15 + 5 = 20$$

$$20 + 5 = 25$$

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



$$14 - 1 = 13$$

$$15 - 1 = 14$$

**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, \_\_, \_\_

**EVALUATION*****Self Evaluation***

Strong points:

Weak points:

Way forward:

**WEEK 5:****PD 6****THEME: NUMERACY****TOPIC: NUMBER PATTERNS AND SEQUENCES****Multiples of numbers*****Examples***

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

$$\begin{array}{l} M_2 \quad 1 \times 2 = 2 \\ \quad 2 \times 2 = 4 \\ \quad 2 \times 3 = 6 \\ \quad 2 \times 4 = 8 \\ \quad 2 \times 5 = 10 \\ \quad 2 \times 6 = 12 \end{array}$$

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

2. List the multiples of 2 between 10 and 20

$$6 \times 2 = 12$$

$$7 \times 2 = 14$$

$$8 \times 2 = 16$$

$$9 \times 2 = 18$$

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

3. List multiples of 9 less than 40.

$$1 \times 9 = 9$$

$$2 \times 9 = 18$$

$$3 \times 9 = 27$$

$$4 \times 9 = 36$$

$$= \{9, 18, 27, 36\}$$

### **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.

### **EVALUATION**

#### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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### **WEEK 5:**

#### **PD 7**

#### **THEME: NUMERACY**

#### **TOPIC: NUMBER PATTERNS AND SEQUENCES**

#### **Common Multiples**

#### ***Examples***

1. Find the common multiples of 3 and 6.

$$M_3 = \{3, \textcircled{6}, 9, \textcircled{12}, 16, \textcircled{18}, 21, \textcircled{24}, 27, \textcircled{30}, \dots\}$$

$$M_6 = \{\textcircled{6}, \textcircled{12}, \textcircled{18}, \textcircled{24}, \textcircled{30}, 36, 42, \dots\}$$

$$C.M = \{6, 12, 18, 24, 30, \dots\}$$

2. Find the common multiples of 5 and 10.

$$M_5 = \{5, \textcircled{10}, 15, \textcircled{20}, 25, 30, \dots\}$$

$$M_{10} = \{\textcircled{10}, \textcircled{20}, \textcircled{30}, \textcircled{40}, 50, 60, \dots\}$$

$$C.M = \{10, 20, 30, \dots\}$$

### **Activity**

Find the 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 |

### **EVALUATION**

#### **Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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### **WEEK 5:**

#### **PD 8**

#### **THEME: NUMERACY**

#### **TOPIC: NUMBER PATTERNS AND SEQUENCES**

#### **Finding LCM (Lowest Common Multiple)**

##### **Examples**

1. Find the LCM of 2 and 4.

$$M_2 = \{\textcircled{2}, \textcircled{4}, 6, \textcircled{8}, \textcircled{10}, \textcircled{12}, 14, \dots\}$$

$$M_4 = \{4, \textcircled{8}, \textcircled{12}, 16, \dots\}$$

$$C.M \ 4, 8, 12$$

$$LCM = 4$$

The LCM of 2 and 4 is 4.

2. Find the LCM of 4 and 12

$$M_4 = \{\textcircled{4}, 8, \textcircled{12}, 16, 20, \textcircled{24}, 28, 32, \textcircled{36}\}$$

$$M_{12} = \{\textcircled{12}, \textcircled{24}, \textcircled{36}, 48, \dots\}$$

$$C.m = \{12, 24, 36, 48, \dots\}$$

$$LCM = 12$$

### **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

EVALUATION

### **Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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## **WEEK 6:**

### **PD 1**

### **THEME: NUMERACY**

### **TOPIC: NUMBER PATTERNS AND SEQUENCES**

### **Finding factors of numbers**

#### **Examples**

1. List all the factors of 6.

$$F_6 \quad 1 \times 6 = 6$$

$$2 \times 6 = 12$$

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

2. List all the factors of 18.

$$F_{18} \quad 1 \times 18 = 18$$

$$2 \times 9 = 18$$

$$3 \times 6 = 18$$

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

3. List all the factors of 30.

$$F_{30} \quad 1 \times 30 = 30$$

$$2 \times 15 = 30$$

$$3 \times 10 = 30$$

$$5 \times 6 = 30$$

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

### **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

### **EVALUATION**

#### **Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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### **WEEK 6:**

#### **PD 2**

#### **THEME: NUMERACY**

#### **TOPIC: NUMBER PATTERNS AND SEQUENCES**

#### **Finding common factors**

##### **Examples**

Find the common factor of 2 and 4

$$\begin{array}{ll} 1. & F_2 \quad 1 \times 2 = 2 \\ & \quad \quad \quad = \{1, 2\} \\ & F_4 \quad 1 \times 4 = 4 \\ & \quad \quad \quad 2 \times 2 = 4 \\ & \quad \quad \quad = \{1, 2, 4\} \end{array}$$

$$\underline{\text{C.F of 2 and 4} = \{1, 2\}}$$

2. Find the common factors of 12 and 24

$$\begin{array}{ll} F_{12} & 1 \times 12 = 12 \\ & 2 \times 6 = 12 \\ & 3 \times 4 = 12 \\ & = \{1, 2, 3, 4, 6, 12\} \\ F_{24} & 1 \times 24 = 24 \\ & 2 \times 12 = 24 \\ & 3 \times 8 = 24 \\ & 4 \times 6 = 24 \\ & = \{1, 2, 3, 4, 6, 8, 12, 24\} \end{array}$$

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

## **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

## **EVALUATION**

### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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## **WEEK 6:**

### **PD 3**

### **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

F<sub>6</sub>

$$1 \times 6 = 6$$

$$2 \times 3 = 6$$

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

$$\text{CF} = \{1, 3\}$$

F<sub>9</sub>

$$1 \times 9 = 9$$

$$3 \times 3 = 9$$

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

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

$$\underline{\underline{\text{H.C.F of 6 and 9} = 3}}$$

2. Find the GCF of 7 and 14

F<sub>7</sub>       $1 \times 7 = 7$

$$= \{1, 7\}$$

$$\text{C.F} = \{1, 7\}$$

$$\underline{\underline{\text{H.C.F of 7 and 14} = 7}}$$

F<sub>14</sub>       $1 \times 14 = 14$

$$2 \times 7 = 14$$

$$= \{1, 2, 7, 14\}$$



**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  | 10 and 20    |
| i) 6 and 8  | j) 12 and 24 | k) 9 and 18 | l) 12 and 18 |

**EVALUATION*****Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**PRIMARY FOUR**  
**TERM II – III 2017**  
**THEME: NUMERACY**  
**TOPIC: NUMBER PATTERNS AND SEQUENCES**

**Fractions**

**Definitions**

A fraction is part of a whole.

Naming fractions



A half

$$\frac{1}{2}$$

$$\frac{1}{2}$$

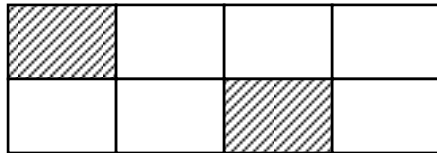


A third

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

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

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



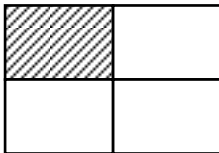
$$\frac{2}{8}$$

Two eighths

**Activity**

Describe the shaded fractions

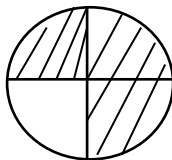
1.



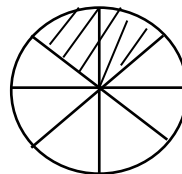
2.



3.

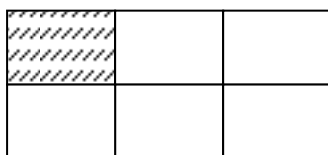


4.

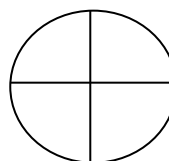


**Describe the un-shaded fractions**

1.



2.



EVALUATION

**Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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## **WEEK 6:**

### **PD 5**

#### **THEME: NUMERACY**

#### **TOPIC: FRACTIONS**

#### ***Types of fractions***

1. ***Proper fractions***

These are fractions with numerators smaller than denominators

$$\frac{1}{2}, \frac{3}{7}, \frac{4}{10}, \frac{12}{27}, \text{ etc}$$

2. ***Improper fraction***

A fraction with a numerator greater than a denominator.

e.g.  $\frac{5}{2}, \frac{9}{4}, \frac{15}{3}, \text{ etc}$

3. ***Mixed fractions (mixed numbers)***

A fraction with a whole number together with proper fraction.

e.g.  $2\frac{1}{2}, 9\frac{3}{4}, 4\frac{7}{10}, \text{ etc}$

#### ***NOTE***

Given the fraction  $5\frac{3}{4}$

5 is a whole number

3 is a numerator

4 is a denominator

#### ***Activity***

Write proper, improper or mixed fraction in each of the following,

a)  $\frac{2}{3}$

b)  $\frac{1}{7}$

c)  $\frac{9}{4}$

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

e)  $\frac{8}{5}$

f)  $\frac{18}{4}$

g)  $1\frac{3}{4}$

h)  $\frac{4}{5}$

i)  $\frac{5}{2}$

j)  $4\frac{1}{2}$

k)  $\frac{3}{8}$

l)  $\frac{31}{6}$

m)  $3\frac{1}{3}$

n)  $\frac{8}{10}$

o)  $\frac{3}{13}$

#### **EVALUATION**

#### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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## **WEEK 6:**

### **PD 6**

#### **THEME: NUMERACY**

#### **TOPIC: FRACTIONS**

#### ***Equivalent fractions***

#### ***Examples***

1. Find the equivalent fractions for  $\frac{1}{2}$ .

$$\frac{1}{2} = \frac{1 \times 2}{2 \times 2}, \quad \frac{1 \times 3}{2 \times 3}, \quad \frac{1 \times 4}{2 \times 4}, \quad \frac{1 \times 5}{2 \times 5}$$

$$\frac{1}{2} = \frac{2}{3}, \quad \frac{3}{6}, \quad \frac{4}{8}, \quad \frac{5}{10}, \text{ etc}$$

2. Find the equivalent fractions for  $\frac{2}{5}$

1. Find the equivalent fractions for  $\frac{2}{5}$ .

$$\frac{2}{5} = \frac{2 \times 2}{5 \times 2}, \quad \frac{2 \times 3}{5 \times 3}, \quad \frac{2 \times 4}{5 \times 4}, \quad \frac{2 \times 5}{5 \times 5}, \quad \frac{2 \times 6}{5 \times 6}$$

$$\frac{2}{5} = \frac{4}{10}, \quad \frac{6}{15}, \quad \frac{8}{20}, \quad \frac{10}{25}, \quad \frac{12}{30}, \text{ etc}$$

#### **Activity**

Write the next four equivalent fractions for:

1.  $\frac{2}{3}$ , \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
2.  $\frac{1}{4}$ , \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
3.  $\frac{3}{8}$ , \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
4.  $\frac{1}{3}$ , \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
5.  $\frac{2}{11}$ , \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
6.  $\frac{1}{6}$ , \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
7.  $\frac{2}{9}$ , \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
8.  $\frac{3}{7}$ , \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

## **EVALUATION**

### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**WEEK 6:**

**PD 7**

**THEME: NUMERACY**

**TOPIC: FRACTIONS**

***Finding unknown is equivalent fractions***

***Examples***

1. Find the missing number in;

$$\frac{1}{2} = \frac{\square}{6}$$

$$\frac{1}{2} = \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}, \frac{6}{12}$$

$$\frac{1}{2} = \frac{3}{6}$$

$$\square = 3$$

2.  $\frac{3}{7} = \frac{9}{\square}$

$$\frac{3}{7} = \frac{6}{14}, \frac{9}{21}, \frac{12}{28}, \frac{15}{35}$$

$$\frac{3}{7} = \frac{9}{21}$$

$$\square = 21$$

***Activity***

Find the missing numbers

a)  $\frac{1}{7} = \frac{\square}{28}$

b)  $\frac{1}{2} = \frac{5}{\square}$

c)  $\frac{3}{8} = \frac{15}{\square}$

d)  $\frac{1}{3} = \frac{\square}{9}$

e)  $\frac{2}{3} = \frac{8}{\square}$

f)  $\frac{3}{4} = \frac{\square}{16}$

**EVALUATION**

***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**WEEK 6:**

**PD 8**

**THEME: NUMERACY**

**TOPIC: FRACTIONS**

***Reducing fractions***

***Examples***

1. Reduce  $\frac{8}{16}$  to its lowest terms

$$F_8 = \{1, 2, 4, 8\}$$

$$F_{16} = \{1, 2, 4, 8, 16\}$$

$$\text{GCF of 8 and 16} = 8$$

$$\frac{8}{16} \div \frac{8}{8} = \frac{1}{2}$$

$$\frac{8}{16} = \frac{1}{2}$$

2. Reduce  $\frac{10}{25}$  to its lowest terms

$$F_{10} = \{1, 2, 5, 10\}$$

$$F_{25} = \{1, 5, 25\}$$

$$\text{GCF of 10 and 25} = 5$$

$$\frac{10}{25} \div \frac{5}{5} = \frac{2}{5}$$

$$\frac{10}{25} = \frac{2}{5}$$

***Activity***

*Write the following fractions in their lowest terms.*

a)  $\frac{2}{6}$

b)  $\frac{6}{10}$

c)  $\frac{10}{30}$

d)  $\frac{10}{16}$

e)  $\frac{8}{10}$

f)  $\frac{8}{18}$

g)  $\frac{6}{18}$

h)  $\frac{15}{21}$

f)  $\frac{4}{12}$

j)  $\frac{15}{18}$

k)  $\frac{4}{16}$

l)  $\frac{25}{75}$

## EVALUATION

### Self Evaluation

Strong points:

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Weak points:

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Way forward:

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## WEEK 7:

### PD 1

### THEME: NUMERACY

### TOPIC: FRACTIONS

*Ordering fractions*

*Examples*

1. Arrange  $\frac{1}{4}$ ,  $\frac{1}{3}$ ,  $\frac{1}{2}$  in ascending order

LCM of 4, 3 and 2 = 12

$\frac{1}{4} \times 12$ ,  $\frac{1}{3} \times 12$ ,  $\frac{1}{2} \times 12$

$\frac{1 \times 3}{4}$        $\frac{1 \times 4}{3}$        $\frac{1 \times 6}{2}$

**Ascending order;  $\frac{1}{4}$ ,  $\frac{1}{3}$ ,  $\frac{1}{2}$**

2. Arrange  $\frac{5}{6}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$  in descending order

LCM of 6, 2 and 4 = 12

$\frac{5}{6} \times 12$ ,  $\frac{1}{2} \times 12$ ,  $\frac{3}{4} \times 12$

$\frac{5 \times 2}{6}$        $\frac{1 \times 6}{2}$        $\frac{3 \times 3}{4}$

**Descending order;  $\frac{5}{6}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$**

### **Activity**

Arrange the following fractions in descending order

a)  $\frac{1}{3}$ ,  $\frac{1}{2}$ ,  $\frac{1}{5}$

b)  $\frac{3}{8}$ ,  $\frac{15}{16}$ ,  $\frac{1}{4}$

c)  $\frac{3}{5}$ ,  $\frac{5}{10}$ ,  $\frac{3}{4}$

Arrange the following fractions in descending order.

a)  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{5}{6}$

b)  $\frac{1}{2}$ ,  $\frac{2}{3}$ ,  $\frac{1}{6}$

c)  $\frac{2}{3}$  ,  $\frac{5}{6}$  ,  $\frac{1}{2}$  ,  $\frac{7}{8}$

## EVALUATION

### *Self Evaluation*

Strong points:

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Weak points:

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Way forward:

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## WEEK 7:

### PD 2

### THEME: NUMERACY

### TOPIC: FRACTIONS

### *Changing mixed numbers to improper fractions*

#### *Examples*

1. Change  $1\frac{1}{2}$  to improper fractions

$$\begin{aligned} 1\frac{1}{2} &= \frac{(D \times W) + N}{D} \\ &= \frac{(2 \times 1) + 1}{2} \\ &= \frac{2 + 1}{2} \\ &= \frac{3}{2} \end{aligned}$$

2. Express  $2\frac{3}{5}$  as improper fraction

$$\begin{aligned} 2\frac{3}{5} &= \frac{(D \times W) + N}{D} \\ &= \frac{(5 \times 2) + 3}{5} \\ &= \frac{10 + 3}{5} \\ &= \frac{13}{5} \end{aligned}$$

#### Activity

Write the following fractions as improper fractions

a)  $1\frac{1}{5}$                       b)  $3\frac{2}{3}$                       c)  $13\frac{1}{2}$                       d)  $2\frac{2}{3}$

e)  $4\frac{3}{4}$                       f)  $10\frac{3}{10}$                       g)  $4\frac{1}{3}$                       h)  $1\frac{5}{7}$



i)  $3\frac{4}{5}$

j)  $12\frac{1}{4}$

**EVALUATION****Self Evaluation**

Strong points:

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 Weak points:

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 Way forward:
 

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**WEEK 7:****PD 3****THEME: NUMERACY****TOPIC: FRACTIONS****Changing improper fractions to mixed fractions/numbers  
Examples**

1. Change
- $\frac{5}{2}$
- to a mixed number

$$\frac{5}{2} = \begin{array}{r} 2 \overline{) 5} \end{array}$$

$$2 \times 2 = \frac{4}{1}$$

$$\frac{5}{2} = 2\frac{1}{2}$$

2. Change
- $\frac{7}{3}$
- as a mixed number

$$\frac{7}{3} = \begin{array}{r} 2 \overline{) 7} \end{array}$$

$$2 \times 3 = \frac{6}{1}$$

$$\frac{7}{3} = 2\frac{1}{3}$$

**Activity****Change the following improper fractions to mixed fractions (number)**

a)  $\frac{7}{5}$

b)  $\frac{17}{5}$

c)  $\frac{7}{2}$

d)  $\frac{21}{5}$

e)  $\frac{10}{3}$

f)  $\frac{13}{7}$

g)  $\frac{17}{3}$

i)  $\frac{14}{5}$

j)  $\frac{12}{7}$

**EVALUATION**

## ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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### **WEEK 7:**

#### **PD 4**

#### **THEME: NUMERACY**

#### **TOPIC: FRACTIONS**

#### ***Addition of fractions with same denominations***

##### **Examples**

1. Add:  $\frac{1}{5} + \frac{2}{5}$

$$\frac{1}{5} + \frac{2}{5} = \frac{1 + 2}{5}$$
$$= \frac{3}{5}$$

2. Add:  $\frac{5}{8} + \frac{1}{8}$

$$\frac{5}{8} + \frac{1}{8} = \frac{5 + 1}{8}$$
$$= \frac{6}{8} \div \frac{2}{2} \quad \text{G.C.F of 6 and 8} = 2$$
$$= \frac{3}{4}$$

#### ***Activity***

***Add the following fractions***

a)  $\frac{1}{6} + \frac{4}{6}$

b)  $\frac{4}{9} + \frac{1}{9}$

c)  $\frac{3}{7} + \frac{4}{7}$

d)  $\frac{3}{20} + \frac{5}{20}$

e)  $\frac{1}{15} + \frac{4}{15}$

f)  $\frac{1}{8} + \frac{6}{8}$

## **Word problems in addition**

### **Examples**

1. John dug  $\frac{1}{6}$  of the garden and Mary dug  $\frac{4}{6}$  of the garden.  
What part of the garden was dug?

$$\text{Joan and Mary dug } \frac{1}{6} + \frac{4}{6}$$

$$\text{Altogether: } \frac{1}{6} + \frac{4}{6} = \frac{1+4}{6}$$

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

### **Activity**

1. Kadodi ate  $\frac{1}{3}$  of fish for lunch and another  $\frac{1}{3}$  of the fish for supper. What fraction of the fish did Kadodi?
2. What is the sum of  $\frac{2}{3}$  and  $\frac{3}{8}$ ?
3. Magogo read  $\frac{4}{7}$  of a book on Monday and  $\frac{2}{7}$  of it on Tuesday. What fraction of the book did he read altogether?

## **EVALUATION**

### **Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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## **WEEK 7:**

### **PD 6**

### **THEME: NUMERACY**

### **TOPIC: FRACTIONS**

## **Subtraction of fractions with the same denominators**

### **Examples**

1. Subtract:  $\frac{7}{12} - \frac{1}{12}$
- $$\frac{7}{12} - \frac{1}{12} = \frac{7-1}{12}$$
- $$= \frac{6}{12} \div 6$$
- $$= \frac{1}{2}$$

### **Activity**

Subtract the following fractions

a)  $\frac{4}{4} - \frac{1}{4}$

b)  $\frac{8}{9} - \frac{3}{9}$

c)  $\frac{9}{13} - \frac{5}{13}$

### Word problems

#### Examples

1. Subtract  $\frac{2}{5}$  from  $\frac{4}{5}$

$$\frac{4}{5} - \frac{2}{5} = \frac{4-2}{5}$$
$$= \frac{2}{5}$$

2. Andrew had  $\frac{7}{9}$  of a cake. He ate  $\frac{5}{9}$  of it. What fraction remained?

$$\frac{7}{9} - \frac{5}{9} = \frac{7-5}{9}$$
$$= \frac{2}{9}$$

### Activity

1. Subtract  $\frac{2}{7}$  from  $\frac{5}{7}$
2. What must be added to  $\frac{5}{11}$  to make  $\frac{9}{11}$ ?
3. What remains if  $\frac{7}{15}$  is subtracted from  $\frac{13}{15}$ ?
4. I read  $\frac{2}{5}$  of a mathematics book. What fraction was left?
5. A water tank was  $\frac{7}{8}$  full. He used  $\frac{4}{8}$  of the water. What fraction was left?

### EVALUATION

#### **Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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### WEEK 7:

#### PD 8

#### THEME: NUMERACY

#### TOPIC: FRACTIONS

#### *Mixed numbers (Addition & subtraction)*

#### Examples

1. Add:  $2\frac{1}{7} + 3\frac{5}{7} = (2+3) + \frac{1}{7} + \frac{5}{7}$

$$= 5 + \frac{(1+5)}{7}$$

$$\begin{aligned}
 &= 5 + \frac{6}{7} \\
 &= 5 \frac{6}{7}
 \end{aligned}$$

$$\begin{aligned}
 \text{OR } 2 \frac{1}{7} + 3 \frac{5}{7} &= \frac{15}{7} + \frac{26}{7} \\
 &= \frac{15 + 26}{7} \\
 &= \frac{41}{7} \\
 &= 5 \frac{6}{7}
 \end{aligned}$$

$$\begin{aligned}
 \text{2. Subtract: } 4 \frac{3}{4} - 1 \frac{1}{4} \\
 &= (4 - 1) + (\frac{3}{4} - \frac{1}{4}) \\
 &= 3 + \frac{(3 - 1)}{4} \\
 &= 3 + \frac{2}{4} \\
 &= 3 + \frac{1}{2} \\
 &= 3 \frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 \text{OR } 4 \frac{3}{4} - 1 \frac{1}{4} \\
 &= \frac{19}{4} - \frac{5}{4} \\
 &= \frac{19 - 5}{4} \\
 &= \frac{14}{4} \\
 &= 3 \frac{2}{4} \\
 &= 3 \frac{1}{2}
 \end{aligned}$$

### Activity

Work out the following:

- a)  $2 \frac{2}{3} + 1 \frac{1}{3}$                       b)  $3 \frac{1}{3} + 4 \frac{1}{3}$                       c)  $2 \frac{1}{2} - 1 \frac{1}{2}$   
 d)  $6 \frac{3}{5} - 3 \frac{1}{5}$                       e)  $4 \frac{2}{3} - 1 \frac{1}{3}$   
 f) Lydia had  $8 \frac{1}{8}$  kg of beans and brought  $7 \frac{4}{9}$  kg more. How many kg of beans does she have altogether?  
 g) The length of a rope was  $9 \frac{4}{5}$  m. If the rat ate  $3 \frac{1}{5}$  m, what was the length of the rope that remained?

### EVALUATION

#### Self Evaluation

Strong points: \_\_\_\_\_

Weak points: \_\_\_\_\_

Way forward: \_\_\_\_\_

### WEEK 8:

**PD 1****THEME: NUMERACY****TOPIC: FRACTIONS*****Multiplication of a fraction by a fraction******Examples***

$$\frac{1}{5} \times \frac{2}{3} = \frac{1}{5} \times \frac{2}{3}$$

$$= \frac{2}{15}$$

$$\frac{3}{4} \times \frac{2}{9} = \frac{3}{4} \times \frac{2}{9}$$

$$= \frac{6}{36} \div \frac{6}{6}$$

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

***Activity******Multiply the following fractions***

$$\text{a) } \frac{2}{3} \times \frac{1}{2} \quad \text{b) } \frac{2}{5} \times \frac{5}{6} \quad \text{c) } \frac{1}{2} \times \frac{1}{2}$$

$$\text{d) } \frac{3}{7} \times \frac{2}{3} \quad \text{e) } \frac{1}{3} \times \frac{1}{2} \quad \text{f) } \frac{3}{4} \times \frac{2}{5}$$

***Multiplication of a fraction by a whole number******Examples***

$$1. \quad \text{Multiply: } \frac{1}{2} \times 12$$

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

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

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

$$= \mathbf{6}$$

$$\text{OR } \frac{1}{2} \times 12 \quad \left\| \quad \frac{1}{2} \times \overset{6}{12}\right.$$

$$= \frac{1}{6} \times 6 \quad \left\| \quad 1 \times 6\right.$$

$$\qquad \qquad \qquad 6$$

$$2. \quad \text{Multiply: } \frac{2}{3} \times 15$$

$$\frac{2}{3} \times \frac{15}{1} = \frac{2}{3} \times \frac{15}{1}$$

$$\begin{aligned}
 3 \times 1 &= \frac{3}{3} \times \frac{1}{3} \\
 &= \frac{10}{1} \\
 &= \underline{\underline{10}}
 \end{aligned}$$

$$\begin{aligned}
 \text{OR } \frac{2}{3} \times 15 &= 2 \times 5 \\
 &= \underline{\underline{10}}
 \end{aligned}$$

### **Activity**

Work out the following:

$$\begin{array}{lll}
 \text{a) } \frac{2}{5} \times 18 & \text{b) } \frac{4}{5} \times 25 & \text{c) } \frac{1}{2} \times 10
 \end{array}$$

### **EVALUATION**

#### **Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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### **WEEK 8:**

#### **PD 2**

#### **THEME: NUMERACY**

#### **TOPIC: FRACTIONS**

#### **Application of fraction**

##### **Examples**

- What is  $\frac{2}{3}$  of 36 oranges  
 $= \frac{2}{3} \times 36$  oranges  
 $= 2 \times 12$  oranges  
 $= 24$  oranges.
- In a class of 40 pupils,  $\frac{1}{4}$  were boys and the rest were girls.  
 a) Find the fraction of girls.

$$\begin{aligned}
 \text{Fraction of girls} &= 1 - \frac{1}{4} \\
 &= \frac{4}{4} - \frac{1}{4} \\
 &= \frac{4 - 1}{4}
 \end{aligned}$$

$$= \frac{3}{4}$$

b) How many boys were in the class?

$$\begin{aligned} \text{Fraction of boys} &= \frac{1}{4} \\ \text{Number of boys} &= \frac{1}{4} \times 40 \text{ pupils} \\ &= \underline{10 \text{ pupils}} \end{aligned}$$

c) Find the number of girls in the class.

$$\begin{aligned} \text{Fraction of girls} &= \frac{3}{4} \\ \text{Number of girls} &= \frac{3}{4} \times 40 \text{ pupils} \\ &= 3 \times 10 \\ &= \underline{30 \text{ girls}} \end{aligned}$$

### Activity

1. What is  $\frac{1}{3}$  of 12?
2. Find  $\frac{3}{4}$  of 16 hens
3. In a class of 336 pupils,  $\frac{1}{3}$  were absent and the rest were present.
  - a) What fraction of the class were present?
  - b) How many pupils were absent?
  - c) Find the number of pupils present.
  - d) How many more pupils were present than absent?

### EVALUATION

#### Self Evaluation

Strong points:

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Weak points:

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Way forward:

### WEEK 8:

#### PD 3

#### THEME: NUMERACY

#### TOPIC: FRACTIONS (DECIMALS)

#### Place Values of Decimals

##### Examples

1. What is the place value of each digit in the number 5.63?

Ones	Tenths	Hundredths
5	6	3

|  
Ones

|  
Tenths

|  
Hundredths

2. What is the place value of 5 in the number 17.35?

1	7	.	3	5
				Hundredths
			Tenths	



**Activity**

- Find the place value of each digit in the number.
  - 0.2
  - 6.38
  - 49.15
  - 30.248
- Find the place value of the underlined digits in the number.
  - 45.01
  4. 56
  - 246.8
  - 639.25
  - 15.37
- Find the place value of 3 in the number 2.03.
  - What is the place value of 8 in the number 6.8.

**EVALUATION****Self Evaluation**

Strong points:

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Weak points:

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Way forward:

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**WEEK 8:****PD 4****THEME: NUMERACY****TOPIC: FRACTIONS (DECIMALS)****Values of Decimals**Examples

- What is the value of each digit in the number 18.36?

Soln:

Tens	Ones tenths	Tenths	Hundredths
1	8	3	6
↓	↓	↓	↓
1 tens $1 \times 10$ <u>10</u>	8 ones $8 \times 1$ <u>8</u>	3 tenths $3 \times \underline{10}$ $3 \times 0.1$ <u>0.3</u>	6 Hundredths $6 \times \underline{100}$ $6 \times 0.01$ <u>0.06</u>

- What is the value of 8 in the number 23.58?

Soln:

Tens	Ones	Tenths	Hundredths
2	3	5	8

↓  
8 hundredths

$$8 \times \frac{1}{100}$$

$$8 \times 0.01$$

$$\underline{0.08}$$

3. Find the value of the underlined digit in the number 84.9.

*Soln*

Tens	Ones	Tenths
8	4	9

↓  
8 tens  
 $8 \times 10$   
80

### **Activity:**

- Find the place value of each digit number.  
a) 3.28      b) 27.56      c) 209.76
- What is the value of the underlined digit in the numbers below.  
a) 2.86      ii) 45.9      iii) 74. 06
- Work out the value of 2 in the number 10.52.
- What is the value of 9 in the number 6.29?
- Find the value of 4 in the number 2.46.
- Find the value of 3 in the number 17.83.

### **EVALUATION**

#### **Self Evaluation**

Strong points:

Weak points:

Way forward:

**WEEK 8:**

**PD 7**

**THEME: NUMERACY**

**TOPIC: FRACTIONS (DECIMALS)**

### **Writing decimals in words.**

#### **Examples**

1. Write 0.3 in words  
Soln: 0.3 = Zero point three  
= Three tenths
2. Write 4.8 in words.  
Soln: 4.8 = Four point eight  
= Four and eight tenths
3. Write 12.5 in words.  
Soln: 12.5 = Twelve point five  
= Twelve and five tenths.
4. What is 102.48 in words?  
Soln: 102.48 = One hundred two point four eight.  
= One hundred two and forty eight hundredths.

#### **Activity**

Write the following decimals in words.

- |          |         |          |         |          |
|----------|---------|----------|---------|----------|
| a) 2.3   | b) 34.9 | c) 217.5 | d) 6.87 | e) 48.93 |
| f) 0.8   | g) 14.4 | h) 23.56 | i) 5.01 | j) 7.14  |
| k) 80.69 | l) 47.9 | m) 3.3   | n) 1.43 | o) 0.08  |

### **EVALUATION**

#### ***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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### **WEEK 8:**

#### **PD 8**

#### **THEME: NUMERACY**

#### **TOPIC: FRACTIONS (DECIMALS)**

### **Writing decimals in figures.**

#### **Examples**

1. Write four and three tenths in figures.  
Soln: Four = 4  
Three tenths = 0.3

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Four and three tenths	4.3
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2. Write nine hundredths in figures.  
*Soln:* Nine hundredths =  $9 \times 0.01$   
 $= \underline{0.09}$
3. Write twenty seven and six tenths in figures.  
*Soln:* Twenty seven = 27  
Six tenths = 0.6  
Twenty seven and six tenths =  $\underline{27.6}$

### Activity:

Write the following in figures.

- a) Eighteen and six tenths
- b) Thirteen and four tenths.
- c) Five and twelve hundredths.
- d) One and fourteen hundredths
- c) Six and nine tenths.
- e) Thirty three and three tenths.
- f) Twenty and five hundredths.
- g) Two hundred ten and one tenths.
- h) Eleven and eleven hundredths.
- i) Sixteen point zero seven.

## EVALUATION

## Self Evaluation

Strong points:

Weak points:

Way forward:

## WEEK 9:

## PD 1

**THEME: NUMERACY**

**TOPIC: FRACTIONS (DECIMALS)**

Changing /converting vulgar/common fractions to decimal fractions.


## Examples

1. Write  $\frac{8}{10}$  as a decimal fraction.

Soln:

$$\begin{array}{r}
 10 \overline{) 0.8} \\
 \underline{- 0.8} \phantom{0} \\
 0 \phantom{0}
 \end{array}
 \quad \therefore 8/10 = 0.8$$

2. What is  $\frac{1}{2}$  as a decimal fraction?

Soln:  68

$$\begin{array}{r}
 1/2 = \quad 2 \ 1.0 \\
 \quad \quad - \underline{0} \\
 \quad \quad \quad 1 \ 0 \\
 \quad \quad - \underline{1 \ 0} \\
 \quad \quad \quad \quad 0 \ 0
 \end{array}
 \quad \therefore \quad 1/2 = 0.5$$

3. Change  $1/4$  to a decimal fraction.

$$\begin{array}{r}
 \text{Soln:} \\
 1/4 = \quad \begin{array}{r} 0.25 \\ 2 \overline{) 1.00} \\ \underline{- 0} \phantom{0} \downarrow \\ 1 \ 0 \phantom{0} \downarrow \\ \underline{- 8} \phantom{0} \downarrow \\ 20 \\ \underline{- 20} \\ 00 \end{array}
 \end{array}
 \quad \therefore \quad 1/4 = 0.25$$

### Activity

Change the following fractions to decimals.

- a)  $\frac{2}{5}$       b)  $\frac{3}{4}$       c)  $\frac{4}{10}$       d)  $\frac{3}{8}$       e)  $\frac{2}{4}$       f)  $\frac{3}{10}$       g)  $\frac{1}{5}$   
 h)  $\frac{25}{10}$       i)  $\frac{55}{100}$       j)  $\frac{7}{10}$       k)  $\frac{11}{10}$       l)  $\frac{5}{8}$       m)  $\frac{1}{8}$

### EVALUATION

#### Self Evaluation

Strong points:

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Weak points:

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Way forward:

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### WEEK 9:

#### PD 2

#### THEME: NUMERACY

#### TOPIC: FRACTIONS (DECIMALS)

Changing /converting mixed fractions to decimal fractions.

Examples

1. Express  $3 \frac{2}{10}$  as a decimal fraction.

$$\begin{aligned}
 \text{Soln: } 3 \frac{2}{10} &= 3 + \frac{2}{10} \\
 &= 3 + 10 \overline{) 2.0} \\
 &\quad \quad \quad \begin{array}{r} 0.2 \\ \underline{- 0} \downarrow \end{array}
 \end{aligned}$$

$$\begin{array}{r} 20 \\ -20 \\ \hline 00 \end{array}$$

$$\begin{array}{l} = 3 + 0.2 \\ = \underline{\underline{3.2}} \end{array} \quad \parallel \quad \begin{array}{r} \text{sw} \\ 3. \\ + 0.2 \\ \hline \underline{\underline{3.2}} \end{array}$$

**Activity:**

Change the following fractions to decimal fractions.

- a)  $4 \frac{6}{10}$                       b)  $12 \frac{4}{10}$                       c)  $4 \frac{4}{10}$
- d)  $4 \frac{15}{100}$                       e)  $5 \frac{3}{100}$                       f)  $3 \frac{3}{10}$
- g)  $2 \frac{1}{10}$                       h)  $11 \frac{9}{1}$                       i)  $6 \frac{5}{100}$

**EVALUATION**

***Self Evaluation***

Strong points:

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Weak points:

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Way forward:

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**WEEK 9:**

**PD 3**

**THEME: NUMERACY**

**TOPIC: FRACTIONS (DECIMALS)**

**Changing decimal fractions to common fraction**

**Examples**

1. Express 0.6 as a vulgar fraction.

$$\text{Soln: } 0.6 = \frac{0.6 \times 10}{1 \times 10}$$

$$= \frac{6}{10} \quad \text{OR} \quad \frac{6 \div 2}{10 \div 2} = \frac{3}{5}$$

2. Convert 1.2 to a common fraction.

$$\text{Soln: } 1.2 = \frac{1.2 \times 10}{1 \times 10}$$

$$= \frac{12}{10} \div 2$$

$$= \frac{12}{10} \div 2$$

$$= 6 \quad \begin{array}{r} 1 \\ 5 \overline{) 6} \\ \underline{70} \end{array}$$

$$\begin{array}{r} -5 \\ 1 \\ \hline \therefore \frac{6}{5} = 1 \frac{1}{5} \end{array}$$

### Activity

**Change the following decimals to fractions**

- a) 0.2      b) 1.3      c) 1.4      d) 0.5      e) 0.25  
f) 1.8      g) 0.75      h) 0.6      i) 0.7      j) 1.1      k) 0.8

### EVALUATION

#### Self Evaluation

Strong points:

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Weak points:

---

Way forward:

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### WEEK 9:

#### PD 4

#### THEME: NUMERACY

#### TOPIC: FRACTIONS (DECIMALS)

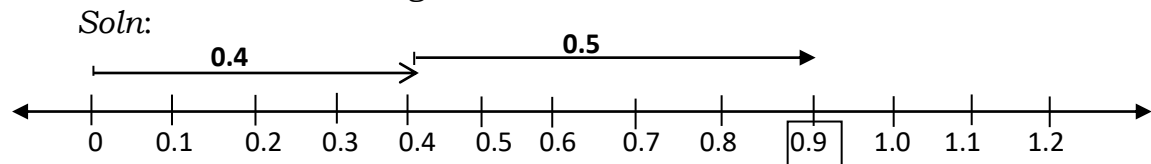
#### Addition of decimals

##### **Examples**

1. Add  $0.5 + 0.7$

$$\begin{array}{r} \text{Soln: } 0.5 \\ + 0.7 \\ \hline 1.2 \end{array}$$

2. Add:  $0.4 + 0.5$  using a number line.



$$\therefore \underline{0.4 + 0.5 = 0.9}$$

3. A baby drank 1.4 litres of milk on Monday and 1.6 litres on Tuesday. How many litres of milk did the baby drink altogether?

$$\begin{array}{r} \text{Soln: } 1.4 \text{ litres} \\ + 1.6 \text{ litres} \\ \hline 3.0 \text{ litres} \end{array}$$

**Exercise**

- Add the following decimals without using a number line.  
a)  $0.2 + 0.6$       b)  $1.4 + 2.8$       c)  $4.3 + 2.5 + 0.9$
- Add the following using a number line.  
a)  $0.3 + 0.4$       b)  $0.1 + 0.5$       c)  $0.6 + 0.2$
- What is the sum of 2.3 and 4.8?
  - Cathy was given 2.6kg of sugar and Mercy was given 1.7 kg of sugar. How much sugar did they get altogether?
  - Max bought 3.8 metres of ribbon. Mark bought 4.7 metres of ribbon. What length of ribbon do they have altogether?
  - A rectangular flower garden measures 7.3 metres by 4.7 metres. What is the distance round it altogether?

**EVALUATION*****Self Evaluation***

Strong points:

---

Weak points:

---

Way forward:

---

**WEEK 9:****PD 5****THEME: NUMERACY****TOPIC: FRACTIONS (DECIMALS)****SUBTRACTION OF DECIMALS****Examples**

1. Subtract:
- $2.3 - 0.9$

$$\begin{array}{r} \text{Soln: } \overset{1}{\cancel{2}}.\overset{13}{\cancel{3}} \\ - 0.9 \\ \hline 1.4 \end{array}$$

2. Leticia had 19.2 metres of cloth, she sold 13.5 metres, what length of cloth did she remain with?

$$\begin{array}{r} \text{Soln: } \overset{8}{\cancel{19}}.\overset{12}{\cancel{2}} \text{ metres} \\ - 13.5 \text{ metres} \\ \hline 5.7 \text{ metres} \end{array}$$

**Exercise**

1. Work out the following.



a)  $3.4 - 1.5$                       b)  $7.8 - 3.8$                       c)  $6.4 - 2.9$

d)  $6.3 - 1.9$                       e)  $2.7 - 1.3$

2. a) Derrick bought 12 litres of milk, he gave away 5.5 litres, how many litres of milk did he remain with?
- b) A boy cycles 8.2 km from his home to school. If he cycles 4.7km and then rests. How many km remained to reach school?
- c) A maid made 5.2 litres of juice, she served 2.8 litres, how much litres of juice remained?
- d) What is the difference between 14.3 and 6.9?

## EVALUATIONS

### *Self Evaluation*

Strong points:

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Weak points:

---

Way forward:

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## WEEK 9:

### PD 6

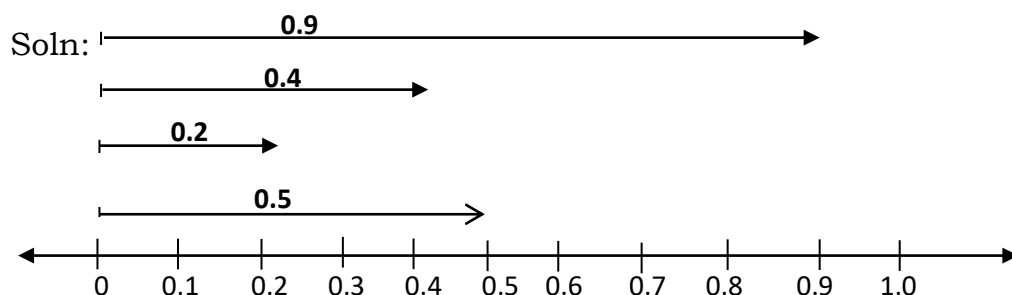
### THEME: NUMERACY

### TOPIC: FRACTIONS (DECIMALS)

### ORDERING DECIMAL FRACTIONS (Arranging fraction according to their size)

#### Examples

1. Arrange 0.6 , 0.2 and 0.4 in ascending order (starting with the smallest)



The order is 0.9, 0.5, 0.4, 0.2

**Exercise**

1. Arrange the following in ascending order.  
a) 0.7, 0.3, 0.4, 0.5                      b) 0.3, 0.8, 0.5, 0.2  
c) 0.2, 2, 0.02, 2.2                      d) 0.3, 0.7, 0.6, and 0.9
2. Arrange the following decimals in descending order.  
a) 0.4, 0.1, 0.7, 0.6                      b) 1.2, 2.3, 1.8 and 2.0  
c) 0.8, 0.3, 0.5, 0.2                      d) 0.5, 0.8, 0.2, 0.4

**EVALUATION**

***Self Evaluation***

Strong points:

---

Weak points:

---

Way forward:

---

**GRAPHS AND INTERPRETATION OF DATA**





Pictographs are also called picture-graphs.


Pictographs are graphs which show number or amount of different things for people, classes, animals e.t.c

On pictographs we usually use symbols to represent the data on the graph.

**Example**

The pictograph below shows the number of trees each farmer has.

Okullo	
Kambe	
Kizito	
Mulabi	

Scale  
 = 10 trees

### **Questions**

a) How many trees does Kizito have?

$$\begin{aligned}\text{Number of trees} &= 6 \times 10 \text{ trees} \\ &= 60 \text{ trees}\end{aligned}$$

b) Find the sum of Kizito's trees and Kambe's trees

$$\begin{array}{rclcl} \text{Kizito} & = & 6 \times 10 \text{ trees} & = & 60 \text{ trees} \\ \text{Kambe} & = & 3 \times 10 \text{ trees} & = & + \underline{30 \text{ trees}} \\ & & & & 90 \text{ trees} \end{array}$$

c) Who has the biggest number of trees?


















Kizito


d) Find the difference between Mulabi's trees and Okullo's trees.

$$\begin{array}{rclcl} \text{Mulabi} & = & 5 \times 10 \text{ trees} & = & 50 \text{ trees} \\ \text{Okullo} & = & 2 \times 10 \text{ trees} & = & - \underline{20 \text{ trees}} \\ & & & & 30 \text{ trees} \end{array}$$

### **Exercise**

1. The graph below shows the number of balls picked by four sisters from a shop.

Doreen	     
Diana	  
Daphine	    
Daizy	  

Scale  
 Represents 5 balls




























### **Questions**

a) Which two sisters picked the same number of balls?

b) Who picked the largest number of balls?

- c) How many balls did Doreen pick?
- d) How many balls did Diana & Daphine pick?
- e) Find the difference between Daphine's balls and Daizy's balls.
- f) Find the sum of the highest number of balls picked and the lowest number of balls picked.
- g) Work out the total number of balls that were picked by the four girls.

2. The pictograph below shows the apples imported from South Africa. Study and answer the questions that follows.

Mon	    
Tue	     
Wed	   
Thur	   
Fri	       

Scale:  represents 20 apples

### **Questions**





- a) How many apples were imported on Monday?
- b) How many apples were imported on Wednesday and Thursday?
- c) How many more apples were imported on Friday than Tuesday?
- d) How many apples were imported on Monday, Tuesday and Friday?
- e) On which days were the same number of apples imported?
- f) On which day were the highest number of apples imported.
- g) On which day were the least number of apples imported?

### **TALLIES & BAR GRAPHS**

To draw graphs we first collect information.

We may draw tally marks and use them to count and group things in fives.

#### **Example:**


 One     
  two     
  three     
  five

**N.B:**

For each fifth item that we count we make a line across the first four.

**Example:**

 Five

 Eleven

 Fifteen

**TALLY GRAPHS****Example III**

Pupils were told to count the number of cars of different colours which passed by their school during break time for 5 days. The information is shown below.

Days of the week	White	Red	Black	Maroon
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				

**Questions:**

- How many cars were seen on Monday?  
17 cars
- How many white cars were seen on Thursday and Friday?  
 Thursday:      6 cars  
 Friday:      + 20 cars  
               26 cars
- Which colour appeared most?  
White
- What is the sum of all white cars?  
48 cars
- How many maroon cars were seen on Wednesday?  
5cars.

**Exercise**

A school boy recorded the number of white cars that passed near his home in one week.

Days of the week	Number of white cars
Monday	/// /// ///
Tuesday	/// /// /// ///
Wednesday	/// ///
Thursday	/// /// /// /// //
Friday	/// ///
Saturday	/// /// /// /// /// ///
Sunday	/// //

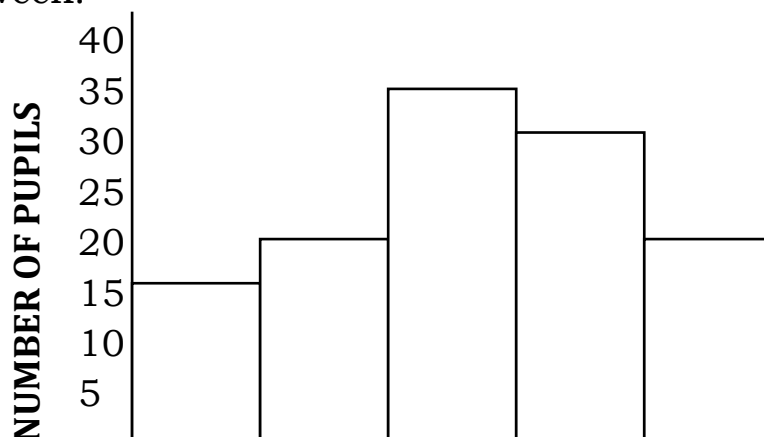
### **Questions**

- How many cars were recorded in the first two days of the week?
- Which day did he record the largest number of cars?
- How many cars were recorded on Friday, Saturday and Sunday?
- What is the different between the largest and the smallest number of cars recorded that week?
- On which days were the same number of cars recorded?
- What is the total number of cars for the first three days?
- What is the total number of cars for the last three days of the week?
- What was the most common number of cars?

### **BAR GRAPHS**

#### **Example**

The graph below shows the daily attendance of P.4 pupils for a week.



0

MON TUE WED THUR FRI  
**DAYS OF THE WEEK**

- a) How many pupils were present on Thursday?  
30 pupils
- b) On which day were the same number of pupils present?  
Tuesday and Friday
- c) Find the difference between the highest and the lowest number of pupils in the class.

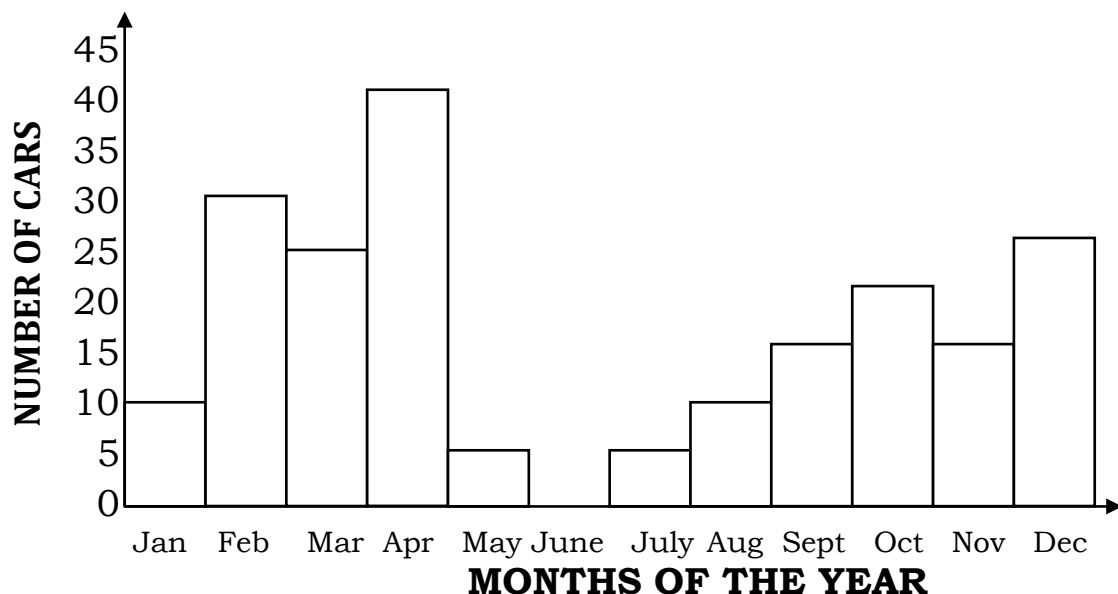
$$\begin{array}{r} 35 \text{ pupils} \\ - 15 \text{ pupils} \\ \hline 20 \text{ pupils} \end{array}$$

- d) How many pupils came on the first 3 days?

Mon	15	
Tue	20	
Wed	+	35
		<hr/>
		70 pupils

**Exercise:**

1. The graph below shows the number of cars sold by Mr. Nyonjo at his garage.



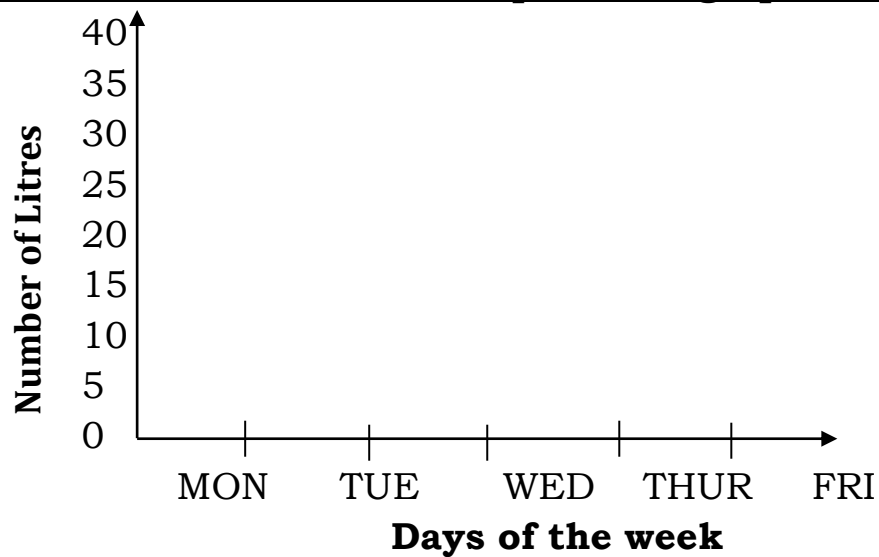
**Questions:**

- How many cars were sold in March?
- In which month did Nyonjo sell no car?
- Which month had the highest number of cars sold?
- How many more cars were sold in January than in May?
- How many cars were sold in the first six months of the year?
- How many cars were sold in the twelve months?

2. A school gives out milk to children as shown below.

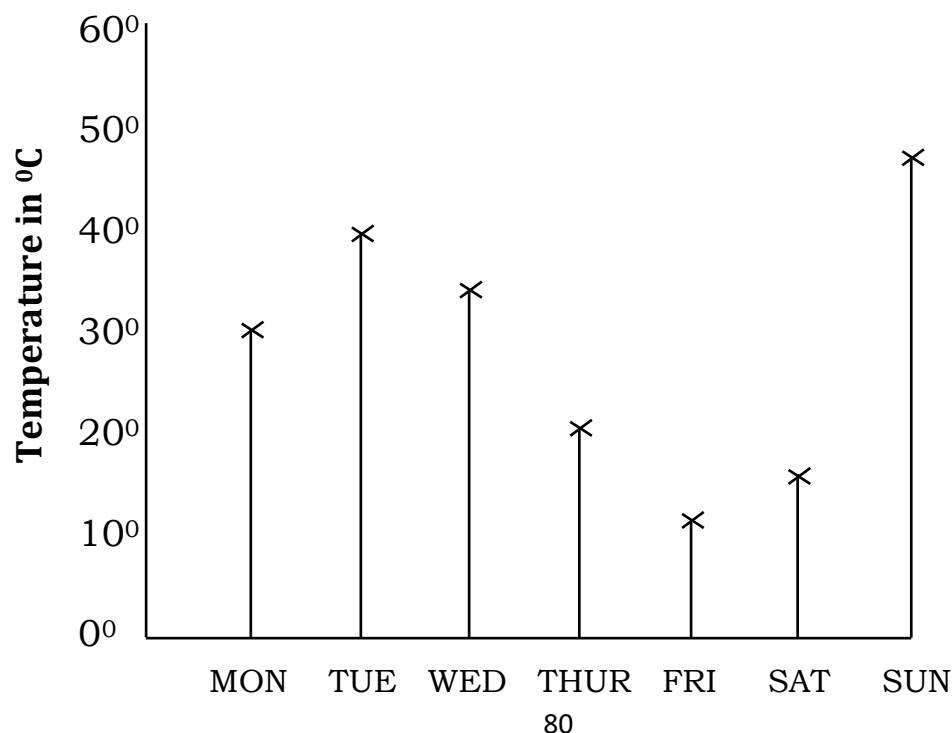
Day	MON	TUE	WED	THUR	FRI
Number of litres	20	15	40	10	25

**Use the table above to complete the graph below.**



### **LINE GRAPH**

1. The graph below shows the temperature on different days of the week.

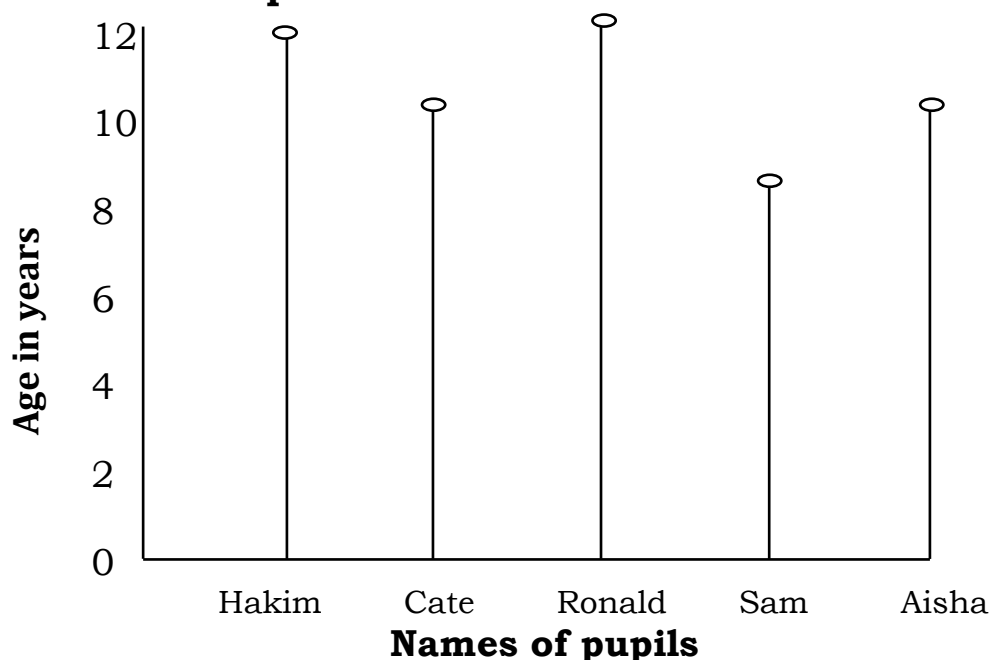




### Days of the week

- a) Which was the hottest day of the month?
- b) What was the temperature on Tuesday?
- c) What is the total temperature on the first three days of the week?
- d) What was the maximum temperature during the week?
- e) What was the minimum temperature during the week?

**2. The graph below represent the age of 5 pupils. Study it and answer the questions that follow.**



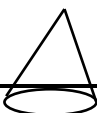
### Questions

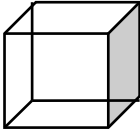
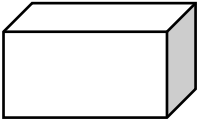

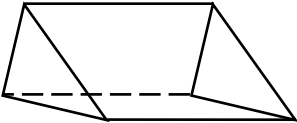
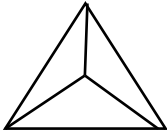

- a) Name the pupils with the same age.
- b) How old is the youngest pupil?
- c) How old is Aisha?
- d) Who is 10 years old?
- e) How old is Ronald than Sam?

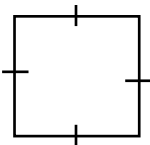
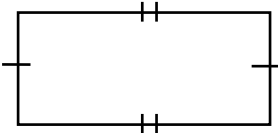
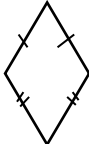
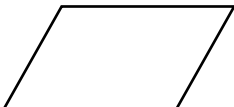

### GEOMETRY

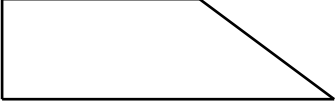
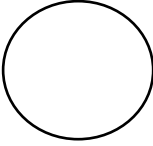
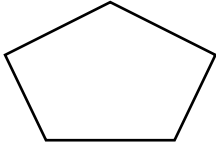

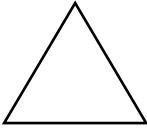
#### Solid shapes

These are shapes which have faces, edges, vertices (corners). These include; cone, cubes, cuboids, cylinder, triangular pyramid (tetrahedron), square or rectangular pyramid.

Geometric solid shapes	Name
	Cone / circular pyramid

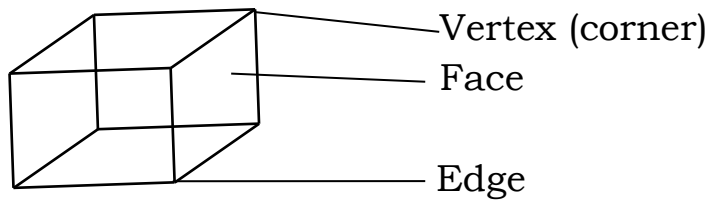
	Cube / square prism
	Cuboid / rectangular prism
	Cylinder / circular prism
	Triangular prism
	Triangular pyramid /tetrahedron
	Rectangular and square pyramid

Other shapes	Name
	Square
	Rectangle
	Kite
	Rhombus
	Parallelogram

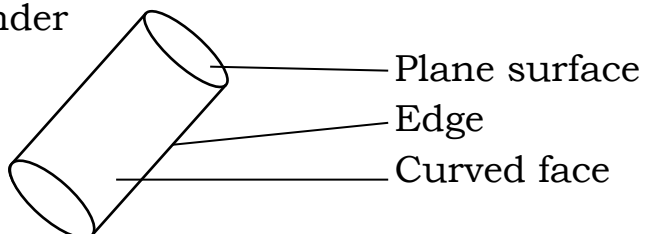
	Trapezium
	Circle
	Pentagon
	Hexagon
	Triangle

### Naming parts of solid figures

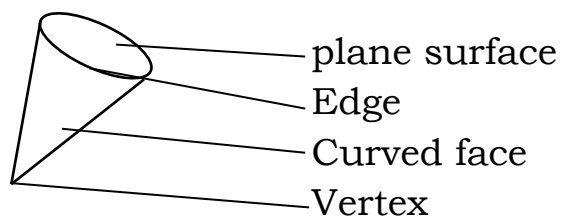
Cube



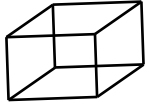

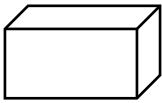
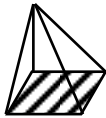
Cylinder



Cone



### **Activity**

Solid shape	Name	No. of faces	No of vertices	No of edges
				
				
				
				

### **CIRCLE**

#### **Making a circle**

Bending the stick

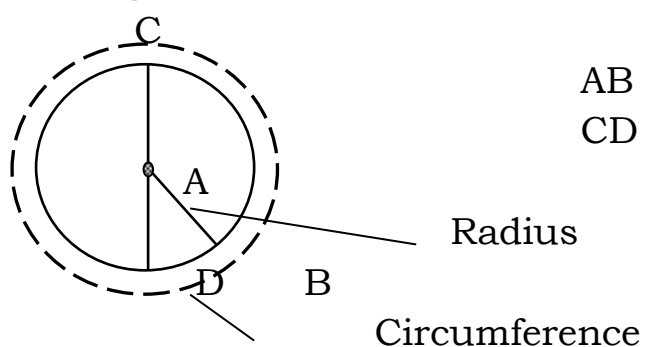
Fibre

By turning round a big toe

A pair of compasses

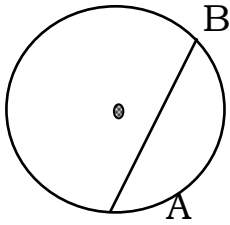
#### **Parts of a circle**

Naming diameter, radius and circumference.



AB is the radius

CD is the diameter



AB is not the diameter because it doesn't pass through the centre.  
AB is called a chord.

### Circumference

Is the distance around the circle.

### A radius

Is a line which starts from the centre to the edge of the circle.

### Diameter

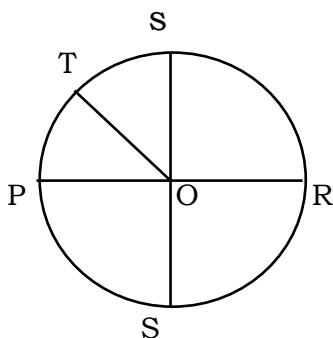
Is a straight line from one side of a circle to the other passing through the centre.

### A chord

Is any straight line drawn across a circle.

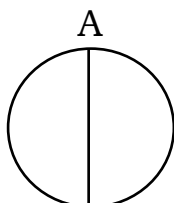
### Activity

1. Study the circle below.



- Name the part of a circle marked O.
- Name all the radius shown on the circle,
- Name all the diameter you can see on the circle.

2.



From the circle above line AC is called a diameter or a \_\_

## **FINDING DIAMETER WHEN RADIUS IS GIVEN**

### **Examples**

1. Find the diameter of a circle whose radius is 5cm.

Diameter = Twice the radius

$$D = 2r, \text{ where } r = 5\text{cm}$$

$$= 2 \times r$$

$$= 2 \times 5$$

$$D = 10\text{cm}$$

2. Complete the table below.

Radius (cm)	6cm	4cm	1cm	12cm
Diameter (cm)	_____	_____	_____	_____

Where  $r = 6\text{cm}$

$$D = 2r$$

$$D = 2 \times r$$

$$D = 2 \times 6\text{ cm}$$

$$D = 12\text{ cm}$$

Where  $r = 1\text{ cm}$

$$D = 2r$$

$$D = 2 \times r$$

$$D = 2 \times 1\text{cm}$$

$$D = 2\text{cm}$$

### **Activity**

1. Find the diameter of a circle whose radius is;

a) 5cm

b) 8cm

c) 11cm

2. **Study and complete the table below.**

Radius	2cm	6cm	7cm	9cm	10cm	14cm	10cm
Diameter	_____	_____	_____	_____	_____	_____	_____

## **FINDING RADIUS OF A CIRCLE WHEN DIAMETER IS GIVEN**

### **Examples**

1. Find the radius of a circle whose diameter is 8cm.

$$\text{Radius} = \frac{\text{Diameter}}{2} \quad \text{or } D \div 2$$

When  $d = 8\text{cm}$

$$r = \frac{d}{2}$$

$$r = \frac{8\text{cm}}{2}$$

$$r = 4\text{cm}$$

2. **Study the table below and answer the questions that follow.**

Radius	_____	_____	_____
Diameter	10cm	6cm	12cm

When Diameter is 12cm

$$r = \frac{\text{diameter}}{2}$$

$$r = \frac{12\text{cm}}{2}$$

$$\mathbf{r = 6cm}$$

When Diameter is 6cm

$$r = \frac{d}{2}$$

$$r = \frac{6\text{cm}}{2}$$

$$\mathbf{r = 3cm}$$

### **Activity**

1. Find the radius of a circle whose diameter is;

- a) 4cm
- b) 6cm
- c) 10cm
- d) 14cm

2. Study and complete the table below.

Radius	_____	_____	_____	_____	_____
Diameter	8cm	16cm	20cm	24cm	30cm

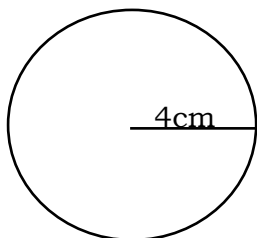
3. Study and complete the table below carefully.

Radius	2cm	_____	6cm	_____	10cm
Diameter	_____	4cm	_____	8cm	_____

### **DRAWING CIRCLES**

With different radii

#### **Example:**



### **Activity**

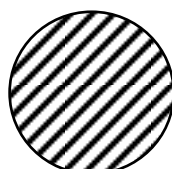
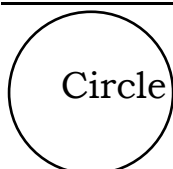
Draw circles of the following radii.

- |          |           |        |          |
|----------|-----------|--------|----------|
| a) 2cm   | b) 5cm    | c) 3cm | d) 1.5cm |
| e) 2.5cm | f) 2.5 cm | g) 1cm | h) 4cm   |
| i) 3.5cm |           |        |          |

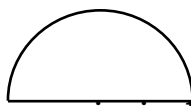
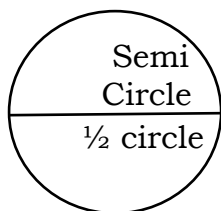
N.B:

They will also measure the radii of circles given.

### **PARTS OF A CIRCLE**



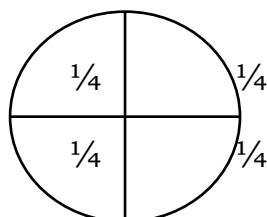
circular region



semi-circle



semi circular region

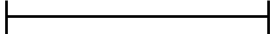


quarter circle  
quarter  
Quadrant  
circular region

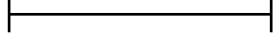
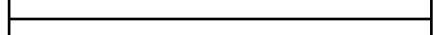


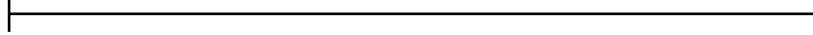
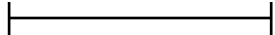
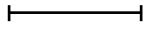




## **LINE SEGMENT**

A line segment has two end points. E.g: 

## **MEASURING LINE SEGMENTS**

- a) 
- b) 
- c) 
- d) 
- e) 
- f) 
- g) 



## **DRAWING LINE SEGMENTS WITH DIFFERENT LENGTH**

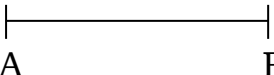

Draw a line of;

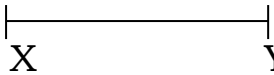

- |          |         |        |          |
|----------|---------|--------|----------|
| a) 4cm   | b) 6cm  | c) 8cm | d) 5cm   |
| e) 4.5cm | f) 12cm | g) 2cm | h) 7.5cm |

## **Naming lines and Angels**

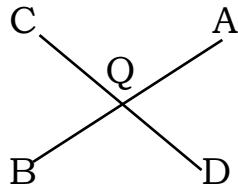
Lines are named according to the points through which they pass.

  
This is line PQ or 

  
This is line AB or 

  
This is line XY or 

Study the angles formed below

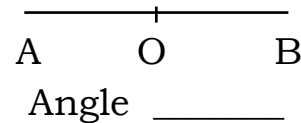
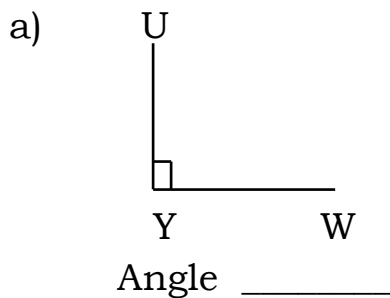


The point of intersection is only one and it is named with letter Q.

The angles formed are;

- a) CQA or AQC
- b) BQD or DQB
- c) BQC or CQB
- d) DQA or AQD

Naming the marked angles.



### **TYPES OF ANGLES**

- Right angle
- Straight angle

Right angle add up to  $90^\circ$ .  
 $180^\circ$

Straight angle add up to



Straight angle

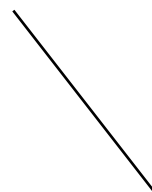
### **Drawing different angles using a protractor**

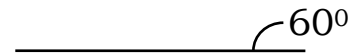
Draw the following angles using a protractor.

a)  $90^\circ$



b)  $60^\circ$





### **Activity**

Draw the following angles.

a)  $45^\circ$

b)  $70^\circ$

c)  $60^\circ$

d)  $80^\circ$

e)  $120^\circ$

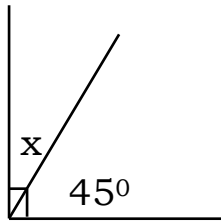
f)  $150^\circ$

g)  $30^\circ$

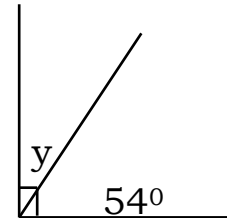
h)  $100^\circ$

### **Finding the unknown angles**

#### **Examples**



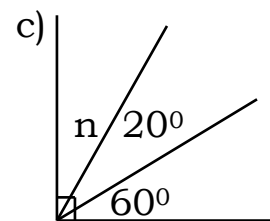
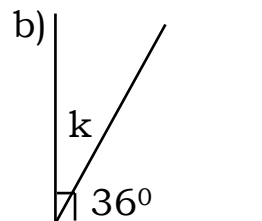
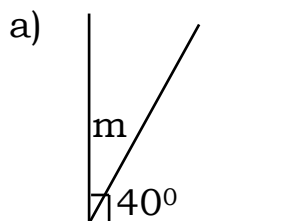
$$\begin{aligned} x + 45^\circ &= 90^\circ \\ x + 45^\circ - 45^\circ &= 90^\circ - 45^\circ \\ x &= 90^\circ - 45^\circ \\ x &= 45^\circ \end{aligned}$$



$$\begin{aligned} y + 54^\circ &= 90^\circ \\ y + 54^\circ - 54^\circ &= 90^\circ - 54^\circ \\ y &= 90^\circ - 54^\circ \\ y &= 36^\circ \end{aligned}$$

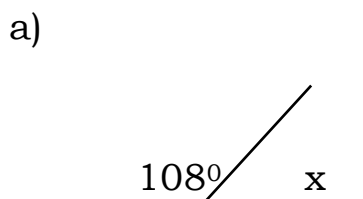
### **Exercise**

Find the value of the missing angles.

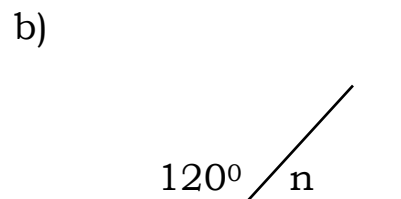


### **Solving for the unknown angles**

#### **Examples**



$$x + 108^\circ = 180^\circ$$



$$n + 120^\circ = 180^\circ$$

$$x + 108^\circ - 108^\circ = 180^\circ - 108^\circ$$

$$x = 180^\circ - 108^\circ$$

$$x = 72^\circ$$

$$n + 120^\circ - 120^\circ = 180^\circ - 120^\circ$$

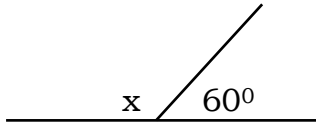
$$n = 180^\circ - 120^\circ$$

$$n = 60^\circ$$

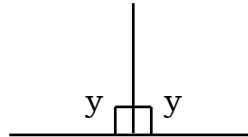
### **Exercises**

Solve for the unknown angles.

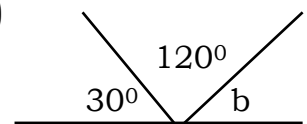
a)



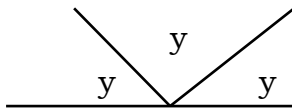
b)



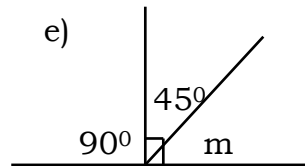
c)



d)



e)

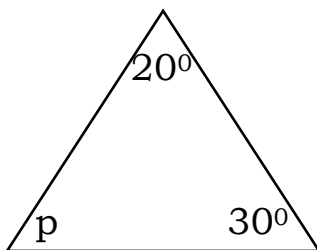


### **ANGLES ON A TRIANGLE**

The sum of angles on a triangle is always  $180^\circ$ .

#### **Examples**

Find angle p.



$$p + 20^\circ + 30^\circ = 180^\circ$$

$$p + 50^\circ = 180^\circ$$

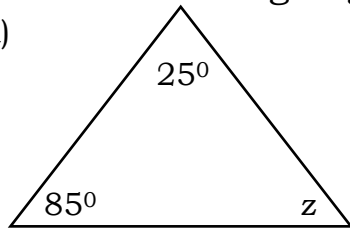
$$p + \cancel{50^\circ} - \cancel{50^\circ} = 180^\circ - 50^\circ$$

$$p = 130^\circ$$

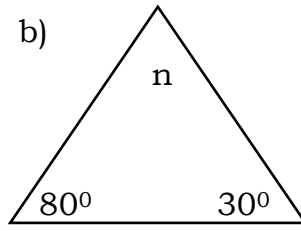
**Activity**

Find the missing angles.

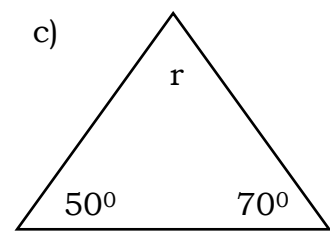
a)



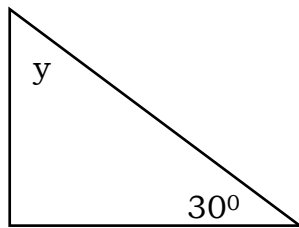
b)



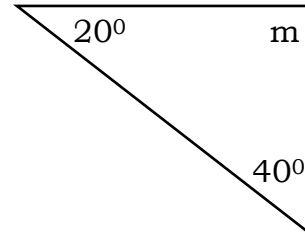
c)



d)



e)



### **TERM III**

### **ALGEBRA**

Writing in short

#### **Examples**

1.  $m + m + m$   
 $= 2m + m$   
 $= \mathbf{3m}$
2.  $t + t + t + t + t$   
 $= 2t + 2t + t$   
 $= 4t + t$   
 $= \mathbf{5t}$
3.  $g + g + g + 2g$   
 $(g + g) + (g + 2g)$   
 $= 2g + 3g$   
 $= \mathbf{5g}$

#### **Exercise**

Write in short.

- |                        |                            |
|------------------------|----------------------------|
| 1. $p + p =$           | 2. $1 + 1 + 1 + 1 =$       |
| 3. $q + q + q + q =$   | 4. $m + m + m + m + m$     |
| 5. $d + d + d$         | 6. $w + w + w + w + w + w$ |
| 7. $e + e + e + e + e$ | 8. $h + h + h + h$         |
| 9. $y + y + y + y$     | 10. $2y + y$               |
| 11. $z + z + z + z$    | 12. $a + a + a + a + a$    |

### **Using letters for numbers**

#### **Examples**

1. 2 balls + 2 balls  
 $= \mathbf{4 \text{ balls}}$
2. 1 pen + 1 pen + 1 pen + pen  
Let each pen be p.  
 $1p + 1p + 1p + 1p$   
 $= 4p$   
 $= \mathbf{4pens}$
3. 3 mangoes + 1 mango + 7 mangoes  
Let m stand for mangoes  
 $3m + 1m + 7m$   
 $= 10m$   
 $= \mathbf{10 \text{ mangoes}}$

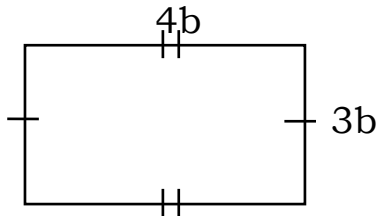
### Activity

1. 2 bananas + 2 bananas
2. 4 cows + 10 cows
3. 2 dogs + 5 dogs
4. 9 cats + 5 cats
5. 5 eggs + 5 eggs
6. 12 pots + 8 pots
7. 15 frogs – 5 frogs
8. 1 tree + 2 trees + 1 tree + 6 trees
9. 22 houses – 12 houses
10. 12 ducks + 18 hens

### Using letter to find perimeter of different figures

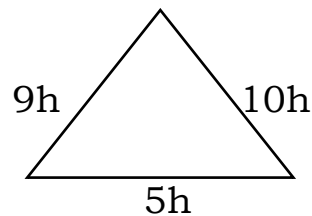
#### Examples

1.



$$\begin{aligned}P &= s + s + s + s \\&= 4b + 3b + 4b + 3b \\&= 7b + 7b \\&= \mathbf{14b}\end{aligned}$$

2.



$$\begin{aligned}P &= s + s + s \\&= 5h + 9h + 10h \\&= 14h + 10h \\&= \mathbf{24h}\end{aligned}$$

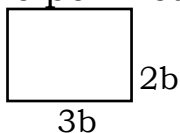
3. Simplify:  $5b + 4b$   
 $= 5b + 4b$   
 $= \mathbf{9b}$

4.  $3d + 4d + 3d$   
 $= 3d + 4d + 3d$   
 $= \mathbf{10d}$

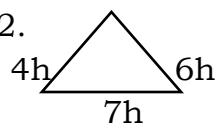
### Activity

Find the perimeter of the following figures.

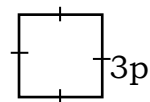
1.



2.



3.



Simplify the following.

4.  $10y + 4y$

5.  $15m + 6m + m$

6.  $8k + 2k + 3k$

7.  $10z + 2z + z$

8.  $3x + 8x$

9.  $m + 2m + m$

## **Collecting like terms**

### **Examples**

1. Collect like terms  $a + a + b + b$

$$a + a + b + b$$

$$2a + 2b$$

2.  $2a + 2b + a + b$

$$2a + a + 2b + b$$

$$3a + 3b$$

3.  $x + y + x + 3y + x$

$$x + x + x + y + 3y$$

$$3x + 4y$$

4.  $m + 3y + m + k$

$$m + m + 3y + k$$

$$2m + 3y + k$$

### **Activity**

1.  $2a + 2a + 3b + 3b$

2.  $b + a + b + a$

3.  $2y + y + y + x$

4.  $4k + 7h + 3h + 4k$

5.  $2k + 4m + k + 3d + m$

6.  $b + c + b + d$

7.  $x + 2y + y + 3x$

8.  $9c + 8c + 2p + p$

9.  $4z + 4m + z + 6m$

10.  $f + t + f + 3t + f$

11.  $2x + y + x + y$

12.  $4z + 8y + 2z + 3x$

13.  $6p + 5t + 2t + 8t$

14.  $6x + 2y + 3x + 5y$

## **More about collecting like terms**

### **Examples**

1. Simplify:  $5m - 3m$   
 $= 2m$

2.  $4z - z + 3p - p$   
 $3z + 2p$



$$3. \quad \begin{array}{l} 9d + 4c - 3c \\ 9d + c \end{array}$$

$$4. \quad \begin{array}{l} 5a + a - m \\ 6a - m \end{array}$$

### **Activity**

Simplify the following

a)  $7k - 2k$

c)  $8d - 4d$

e)  $10p - p$

g)  $6n - 5n$

i)  $4f - 2f + k$

k)  $8p + 2p - p$

b)  $4k - k + n$

d)  $6x - 6y + y$

f)  $12p - p + k$

h)  $6a + a - m$

j)  $2y + 3y - z$

l)  $8t + 4x - 6t + x$

### **Finding unknowns**

- Solving equations with one unknown.
- An equation is an algebraic expression with an equal sign between.

E.g:  $x + 3 = 5$  is an equation and  $x$  is unknown.

### **Examples**

$$X + 3 = 10$$

$$X + 3 - 3 = 10 - 3$$

$$X = 10 - 3$$

$$\mathbf{X = 7}$$

$$2. \quad 4 + x = 15$$

$$4 - 4 + x = 15 - 4$$

$$x = 15 - 4$$

$$\mathbf{x = 11}$$

### **Activity**

Solve the following equations

a)  $n + 6 = 13$

c)  $n + 8 = 12$

e)  $n + 4 = 9$

g)  $m + 5 = 10$

i)  $x + 7 = 19$

k)  $a + a = 16$

b)  $k + 9 = 17$

d)  $m + 12 = 18$

f)  $d + 7 = 24$

h)  $7 + k = 19$

j)  $10 + x = 36$

l)  $9 + m = 18$

### **Word problem**

#### **Examples**

1. I think of a number, add 7 to it and the result is 10.

What is the number?

Let the number be  $y$ .

Add 7 to it:  $y + 7$

The result is 10:  $y + 7 = 10$

$$y + 7 = 10$$

$$y + 7 - 7 = 10 - 7$$

$$y = 10 - 7$$

$$y = 3$$

**The number is 3**

2. What number when added to 5 gives 11?

Let the number be  $m$ .

Add to 5:  $m + 5$

Gives 11:  $m + 5 = 11$

$$m + 5 = 11$$

$$m + 5 - 5 = 11 - 5$$

$$m = 11 - 5$$

$$m = 6$$

**The number is 6**

3. Seven is added to a number and the result is 15. Find the number.

Let the number be  $p$ .

Seven is added to a number:  $7 + p$

The result is 15:  $7 + p = 15$

$$7 + p = 15$$

$$7 - 7 + p = 15 - 7$$

$$p = 15 - 7$$

$$p = 8$$

**The number is 8**

### **Exercise**

1. I have a number, I add 5 to it and the result is 29. What is the number?
2. When I add 5 to a number, the result is 10. What is the number?
3. Think of a number and add 3 to it. The answer is 20. What is the number?
4. I think of a number add 5 to it and the answer is 12. Find the number.
5. What number when added to 16 gives 30?

## **Subtraction**

### ***Examples***

1. Solve:  $x - 9 = 5$

$$x - 9 = 5$$

$$x - 9 + 9 = 5 + 9 \text{ (add 9 to each side)}$$

$$x = 5 + 9$$

$$\mathbf{x = 14}$$

2. Work out:  $q - 20 = 50$

$$q - 20 + 20 = 50 + 20$$

$$q = 50 + 20$$

$$\mathbf{q = 70}$$

### **Activity**

Solve the following equation.

a)  $p - 4 = 9$

b)  $p - 8 = 13$

c)  $k - 3 = 12$

d)  $q - 12 = 17$

e)  $d - 8 = 13$

f)  $m - 20 = 30$

g)  $c - 9 = 24$

h)  $z - 45 = 35$

i)  $k - 12 = 21$

### **Word problem**

#### **Examples**

1. When 3 is subtracted from a number the answer is 10.

What is the number?

Let the number be  $y$ .

3 is subtracted from a number:  $y - 3$

The answer is 10:  $y - 3 = 10$

$$y - 3 = 10$$

$$y - 3 + 3 = 10 + 3$$

$$y = 10 + 3$$

$$\mathbf{y = 13}$$

2. I think of a number, subtract 4 from it and the result is 45. Find the number.

Let the number be  $p$

Subtract 4 from it =  $p - 4$

The results is 45:  $p - 4 = 45$

$$p - 4 = 45$$

$$p - 4 + 4 = 45 + 4$$

$$p = 45 + 4$$

$$p = 49$$

### **Exercise**

1. I think of a number, when I take away three, the number is 7. What is the number?
2. When 7 is subtracted from a number, the number is 13. What is the number?
3. I have a number, take away 21 from the number, the result is 6. What is the number?
4. 30 is subtracted from a number and the answer is 25. Find the number.
5. I think of a number, subtract 12 from it and the answer is 2. Find the number.

### **Multiplication**

#### **Examples**

1. Solve:  $3 \times q = 12$

$$3q = 12$$

$$\cancel{3}q = \cancel{12}4$$

$$\cancel{3} \quad \quad \quad 31$$

$$\mathbf{q = 4}$$

2.  $m \times 7 = 14$

$$\cancel{7}m = \cancel{14}$$

$$\cancel{7} \quad \quad \quad 7$$

$$m = \cancel{14}2$$

$$71$$

$$\mathbf{m = 2}$$

### **Exercise**

Work out the following.

a)  $4 \times m = 18$

b)  $k \times 7 = 63$

c)  $6 \times t = 24$

d)  $f \times 10 = 90$

e)  $7 \times p = 42$

f)  $5 \times c = 65$

g)  $8 \times q = 48$

h)  $8 \times g = 96$

i)  $r \times 5 = 30$

### **Word problem**

#### **Examples**

1. A number is multiplied by 10 and the result is 30. What is the number?

Let the number be p.

Multiplied by 10:  $p \times 10$

The result is 30:  $p \times 10 = 30$

$$p \times 10 = 30$$

$$\underline{10}p = 30$$

$$10 \quad 10$$

$$p = 3$$

**The number is 3**

2. 5 is multiplied by a number and the result is 120. What is the number?

Let the number be  $m$ .

5 multiplied by it:  $5 \times m$

The result is 120:  $5 \times m = 120$

$$5 \times m = 120$$

$$5m = 120$$

$$\underline{5}m = \underline{120}$$

$$\cancel{5} \quad 5$$

$$m = 24$$

### **Exercise**

1. I think of a number multiplied by 3 the result is 9. What is the number?
2. A number is multiplied by 9 and the result is 90. What is the number?
3. A number is multiplied by 6 and the result is 24. Find the number.
4. 8 is multiplied by a number and the result is 48. What is the number?
5. I have a number, when 1 multiply it by 6 the answer is 36. Find the number.
6. 5 is multiplied by a certain number gives 60. Find the number.

### **Division**

#### **Examples**

1. Solve:  $m \div 6 = 8$

$$\underline{m} = 8$$

$$6$$

$$\cancel{6} \times \underline{m} = 8 \times 6$$

$$\cancel{6}$$

$$\mathbf{m = 48}$$

2. Solve:  $36 \div x = 9$

$$\cancel{x} \times \underline{36} = 9 \times x$$

$$\cancel{-x}$$

$$36 = 9 \times x$$

$$36 = 9x$$

$$\cancel{9}x = \underline{36}$$

$$\cancel{9} \quad 9$$

$$\mathbf{x = 4}$$

### **Activity**

Solve the following.

a)  $m \div 3 = 9$

b)  $30 \div m = 5$

c)  $h \div 9 = 6$

d)  $48 \div y = 6$

e)  $m \div 2 = 7$

f)  $35 \div y = 5$

g)  $d \div 5 = 9$

h)  $k \div 8 = 8$

i)  $24 \div x = 8$

### **More about division**

#### **Examples**

1. Work out:  $\frac{m}{6} = 8$

$$6 \times \underline{m} = 8 \times 6$$

$$6$$

$$m = 8 \times 6$$

$$\mathbf{m = 48}$$

2. Solve:  $\frac{36}{x} = 9$

$$\cancel{x} \times \underline{36} = 9 \times x$$

$$\cancel{-x}$$

$$36 = 9 \times x$$

$$\frac{36}{9} = \frac{9x}{9}$$

$$4 = x$$

$$\mathbf{\text{Therefore } x = 4}$$

### **Activity**

Work out the following

a)  $\frac{t}{2} = 13$

b)  $\frac{p}{7} = 7$

c)  $\frac{n}{11} = 4$

d)  $\frac{k}{5} = 5$

e)  $\frac{b}{10} = 10$

f)  $\frac{24}{x} = 8$

**More about division****Examples**

1. Solve:  $7x = 35$

$$\frac{7x}{7} = \frac{35}{7}$$

**$x = 5$**

2. Solve:  $9z = 72$

$$\frac{9z}{9} = \frac{72}{9}$$

**$z = 8$**

**Exercise**

Solve the following

a)  $3x = 42$

b)  $8f = 32$

c)  $7p = 14$

d)  $4m = 28$

e)  $8d = 24$

f)  $5k = 25$

g)  $6x = 72$

h)  $6x = 30$

i)  $7p = 63$

j)  $3k = 21$

k)  $10a = 40$

l)  $11k = 66$

m)  $13p = 26$

n)  $15t = 30$

o)  $12d = 108$

**Word problem****Examples**

1. A number is divided by 3 and the result is 10. Find the number.

Let the number be p.

Divided by 3:  $p \div 3$ The result is 10:  $p \div 3 = 10$ 

$P \div 3 = 10$

$\underline{p} = 10$

3

$3 \times \underline{p} = 10 \times 3$

3

$p = 30$

**The number is 30**

2. 36 is divided by a number and the result is 18. What is the number?

Let the number be m.

36 is divided by it:  $36 \div m$

The result is 18:  $36 \div m = 18$

$$36 \div m = 18$$

$$36 = 18$$

$$m$$

$$m \times 36 = 18 \times m$$

$$\cancel{m}$$

$$\underline{36} = \underline{18} m$$

$$18 \quad \cancel{18}$$

$$2 = m$$

$$\mathbf{m = 2}$$

### **Exercise**

1. 21 divided by a number gives 7. What is the number?
2. I think of a number divide it by 5 and the result is 2.  
What is the number?
3. I have a number, when I divide it by 9 the result is 6.  
What is the number?
4. 30 is divided by a number and the result is 5. Find the number.
5. P is divided by 2 and the result is 7. What is the value of p?

### **Substitution**

Substitution means replacing.

### **Examples**

1. If  $g = 4$ , find  $3 \times g$

$$3 \times g$$

$$= 3 \times 4$$

$$= \mathbf{12}$$

2. If  $m = 5$ ,  $n = 2$ , find;

a)  $m - 2$

$$5 - 2$$

$$= \mathbf{3}$$

b)  $m + n$

$$5 + 2$$

$$= \mathbf{7}$$

c)  $2m$

$$2 \times m$$

$$= 2 \times 5$$

$$= \mathbf{10}$$

d)  $\frac{3}{5} m$

$$5$$

$$= \frac{3}{5} \times 5$$

$$= 3 \times 1$$

$$= \mathbf{3}$$

### **Activity**

If  $b = 8$ , find the value of;

a)  $2b$

b)  $3b$

c)  $\frac{1}{2} b$

d)  $b + 1$

e)  $12 - b$

f)  $b/2$

g)  $3b/2$

h)  $2b + 1$

i)  $b \times b$



## **More about substitution**

### **Examples**

If  $m = 2$ ,  $n = 5$ ,  $z = 10$ , find the value of;

$$\begin{aligned}\text{a) } m + n + z \\ 2 + 5 + 10 \\ = 7 + 10 \\ = \mathbf{17}\end{aligned}$$

$$\begin{aligned}\text{b) } z + n - m \\ 10 + 5 - 2 \\ = 15 - 2 \\ = \mathbf{13}\end{aligned}$$

$$\begin{aligned}\text{c) } m n \\ m \times n \\ = 2 \times 5 \\ = \mathbf{10}\end{aligned}$$

$$\begin{aligned}\text{d) } \frac{1}{2} z \\ \frac{1}{2} \times z \\ = \frac{1}{2} \times 10 \\ = \mathbf{5}\end{aligned}$$

$$\begin{aligned}\text{e) } \frac{2z}{5} \\ = \frac{2}{5} \times 10 \\ = 2 \times 2 \\ = \mathbf{4}\end{aligned}$$

$$\begin{aligned}\text{f) } \frac{z}{m} \\ = \frac{10}{2} \\ = \mathbf{5}\end{aligned}$$

### **Activity**

1. Given  $a = 2$ ,  $b = 3$ ,  $c = 4$ , find the value of;

$$\text{a) } a + b + c$$

$$\text{b) } c + a$$

$$\text{c) } a + c - b$$

$$\text{d) } a + b - c$$

$$\text{e) } a \times b$$

$$\text{f) } b c$$

$$\text{g) } \frac{c}{a}$$

2. Given  $p = 4$ ,  $z = 8$ ,  $n = 10$ , find the value of;

$$\text{a) } P z$$

$$\text{b) } \frac{2}{5} n$$

$$\text{c) } \frac{p + z}{2}$$

$$\text{d) } 2p + 2n$$

$$\text{e) } 3z - 2p$$

$$\text{f) } pz - n$$

$$\text{g) } \frac{2n}{p}$$

## **More about unknowns**

### **Examples**

1. Solve:  $2y + 2 = 20$

$$2y + 2 - 2 = 20 - 2$$

$$2y = 20 - 2$$

$$2y = 18$$

$$\frac{2y}{2} = \frac{18}{2}$$

$$y = 9$$

$$\mathbf{y = 9}$$

2. Solve:  $3p - 6 = 9$

$$3p - 6 + 6 = 9 + 6$$

$$3p = 15$$

$$\frac{3p}{3} = \frac{15}{3}$$

$$p = 5$$

$$\mathbf{p = 5}$$

### **Activity**

Solve the following equations

a)  $2y + 4 = 20$

b)  $2y + 2 = 8$

c)  $5y + 5 = 20$

d)  $2y - 2 = 2$

e)  $6y + 6 = 36$

f)  $3p - 1 = 5$

g)  $5m - 2 = 8$

## **MEASURES (MONEY)**

### **Addition of money**

Money is a medium of exchange.

#### **Examples of money**

Sh. 100, sh. 200 , sh. 300 , sh. 500 , sh. 1000, sh. 5000 e.t.c

### **Examples**

1. Add sh. 170 + sh. 250

$$\begin{array}{r} \text{Sh. 170} \\ + \text{Sh. 250} \\ \hline \text{Sh. 420} \end{array}$$

2. John had sh. 4500 and Mary had sh. 3750. How much money do the two children have altogether?

$$\begin{array}{r} \text{Sh. 4500} \\ + \text{Sh. 3750} \\ \hline \text{Sh. 8250} \end{array}$$

### **Activity**

1. Add: Sh. 190 + <u>Sh. 260</u> _____	2. Add: Sh. 380 + <u>Sh. 1490</u> _____	3. Add: Sh.4540 + <u>Sh. 3680</u> _____
--	---	---

4. Add: Sh. 1780  
+ Sh. 2640  
\_\_\_\_\_

5. I had sh. 480 and I was given sh. 1260. How much do I have altogether?
6. A porter earns sh. 1500 in the morning and sh. 2700 in the afternoon. How much does the porter earn altogether?
7. A mother bought meat for sh. 2500 and a bunch of matooke for sh. 4550. How much did she spend altogether?
8. Alice's school fees is sh. 7850 and Jane's school fees is sh. 1890. How much money do the two pupils pay altogether?

### **Changing shillings to cents**

A cent is a small unit of shillings

1 shilling = 100cents

Cents can also be written as "Cts"

### **Examples**

1. Change 3 shilling to cents.

$$1 \text{ sh} = 100\text{cts}$$

$$3 \text{ sh} = (3 \times 100)\text{cts} \\ = 300\text{cts}$$

$$\mathbf{3\text{sh} = 300 \text{ cts}}$$

2. Write 250sh in cents.

$$1 \text{ sh} = 100\text{cts}$$

$$250\text{sh} = (250 \times 100)\text{cts}$$

$$\mathbf{250\text{sh} = 2500\text{cts}}$$

### **Activity**

Change the following shillings to cents.

- |             |             |             |
|-------------|-------------|-------------|
| a) Sh. 25   | b) sh. 8    | c) sh. 60   |
| d) sh. 150  | e) sh. 100  | f) sh. 36   |
| g) sh. 1700 | h) sh. 1256 | i) sh. 9900 |

### **Changing cents to shillings**

### **Examples**

1. Change 400 cents to shilling

$$100\text{cents} = 1\text{sh}$$

$$\begin{aligned} 400\text{cts} &= (400 \div 100)\text{sh} \\ &= \frac{400}{100} \text{sh} \\ &= 4 \text{sh} \end{aligned}$$

**Therefore; 400cts = sh.4**

2. Change two thousand cents to shillings.

$$100\text{cts} = 1\text{sh}$$

$$\begin{aligned} 2000\text{cts} &= (2000 \div 100)\text{sh} \\ &= 2000 \text{sh} \\ &\quad 100 \\ &= 20\text{sh} \end{aligned}$$

**Therefore; 2000cts = sh. 20**

### **Activity**

Change the following cents to shillings.

- |            |           |             |
|------------|-----------|-------------|
| a) 200cts  | b) 655cts | c) 1260cts  |
| d) 400cts  | e) 900cts | f) 1780 cts |
| g) 380 cts | h) 770cts | i) 1980cts  |
| j) 2500cts |           |             |

### **Subtraction of money**

#### **Examples**

1. Subtract sh. 9000 – sh. 2000

$$\begin{array}{r} \text{Sh. } 9000 \\ - \text{Sh. } 2000 \\ \hline \text{Sh. } 7000 \end{array}$$

2. Agaba had a ten thousand shilling note and he spent sh. 2500 on transport. What was his change?

$$\begin{array}{r} \text{Sh. } 10000 \\ - \text{Sh. } 2500 \\ \hline \text{Sh. } 7500 \end{array}$$

### **Activity**

- a) Find how much change

I have the following notes	I spent	My change
Sh. 5000	Sh. 2500	—
Sh. 8000	Sh. 4050	—
Sh. 10,000	Sh. 6550	—
Sh. 10,000	Sh. 8500	—
Sh. 20,000	Sh. 4955	—

- b) How much change do I get if I spend 6500 from 20,000/=?
- c) Naigino had sh. 5000. If she spends sh. 3750 on Vaseline, what is her change?

### **Multiplication of money**

#### **Examples**

1. Multiply: sh. 896

$$\begin{array}{r} \phantom{0} \text{sh. } 896 \\ \phantom{0} \times \phantom{0} 6 \\ \hline \text{Sh. } 5376 \end{array}$$

2. Find the cost of 5 books if one book costs sh. 320.

1 book costs 320/=

5 books will cost sh. 320

$$\begin{array}{r} \phantom{0} \times \phantom{0} 5 \\ \hline \text{Sh. } 1600 \end{array}$$

#### **Activity**

1. Work out;

a) Sh. 945

$$\begin{array}{r} \phantom{0} \times \phantom{0} 2 \\ \hline \phantom{0} \end{array}$$

b) sh. 1500

$$\begin{array}{r} \phantom{0} \times \phantom{0} 9 \\ \hline \phantom{0} \end{array}$$

c) sh. 490

$$\begin{array}{r} \phantom{0} \times \phantom{0} 5 \\ \hline \phantom{0} \end{array}$$

2. The cost of 1 book is sh. 370. Find the cost of 10 books.
3. How much will you pay for;
- 2 packets of wheat flour at sh. 2550 a packet.
  - 2kg of rice at sh. 950 a kg.
  - 2 tins of margarine at sh. 2100 a tin.
  - 4 cartons of soap at sh. 6150 a carton.
  - 6 tins of kimbo at sh. 2900 a tin
  - The cost of one loaf of bread is sh. 1600. Find the cost of 3 loaves of bread.

### **Division of money**

### **Example**

A shopkeeper sold 4 crates of soda for sh. 7200. What was the cost of one crate of soda?

Cost of 4 crates = sh. 7200

$$\begin{array}{r} \text{Cost of 1 crate} = \frac{7200}{4} \\ \begin{array}{r} 1800 \\ 4 \overline{) 7200} \\ \underline{4} \phantom{00} \\ 32 \phantom{0} \\ \underline{32} \phantom{0} \\ 0 \phantom{0} \\ \underline{0} \phantom{0} \\ 0 \phantom{0} \\ \underline{0} \phantom{0} \\ 0 \end{array} \end{array}$$

The cost of 1 crate of soda is sh. 1800

### **Activity**

1. Divide sh. 128000 among 4 girls. How much will each girl get?
2. A farmer sold 8 bags of coffee for sh. 40000. What was the price of one bag?
3. A shopkeeper sold 4 loaves of bread for sh. 7200. What was the cost of one loaf of bread?
4. Agutu bought 9 litres of petrol for sh. 14850. What was the cost of petrol per litre?

## **PROFIT AND LOSS**

### **Finding profit**

What is profit?

Profit is the money you make in a business or by selling things especially after paying the costs involved.

### **Example:**

Abdul bought a shirt at sh. 800. He later sold it at sh. 1000. What is his profit?

$$\begin{aligned} \text{Profit} &= \text{selling price} - \text{Buying price (cost price)} \\ &= \text{SP} - \text{CP} \end{aligned}$$

$$\text{Selling price} = \text{sh. } 1000$$

$$\text{Cost price} = \text{sh. } 800$$

$$\text{Profit} = \underline{\underline{200}}$$

### **Activity**

1. A man bought a goat at sh. 35000 and sold it at sh. 42000.  
How much was his gain?
2. Jermaine bought a pen at sh. 500 and sold it at sh. 700.  
What was his profit?
3. Belle sold a book at sh. 900. She had bought it at sh. 750.  
What was her profit?
4. Aidah bought a packet of sugar at sh. 1500 and sold it at sh. 20000. What was her gain?
5. The price of a dress was sh. 12000. It was later sold at sh. 15000. What was the profit?

### **Finding loss**

What is a loss?

A loss is money that has been lost by the business or an organization.

### **Example**

David bought a book at sh. 1200 and sold it at sh. 800. What was his loss?

Loss = cost price – selling price

Loss = CP – SP

Buying price = sh. 1200

Selling price = - sh. 800

**Loss** = **sh. 400**

### **Activity**

1. Annet bought a geometry set at sh. 2800 and sold it at sh. 220. What was her loss?
2. What was the loss on a commodity bought at sh. 2000 and sold it at 1700/=
3. A box of kimbo is bought at sh.3500 and is sold at sh. 2900. What was the loss?
4. John bough a pen at sh. 1800 and sold it at sh.1300. What was his loss?
5. Dr. Pius bought a tin of panadol at sh. 12000 and sold it at sh. 9500. What was his loss?

### **POSTAGE RATES**

**Study the table**

Articles	Destination	Charge
Letter	Uganda	Sh. 150
	East Africa	Sh. 400
	Africa	Sh. 500
	Europe	Sh. 500
	Asia	Sh. 500
	America	Sh. 550
Small parcels (air)	Uganda	Sh. 1200
	East Africa	Sh. 10,000
	Africa	Sh. 11000
	Europe	Sh. 16000
	Asia	Sh. 22500
	America	Sh.8450
Aerogrammes		Sh. 300@
Post cards		Sh. 300@

Questions about the table

**Example**

Joseph sends 2 letters to Kenya and 3 letters to Tanzania.

How much will he pay altogether?

For 2 letters to Kenya will pay sh. 400 x 2 = 800/=

For 3 letters to Tanzania will pay sh. 400x 3 = + 12000/=

---

2000/=

**Joseph will pay 2000 shillings**

**Activity**

1. Ndugga set 2 letters to Europe and bought 5 post cards. What was his total bill?
2. If a lady sends 4 letters to Asia and a small parcel to America. Calculate her total bill.
3. How much money will Kato pay if he sends 3 letters to Mbarara and 2 letters to Euroope?
4. Atim bought 10 post cards and 15 aerogrammes. How much money did he use?

**MEASURES (TIME)****Changing hours to minutes****Examples**

1. Change 4 hours to minutes.



- 1 hour = 60 minutes  
 4 hours = (4 x 60)  
           = 240 minutes
2. Change  $3\frac{1}{4}$  hours to minutes.  
 $3\frac{1}{4}$  hours =  $(3 + \frac{1}{4})$  hours  
 1 hour = 60mins  
 3 hours =  $3 \times 60 = 180$  minutes  
 $\frac{1}{4}$  hours =  $\frac{1}{4} \times 60 = 15$  minutes  
 $3\frac{1}{4}$  hours =  $(180 + 15)$  minutes  
               = 195 minutes

### **Task**

#### **Change the following hours to minutes.**

- |                          |             |                         |
|--------------------------|-------------|-------------------------|
| a) 2 hours               | b) 5 hours  | c) $3\frac{1}{2}$ hours |
| d) $\frac{1}{2}$ an hour | e) 16 hours | f) $4\frac{3}{4}$ hours |
| g) 10 hours              | h) 11 hours | i) $1\frac{1}{4}$ hours |
| j) 30 hours              |             |                         |
- k) A boy walked for  $1\frac{1}{2}$  hours. How much time was this in minutes?

#### **Changing minutes to hours**

1. Write 60 minutes in hours.

$$\begin{array}{r} 60 \text{ min} = \frac{1}{60} \overline{)60} \\ \underline{60} \\ - - \end{array}$$

$$60 \text{ min} = 1 \text{ hour}$$

2. Write 70 minutes in hours.

$$\begin{array}{r} 70 \text{ min} = \frac{1}{60} \overline{)70} \\ \underline{60} \\ 10 \end{array}$$

$$70 \text{ min} = 1 \text{ hour } 10 \text{ minutes}$$

### **Activity**

Write the following in hours and minutes.

- |                |                |                |
|----------------|----------------|----------------|
| a) 120 minutes | b) 100 minutes | c) 130 minutes |
| d) 90 minutes  | e) 80 minutes  | f) 200 minutes |
| g) 110 minutes | h) 150 minutes |                |
- i) a lesson took 140 minutes. How long was the lesson in hours?
- j) A machine takes 140 minutes to wash 70 shirts. How long

is this in hours?

### **Addition of time**

#### **Examples**

1. Work out:

Hrs	Min
3	40
+ 4	30
8	10

$$40 + 30 = 70 \text{ min}$$

$$1 \text{ hr} = 60 \text{ min}$$

$$70 \div 60 = 1 \text{ rem } 10$$

2.

Hrs	Min
1	50
2	15
+ 3	30
7	35

$$50 + 15 + 30 = 95 \text{ min}$$

$$1 \text{ hr} = 60 \text{ min}$$

$$95 \div 60 = 1 \text{ rem } 35$$

#### **Activity**

Add the following

a)

Hrs	Min
1	30
+ 3	35

b)

Hrs	Min
6	35
+ 7	46

c)

Hrs	Min
4	15
+ 3	40

d)

Hrs	Min
4	30
+ 3	50

e)

Hrs	Min
2	25
1	35
+ 3	30

f)

Hrs	Min
4	05
5	45
+ 1	30

### **Subtraction of time**

1. Work out the following.

a)

Hrs	Min
18	30
- 6	05
12 hr	25 min

b)

Hrs	Mins
3	25
- 1	45
1 hr	40 min

2. Timothy spent a total of 5 hours and 20 minutes at school. He played 1 hour 30 minutes. For how long did he stay in class?

	Hrs	Min
Total time at school	5	20
Time spent playing	- 1	30
Time in class	3hrs	50min

### **Activity**

1. Subtract the following.

a)

Hrs	Min
5	48
- 1	15
<hr/>	

b)

Hrs	Min
6	25
- 3	40
<hr/>	

2. A party lasted 6hours 30 minutes. If 1 hour 45 minutes were used to secure food, how long did the other events take?

### **Multiplication of time**

#### **Examples**

Work out;

a)

Hrs	Min
2	25
x	3
7	15
<hr/>	

$$3 \times 25 = 75$$

$$75 \div 60 = 1 \text{ rem } 15$$

b)

Hrs	Min
7	30
x	5
37	30
<hr/>	

$$5 \times 39 = 150$$

$$150 \div 60 = 2 \text{ rem } 30$$

### **Activity**

a)

Hrs	Min
3	10
x	4
<hr/>	

b)

Hrs	Min
2	15
x	4
<hr/>	

c)

Hrs	Min
3	11
x	5
<hr/>	

d)

Hrs	Min
1	45
x	2
<hr/>	

### **Division of time**

#### **Examples**

1. Divide 9 hours 30 mins by 3

	Hrs	Min
	3	10
3	9	30
	9	30

2. Divide 24 hours 40 min by 8

	Hrs	Min
	3	05
8	24	40
	24	40

### **Activity**

a)

	Hrs	Min
4	12	48

b)

	Hrs	Min
3	6	15

c)

	Hrs	Min
9	9	45

### **TIME IN A.M AND P.M**

a.m means - ant – meridian

Ante – meridian means before midday.

We use “A.M for morning time only.

P.M means post meridian

The time after noon is post meridian or p.m.

A day starts at 12 midday.

Activity

Complete the following tables

After	1 hr	3 hrs	5 hrs	6 hrs	9 hrs	12 hrs
-------	------	-------	-------	-------	-------	--------

mid night						
Time as a.m	1:00am	—	—	6:00am	—	—

After noon	1 hr	3 hrs	7 hrs	9 hrs	11 hrs	12 hrs
Time as p.m	1:00am	—	—	—	—	Mid night

### **Finding time in A.M and P.M**

#### **Examples**

- Express 6 o'clock in the morning using a.m or p.m  
6 o'clock in the morning is 6:00am
- Express 8 o'clock in the evening using a.m or p.m  
8 o'clock in the evening is 8:00pm

#### **Activity**

Write the following time in a.m or p.m

- The time when the first lesson begins at 8 o'clock.
- The time when you have lunch at 1 o'clock.
- What time is a half past 3 o'clock in the afternoon?
- The time when we play games at 4 o'clock.
- The time you go to sleep at 8 o'clock.

### **Finding duration**

#### **Examples**

Hassan started walking from his home at 7:15am and reached school at 8:15am. How long did it take him?

Reached school at	8 : 15
Started walking at	- 7 : 15
He took	<u>1 : 00 hr</u>

**Hassan took 1 hour**

#### **Activity**

- A mathematics lesson started at 8:15am and ended at 9:35am. How long did it take?

2. The baby slept at 1:15am and woke up at 3:00pm. How long did it take sleeping?
3. A concert started at 4:30pm and ended at 10:20pm. How long was the concert?
4. Joselyne read a newspaper from 6:30pm to 7:25pm. How long did she take reading the news paper?
5. An examination started at 8:45am and ended at 11:am. How long did it take?

**Note:**

**Hours, Days, Weeks, Months and years**

60 minutes	=	1 hour
24 hours	=	1 day
7 days	=	1 week
14 days	=	1 fortnight (2 weeks)
4 weeks	=	1 month
52 weeks	=	1 year
12 months	=	1 year

**Hours, Days and weeks**

**Changing hours to days**

**Example**

1. How many days are there in 72 hours?

24 hours make 1 day

1 hour make  $\frac{1}{24}$  day

24 hours

72 hours make  $\frac{1}{24}$  day x 72 hours

$\frac{72}{24}$  days

**= 3 days**

**Activity**

How many days are there in;

a) 48 hours

b) 216 hours

c) 60 hours

d) 240 hours

e) 120 hours

f) 144 hours

**Changing days to hours**

**Example**

How many hours are there in 5 days?

In one day there are 24 hours

In 5 days there are  $24 \times 5 = 120$  hours

## **In 5 days there are 120 hours**

### **Activity**

There are 24 hours in 1 day. How many hours are there in;

- |            |            |            |
|------------|------------|------------|
| a) 4 days  | b) 6 days  | c) 10 days |
| d) 13 days | e) 15 days | f) 17 days |
| g) 19 days | h) 21 days | i) 24 days |
| j) 30 days | k) 92 days | l) 50 days |

## **Changing weeks to days**

### **Examples**

1. 1 week has 7 days

How many days are there in 8 weeks?

$$1 \text{ week} = 7 \text{ days}$$

$$8 \text{ weeks} = (8 \times 7) \text{ days} \\ = \mathbf{56 \text{ days}}$$

2. How many days are there in 12 weeks?

$$1 \text{ week} = 7 \text{ days}$$

$$12 \text{ weeks} = (12 \times 7) \text{ days} \\ = \mathbf{84 \text{ days}}$$

### **Activity**

How many days are there in;

- |             |             |             |
|-------------|-------------|-------------|
| a) 3 weeks  | b) 7 weeks  | c) 10 weeks |
| d) 12 weeks | e) 15 weeks | f) 20 weeks |
| g) 24 weeks | h) 30 weeks | i) 35 weeks |
| j) 42 weeks | k) 49 weeks | l) 50 weeks |

## **Changing days to weeks**

### **Examples**

1. How many weeks are there in 63 days?

7 days make 1 week

$$63 \text{ days make } 63/7 \text{ or } 63 \div 7 \\ = \mathbf{9 \text{ weeks}}$$

2. How many weeks are in 105 days?

$$7 \text{ days} = 1 \text{ week}$$

$$105 \text{ days} = 105/7 \text{ or } 105 \div 7 \\ = \mathbf{15 \text{ weeks}}$$

### **Activity**

How many weeks are there in;

- |             |             |             |
|-------------|-------------|-------------|
| a) 21 days  | b) 35 days  | c) 49 days  |
| d) 70 days  | e) 910 days | f) 91 days  |
| g) 315 days | h) 707 days | i) 637 days |

### **Addition of days and weeks**

#### **Examples**

1. Work out;
- |  |         |         |             |
|--|---------|---------|-------------|
|  | Weeks   | Days    |             |
|  | 1       | 3       | $3 + 2 = 5$ |
|  | + 2     | 2       | $1 + 2 = 3$ |
|  | <hr/> 3 | <hr/> 5 |             |
- 
- 2.
- |  |          |         |                                |
|--|----------|---------|--------------------------------|
|  | Weeks    | Days    |                                |
|  | 5        | 5       | $5 + 6 = 11$                   |
|  | +        | 4       | $11 \div 7 = 1 \text{ rem } 4$ |
|  | <hr/> 10 | <hr/> 4 | $1 + 5 + 4 = 10$               |

#### **Assignment**

- |    |       |      |    |       |      |
|----|-------|------|----|-------|------|
| a) | Weeks | Days | b) | Weeks | Days |
|    | 2     | 4    |    | 12    | 6    |
|    | + 1   | 5    |    | + 4   | 5    |
|    | <hr/> |      |    | <hr/> |      |
- 
- |    |       |      |    |       |      |
|----|-------|------|----|-------|------|
| c) | Weeks | Days | d) | Weeks | Days |
|    | 9     | 5    |    | 20    | 4    |
|    | + 2   | 3    |    | + 11  | 3    |
|    | <hr/> |      |    | <hr/> |      |

### **Subtraction of days and weeks**

#### **Example**

1. Work out:
- |  |         |         |                          |
|--|---------|---------|--------------------------|
|  | Weeks   | Days    |                          |
|  | 3       | 2       | $(2 + 7) - 5$            |
|  | - 1     | 5       | $9 - 5 = 4 \text{ days}$ |
|  | <hr/> 1 | <hr/> 4 | $(3 - 1) - 1$            |
|  |         |         | $2 - 1 = 1 \text{ week}$ |
- 
- 2.
- |  |         |         |               |
|--|---------|---------|---------------|
|  | Week    | Days    |               |
|  | 6       | 0       | $(0 + 7) - 6$ |
|  | - 3     | 6       | $7 - 6 = 1$   |
|  | <hr/> 2 | <hr/> 1 | $(6 - 1) - 3$ |
|  |         |         | $5 - 3 = 2$   |

#### **Activity**



Work out the following.

$$\begin{array}{r} \text{a) Wks Days} \\ 4 \quad 3 \\ - 1 \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b) Wks Days} \\ 8 \quad 2 \\ - 3 \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c) Wks Days} \\ 12 \quad 1 \\ - 8 \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d) Wks Days} \\ 7 \quad 4 \\ - 2 \quad 6 \\ \hline \end{array}$$

### **Ordinary year and leap year**

- An ordinary year has got 365 days.
- A leap year has got 366 days.
- An ordinary year gives a remainder when divided by 4.
- A leap year gives no remainder when divided by 4.

The days of the months are;

January	31 days
February	28/29 days
March	31 days
April	30 days
May	31 days
June	30 days
July	31 days
August	31 days
September	30 days
October	31 days
November	30 days
December	31 days

In the month of February, if the number of days are 28 then that year is an ordinary year and 29 days is a leap year.

### **MEASURES (LENGTH)**

Changing Metres(M) to centimeters (CM)

#### **Examples**

1. Change 3 metres to centimeters

$$1\text{m} = 100\text{cm}$$

$$3\text{m} = (3 \times 100) \text{ cm}$$

$$= \mathbf{300\text{cm}}$$

2. Change  $3\text{m} + 2\text{m} + 2\text{m}$  to cm

$$\begin{aligned}
 3\text{m} + 2\text{m} + 2\text{m} &= 7\text{m} \\
 1\text{ m} &= 100\text{cm} \\
 7\text{m} &= (7 \times 100)\text{cm} \\
 &= \mathbf{700\text{cm}}
 \end{aligned}$$

### **Activity**

Change the following to centimeters.

- a) 4m                      b) (2 + 5 + 4)m                      c) 27m  
 d) 6m                      e) 18m    f) (4 + 1 + 8)m  
 g) 14m                      h) 23m    i) (3x5)m  
 j) Complete the table below.

Cm	100	_____	300	_____	500	_____	700
M	1	2	_____	4	_____	6	7

### **Changing centimeters (M) to metres(M)**

#### **Examples**

1. Change 200cm to m

$$\begin{aligned}
 100\text{cm} &= 1\text{m} \\
 200\text{cm} &= \frac{200}{100} \\
 &= \mathbf{2m}
 \end{aligned}$$

2. Change 800 centimetres to metres

$$\begin{aligned}
 100\text{cm} &= 1\text{m} \\
 800\text{cm} &= \frac{800}{100} \\
 &= \mathbf{8m}
 \end{aligned}$$

### **Activity**

Change the following to metres.

- a) 100cm                      b) 300cm    c) 500cm  
 d) 700cm                      e) 400cm    f) 600cm  
 g) 900cm                      h) 1000cm

### **Addition in metres and centimeters**

#### **Examples**

1. Add;m                      cm

$$\begin{array}{r}
 2 \\
 +6 \\
 \hline
 8
 \end{array}
 \begin{array}{r}
 45 \\
 36 \\
 \hline
 81
 \end{array}$$

2. Add;m                      cm

$$\begin{array}{r}
 8 \\
 25
 \end{array}$$

$$25 + 85 = 110$$

$$\begin{array}{r} +6 \quad 85 \\ \hline 15 \quad 10 \end{array}$$

$$110 \div 100 = 1 \text{ rem } 10$$

$$1\text{m} = 10\text{cm}$$

$$1 + 8 + 6 = 15\text{m}$$

### **Activity**

1. Work out the following.

a) 
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 3 \quad 42 \\ + 4 \quad 17 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 19 \quad 45 \\ + 14 \quad 18 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 4 \quad 25 \\ + 4 \quad 10 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 24 \quad 40 \\ + 19 \quad 17 \\ \hline \end{array}$$

2. Odyeke has 13m 82cm of wire. His friend has 18m 36cm of wire. What is the total length of both wires?

### **Subtraction of metres and centimeters**

#### **Examples**

1. Subtract; 
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 6 \quad 80 \\ - 2 \quad 60 \\ \hline 4 \quad 20 \end{array}$$

2. Subtract; 
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 9 \quad 24 \\ - 5 \quad 30 \\ \hline 3 \quad 94 \end{array}$$

$$100 + 14 = 124$$

$$124 - 30 = 94$$

$$8 - 5 = 3$$

3. Otim had a ribbon measuring 15m 36cm. HE cut off 9m 21cm. What length remained?

$$\begin{array}{r} \text{m} \quad \text{cm} \\ 15 \quad 36 \\ - 9 \quad 21 \\ \hline 6 \quad 15 \end{array}$$

Otim had

He cut off

Length that remained

### **Activity**

Work out the following.

$$\begin{array}{r} \text{a)} \quad \text{m} \quad \text{cm} \\ 7 \quad 30 \\ - 2 \quad 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad \text{m} \quad \text{cm} \\ 9 \quad 60 \\ - 4 \quad 20 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad \text{m} \quad \text{cm} \\ 10 \quad 15 \\ - 6 \quad 30 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad \text{m} \quad \text{cm} \\ 12 \quad 70 \\ - 6 \quad 40 \\ \hline \end{array}$$

- e) Isa had a string measuring 25m 15cm. He cut off 18m 35cm. What length of the string did he remain with?
- f) Subtract 3m 75cm from 11m 20cm

### **Multiplication of metres and centimeters**

#### **Examples**

Work out the following.

1. Mary, Joseph and Joan each bought 3m 45cm of cloth.

What was the total length of the cloth bought?

$$\begin{array}{r} \text{m} \quad \text{cm} \\ 3 \quad 45 \\ \times \quad 3 \\ \hline 10 \quad 35 \end{array}$$

2. A family of 7 people got 8m 25cm of cloth each. What was the total length of cloth got by the whole family?

$$\begin{array}{r} \text{m} \quad \text{cm} \\ 8 \quad 25 \\ \times \quad 7 \\ \hline 57 \quad 75 \end{array}$$

#### **Activity**

- Find the total height of 4 boys each 1m 52cm tall.
- Find the total length of 8 ropes each 2m 36cm.
- Opio, Odeke and Odong each had 9m 54cm of cloth. What was the total length of their cloth?
- Ali, Aisha and Aida shared a ribbon. If each got 5m 35cm long. What was the length of the ribbon shared?

5. 7 boys had pieces of wire measuring 5m 75cm each. Find the total length of the wire which they had.
6. Kate and Regina had 6m 50cm of string each. Find the total length of string they had altogether.

### **Division of metres and centimeters**

#### **Examples**

1. The piece of timber Bob and Pablo shared equally was 8m 10cm long. What length and each got?

	m	cm
	4	05
2	8	10
4x2	- 8	
		10
5x2		- 10

**Each got 4m 5cm long**

2. The length of a string is 15m 24cm. Divide the string into 3 equal pieces. What is the length each piece?

	m	cm
	05	08
3	15	24
	- 15	
		24
		- 24

**Each piece of string is 5m 8cm**

#### **Activity**

1. 4 girls shared 36m 28cm of cloth equally. What length of cloth did each girl get?
2. Divide 21m 12cm by 3.
3. Agnes had a string measuring 5m 45cm, if he cut it into 5 equal pieces, how long was each piece?
4. 6 workers divided equally 24m 18cm of a road for cleaning. What part did each clean?
5. 7 boys shared 50m 25cm of cloth equally. Find the length of each piece of cloth?

### **Changing metres to kilometres**

Note: 1000m = 1 kilometres

### **Examples**

1. Work out

Change 3000 m to km

$$1000\text{m} = 1\text{km}$$

$$3000\text{m} = \underline{3000}$$

$$1000$$

$$= \mathbf{3km}$$

2. Change 20000m to km

$$1000\text{m} = 1\text{km}$$

$$20000\text{m} = \underline{20000}$$

$$1000$$

$$= \mathbf{20km}$$

### **Activity**

Change the following to kilometres

a) 14000m

b) 25000m

c) 8000m

d) 1000m

e) 30000m

f) 5000m

g) 6000m

h) 12000m

i) Deo walked a distance of 4000m from home to school.

What distance did he walk in kilometres?

### **Changing kilometres into metres**

#### **Examples**

Change the following to metres

1. 5km to m

$$1\text{km} = 1000\text{m}$$

$$5\text{km} = 5 \times 1000$$

$$= \mathbf{5000m}$$

2. 12km to metres

$$1\text{km} = 1000\text{m}$$

$$12\text{km} = 12 \times 1000$$

$$= \mathbf{12000m}$$

3. Abdul covered 7km while running. What distance did he run in metres.

$$1\text{km} = 1000\text{m}$$

$$7\text{km} = 7 \times 1000$$

$$= \mathbf{7000m}$$

### **Activity**

Change the following measures in metres

- a) 4km                      b) 16km                      c) 30km  
 d) 19km                    e) 24km  
 f) A cyclist covered a distance of 5km. What is this distance in metres?

### **Addition of kilometres and metres**

#### **Examples**

1. Add 15km 880m to 6km 750m

Km	m	
15	880	$880 + 750 = 1630$
+ 6	750	$1630 \div 1000 = 1\text{km } 630\text{m}$
22	630	

#### **Assignment**

a)      Km          m 13          530 +    8          670 ----- -----	b)      km          m 58          460 + 17          780 ----- -----
---	---

- c) A road construction company made 24km 855m of the road on Monday and 37km 255m on Tuesday. What distance of the road did they make?

### **Subtraction of kilometres and metres**

#### **Examples**

1. Subtract: km          m

46	260
- 12	150
34	110

2. Subtract 130km 690 from 280km 455m

Km	m
280	455
- 130	690
149	765

#### **Activity**

Subtract the following.

a)      Km          m	b)      km          m
-----------------------	-----------------------

$$\begin{array}{r} 47 \quad 290 \\ - 23 \quad 280 \\ \hline \end{array}$$

$$\begin{array}{r} 700 \quad 450 \\ - 500 \quad 350 \\ \hline \end{array}$$

c)

$$\begin{array}{r} \text{km} \quad \text{m} \\ 90 \quad 55 \\ - 35 \quad 85 \\ \hline \end{array}$$

d) Subtract 15km 680m from 23km 750m.

e) From a length of 315km 425m subtract 285km 315m.

## **Multiplication of kilometres and metres**

### **Examples**

1. Work out:

$$\begin{array}{r} \text{km} \quad \text{m} \\ 8 \quad 350 \\ \times \quad 3 \\ \hline 25 \quad 50 \end{array}$$

2.

$$\begin{array}{r} \text{Km} \quad \text{m} \\ 15 \quad 320 \\ \times \quad 3 \\ \hline 45 \quad 960 \end{array}$$

### **Activity**

Work out the following.

a)

$$\begin{array}{r} \text{Km} \quad \text{m} \\ 7 \quad 300 \\ \times \quad 8 \\ \hline \end{array}$$

b)

$$\begin{array}{r} \text{km} \quad \text{m} \\ 9 \quad 250 \\ \times \quad 6 \\ \hline \end{array}$$

c)

$$\begin{array}{r} \text{km} \quad \text{m} \\ 13 \quad 200 \\ \times \quad 3 \\ \hline \end{array}$$

d)

$$\begin{array}{r} \text{km} \quad \text{m} \\ 8 \quad 140 \\ \times \quad 5 \\ \hline \end{array}$$

## **Division of kilometres and metres**

### **Examples**

1. Divide 24km 40m by 4



	Km	m
	6	10
4	$\overline{)24}$	$\overline{)40}$
	<u>24</u>	
		40
		<u>40</u>

### **Activity**

Work out the following

a)      Km                  m

5    $\overline{)50}$                   150

c)      km                  m

8    $\overline{)16}$                   2400

b)      km                  m

4    $\overline{)32}$                   240

d)      km                  m

9    $\overline{)81}$                   270

e) Divide 66km 660m by 6

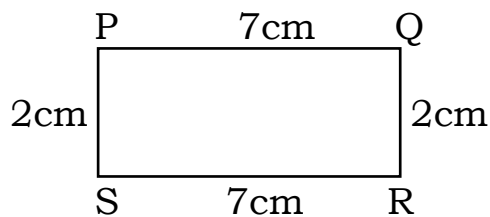
f) 21km 14m  $\div$  7

### **MEASURES (PERIMETER)**

Perimeter is the total distance round a figure.

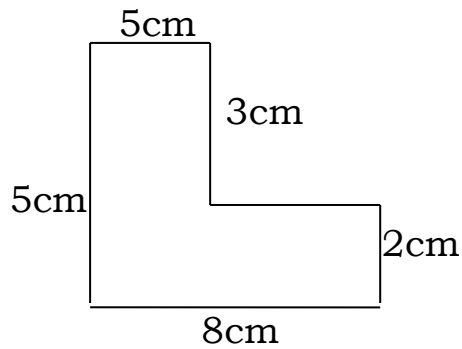
#### **Examples**

- Find the perimeter of the figure below.



$$\begin{aligned}
 \text{Perimeter} &= PQ + QR + RS + SP \\
 &= 7\text{cm} + 2\text{cm} + 7\text{cm} + 2\text{cm} \\
 &= \mathbf{18\text{cm}}
 \end{aligned}$$

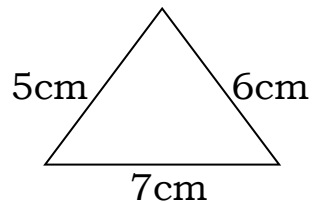
2. Find the perimeter of the figure below.



$$\begin{aligned}\text{Perimeter} &= \text{Add all sides round the figure} \\ &= 5\text{cm} + 3\text{cm} + 2\text{cm} + 8\text{cm} + 5\text{cm} \\ &= 26\text{cm}\end{aligned}$$

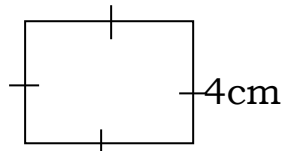
**Perimeter= 26cm**

3.



$$\begin{aligned}\text{Perimeter} &= s + s + s \\ &= 5\text{cm} + 6\text{cm} + 7\text{cm} \\ &= \mathbf{18\text{cm}}\end{aligned}$$

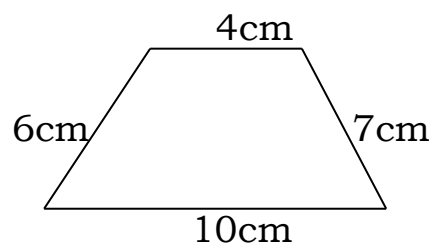
4.



All sides are equal

$$\begin{aligned}\text{Perimeter} &= s + s + s + s \\ &= 4\text{cm} + 4\text{cm} + 4\text{cm} + 4\text{cm} \\ &= \mathbf{16\text{cm}}\end{aligned}$$

5.

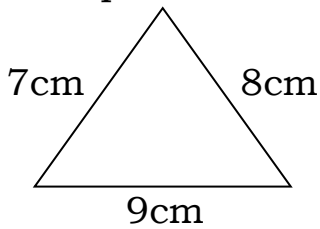


$$\begin{aligned}\text{Perimeter} &= 6\text{cm} + 4\text{cm} + 7\text{cm} + 10\text{cm} \\ &= \mathbf{27\text{cm}}\end{aligned}$$

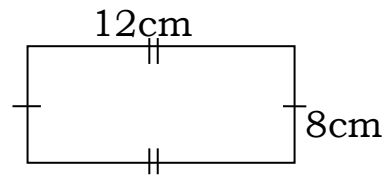
### **Activity**

Find the perimeter of the following figures.

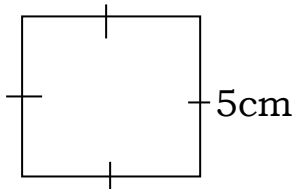
a)



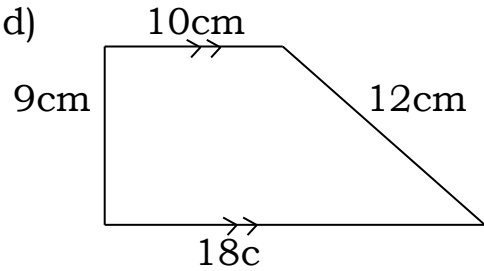
b)



c)



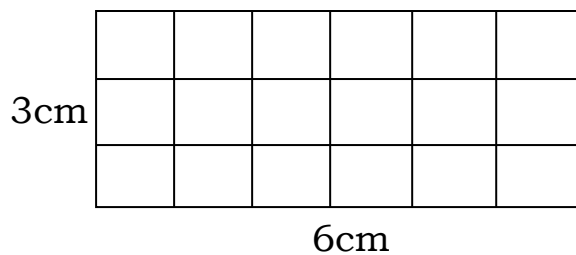
d)



### **MEASURES (AREA)**

Area is the amount of space covered by a flat surface.

Finding the area of figure.



$$\text{Length}(L) = 6\text{cm}$$

$$\text{Width (W)} = 3\text{cm}$$

$$\text{Area} = L \times W$$

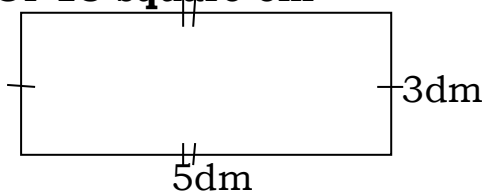
$$= 6\text{cm} \times 3\text{cm}$$

$$= 6 \times 3 \times \text{cm} \times \text{cm}$$

$$= \mathbf{18\text{cm}^2}$$

**Or 18 square cm**

**Or 18 square cm**



$$\text{Length}(L) = 5\text{dm}$$

$$\text{Width (W)} = 3\text{dm}$$

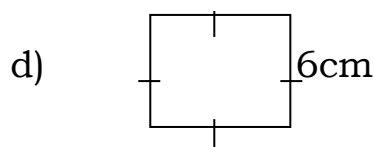
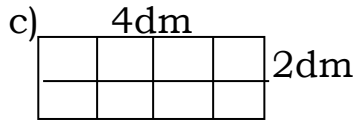
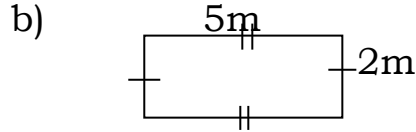
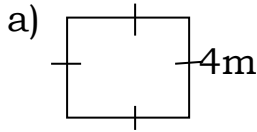
$$A = L \times W$$

$$= 5\text{dm} \times 3\text{dm}$$

$$= \mathbf{15\text{dm}^2}$$

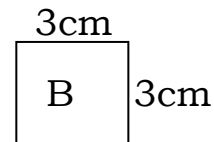
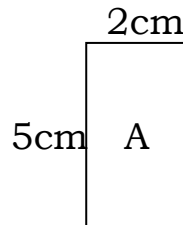
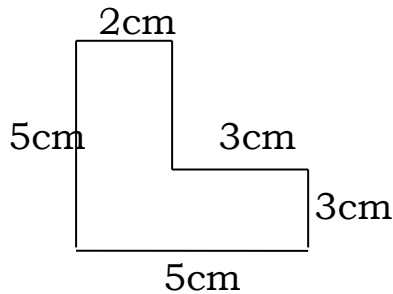
### **Activity**

Find the area of the figures below.



### **Finding the area by separating figures**

Find the area of the figure below.



$$\begin{aligned}\text{Area of rectangle A} &= L \times W \\ &= 5\text{cm} \times 2\text{cm} \\ &= 5 \times 2 \times \text{cm} \times \text{cm} \\ &= \mathbf{10\text{cm}^2}\end{aligned}$$

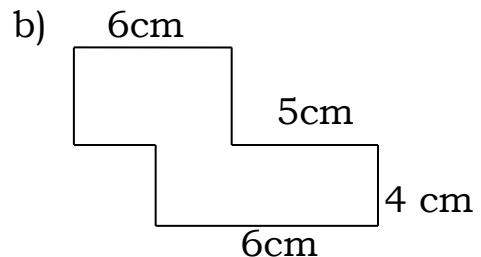
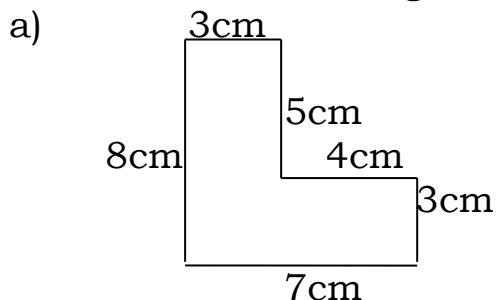
$$\begin{aligned}\text{Area of rectangle B} &= L \times W \\ &= 3\text{cm} \times 3\text{cm} \\ &= 3 \times 3 \times \text{cm} \times \text{cm} \\ &= \mathbf{9\text{cm}^2}\end{aligned}$$

$$\begin{aligned}\text{Total area of the figure (A + B)} &= (10\text{cm}^2 + 9\text{cm}^2) \\ &= \mathbf{19\text{cm}^2}\end{aligned}$$

Alternatively – separation of figure

### **Activity**

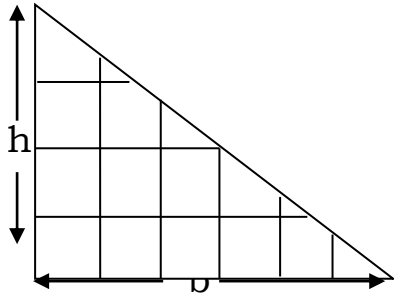
Find the area of the figures below.



## Finding the area of a triangle

### Examples

1. Find the area of the figures below.



base (b) has 6 units  
height (h) has 4 units

Area of a triangle

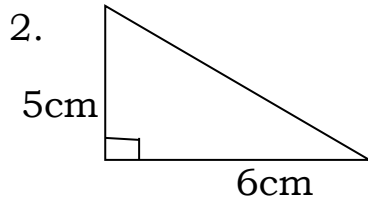
$$= \frac{1}{2} \times \text{base} \times \text{height}$$

$$= \frac{1}{2} \times 6 \times 4 \text{ units}$$

$$= 1 \times 3 \times 4 \text{ units}$$

$$= 12 \text{ units squared}$$

$$= 12 \text{ square unit}$$



base (b) = 6cm

height (h) = 5cm

$$\text{Area} = \frac{1}{2} \times b \times h$$

$$= \frac{1}{2} \times 6\text{cm} \times 5\text{cm}$$

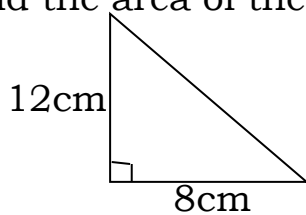
$$= \frac{1}{2} \times 30\text{cm}^2$$

$$= \mathbf{15\text{cm}^2}$$

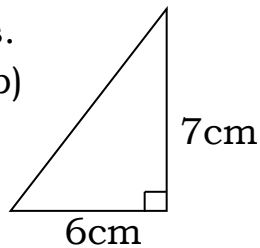
### Activity

Find the area of the figures.

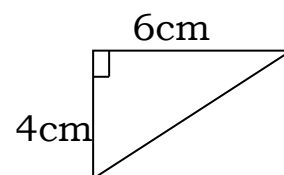
a)



b)



c)



## **CAPACITY**

Finding half and quarter litres

### **Note:**

- 1 litre = 2 half litres
- 2 litres = (2 + 2) half litres
- 3 litres = (2 + 2 + 2) half litres
- 1 litre = 4 quarter litres
- 2 litres = (4 + 4) quarter litres
- 3 litres = (4 + 4 + 4) quarter litres

### **Examples**

Work out the following.

1. How many  $\frac{1}{2}$  litre bottles are in 1 litre container?

$$1 \div \frac{1}{2}$$

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

**2 half litre bottles are in 1 litre**

2. How many  $\frac{1}{4}$  litres are in 2 litres

$$2 \div \frac{1}{4}$$

$$2 \times \frac{4}{1}$$

**8 quarter litres are in 2 litres**

3. How many  $\frac{1}{2}$  litre bottles are in a 3 litre container?

$$3 \div \frac{1}{2}$$

$$3 \times \frac{2}{1}$$

**6 half litre bottles are in 3 litre container**

### **Activity**

1. How many  $\frac{1}{2}$  litres are in a 5 litre container?
2. How many  $\frac{1}{4}$  litre bottlea are in a 1 litre container?
3. How many  $\frac{1}{4}$  litre bottles are in 4 litres?
4. Namuddu has 6 litres. How many  $\frac{1}{2}$  litres has she got?
5. Divide 4 litres of milk into  $\frac{1}{2}$  litres. How many half litres will you get?

## **Addition of litres and half litres**

### **Examples**

1. Add  $1\frac{1}{2}$  litres and  $2\frac{1}{2}$  litres

$$\begin{aligned}(1\frac{1}{2} + 2\frac{1}{2}) \text{ litres} &= 1 + 2 + \frac{1}{2} + \frac{1}{2} \\ &= 3 + \frac{1+1}{2} \\ &= 3 + 1 \\ &= 4 \text{ litres}\end{aligned}$$

2. Mukuli had  $2\frac{1}{2}$  litres of milk and 4 litres of milk. How much milk does he have altogether?

$$\begin{aligned}(4 + 2\frac{1}{2}) \text{ litres} &= 4 + 2\frac{1}{2} \\ &= 6\frac{1}{2} \text{ litres}\end{aligned}$$

### **Activity**

1. Add  $\frac{1}{2}$  a litre to  $3\frac{1}{2}$  litres.
2. What is the sum of  $2\frac{1}{2}$  litres and  $4\frac{1}{2}$  litres?
3. Atwine drank  $3\frac{1}{2}$  litres of beer. She took another 2 litres. How many litres did she drink altogether?
4. There were  $6\frac{1}{2}$  litres of petrol in a car fuel tank. If  $7\frac{1}{2}$  litres were added, how many litres were there altogether?
5. Increase  $10\frac{1}{2}$  litres by  $4\frac{1}{2}$  litres
6. Add  $5\frac{1}{2}$  litres to  $3\frac{1}{2}$  litres

## **Addition of litres**

### **Example**

1. Add 80 litres of milk to 40 litres of milk.

$$\begin{array}{r}80 \text{ litres} \\ + 40 \text{ litres} \\ \hline \mathbf{120 \text{ litres}}\end{array}$$

2. A home uses 95 litres of water in the morning and 87 litres in the afternoon. How much water is used in a day?

Morning    95 litres

Afternoon + 87 litres

**They use 182 litres**

### **Activity**

1. A drum contains 86 litres of juice. Another 46 litres is added. How many litres of juice does the drum now hold?
2. Apedo sold 78 litres of milk on Monday and 74 litres on Wednesday. How many litres of milk did he sell altogether?
3. Add 124 litres to 3456 litres.
4. Add 145 litres to 1134 litres and 36 litres.
5. Three families use 70 litres, 80 litres and 111 litres of paraffin respectively. How many litres do they use altogether?

### **Changing litres to milliliters**

#### **Examples**

1. Express 2 litres as milliliters  
 $1 \text{ litre} = 1000\text{ml}$   
 $2 \text{ litres} = (2 \times 1000)\text{ml}$   
 $= \mathbf{2000 \text{ ml}}$
2. Express 15 litres as milliliters  
 $1 \text{ l} = 1000\text{ml}$   
 $15 \text{ l} = (15 \times 1000) \text{ ml}$   
 $= \mathbf{15,000\text{ml}}$

### **Changing milliliters to litres**

#### **Examples**

1. Convert 4000ml to litres  
 $1000\text{ml} = 1 \text{ l}$   
 $1 \text{ ml} = \frac{1}{1000} \text{ l}$   
 $4000\text{ml} = \frac{1}{1000} \times 4000 \text{ l}$   
 $= \mathbf{4 \text{ litres}}$
2. Express 500ml as litres.  
 $1000\text{ml} = 1 \text{ litre}$   
 $1\text{ml} = \frac{1}{1000} \text{ l}$   
 $500\text{ml} = \frac{1}{1000} \times 500 \text{ l}$   
 $= \mathbf{0.5 \text{ litres}}$



$$= \frac{1}{2} \text{ litre}$$

$$\text{OR} = 0.5 \text{ litre}$$

### **Activity**

1. Change the following to ml.

- |       |        |       |
|-------|--------|-------|
| a) 2l | b) 6l  | c) 3l |
| d) 5l | e) 12l | f) 7l |

2. Change the following to litres.

- |           |            |            |
|-----------|------------|------------|
| a) 7000ml | b) 3000ml  | c) 15000ml |
| d) 5000ml | e) 10000ml | f) 22000ml |

### **Addition of litres and millilitres**

#### **Examples**

1. Add

L	ml
7	250
+ 2	400
<hr/>	
9	650
<hr/>	

2. I have 150 litres 200ml of water. Awiimwe gives me 120 litres 800ml of water. How much water do I have now?

L	ml	
150	200	200 + 800 = 1000
+ 120	800	1000 ÷ 1000 = 1 rem 0
<hr/>		
171	000	
<hr/>		

### **Activity**

1. Add

a)	L	ml	b)	l	ml
	3	340		12	48
	+ 8	220		+ 06	24
	<hr/>			<hr/>	
	<hr/>			<hr/>	

2. Add 16 litres 720 ml to 8 litres 250ml.

3. A banker used 4 litres 570ml of cooking oil. She later used another 15 litres 110ml more. How much oil did she use?

### **Subtraction of litres and millilitres**

#### **Examples**

1. Subtract

L	ml
12	48
- 08	36
<hr/> 04	<hr/> 12

2. From 50l 65ml take away 42 l 58ml.

L	ml
59	65
- 42	58
<hr/> 08	<hr/> 07

3. A taxi driver bought 30 litres 450 millilitres of fuel from the petrol station and used 18 litres 300ml. How much fuel did he remain with?

	L	ml
He bought	30	450
He used	- 18	300
He remained with	<hr/> 12	<hr/> 150

### **Multiplication of litres and milliliters**

#### **Examples**

1. Work out

L	ml
14	28
	4
<hr/> 36	<hr/> 112

2. L ml

$$\begin{array}{r} 42 \quad 50 \\ \times \quad 5 \\ \hline 210 \quad 250 \end{array}$$

### **Activity**

Work out the following.

a) 
$$\begin{array}{r} \text{L} \quad \text{ml} \\ 12 \quad 10 \\ \times \quad 5 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} \text{l} \quad \text{ml} \\ 36 \quad 42 \\ \times \quad 6 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} \text{l} \quad \text{ml} \\ 64 \quad 48 \\ \times \quad 7 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} \text{l} \quad \text{ml} \\ 213 \quad 520 \\ \times \quad 2 \\ \hline \end{array}$$

### **Division of litres and millilitres**

#### **Examples**

a) Divide 14l 24ml by 2.

$$\begin{array}{r} 071 \quad 12\text{ml} \\ 2 \overline{) 141 \quad 24\text{ml}} \\ \underline{- 0} \quad \underline{24} \\ 14 \quad \underline{14} \end{array}$$

b) A factory uses 42l 30ml of fuel in 6 days. How much fuel does the same factory use in one day.

$$\begin{array}{r} 071 \quad 05\text{ml} \\ 6 \overline{) 421 \quad 30\text{ml}} \\ \underline{- 0} \quad \underline{30} \\ 42 \quad \underline{42} \end{array}$$

### **Activity**

Work out the following.

a) 
$$2 \overline{) 161 \quad 18\text{ml}}$$

b) 
$$6 \overline{) 121 \quad 24\text{ml}}$$

c) 
$$3 \overline{) 91 \quad 12\text{ml}}$$

d) 
$$7 \overline{) 211 \quad 28\text{ml}}$$

e) 
$$4 \overline{) 121 \quad 16\text{ml}}$$

f) 
$$8 \overline{) 241 \quad 32\text{ml}}$$

## **WEIGHT**

### **Changing kilograms to grams**

#### **Examples**

1. Convert 2 kg to grams

$$\begin{aligned} 1 \text{ kg} &= 1000\text{g} \\ 2\text{kg} &= (2 \times 1000)\text{g} \\ &= \mathbf{2000\text{g}} \end{aligned}$$

2.  $\frac{1}{2}$  kg

$$\begin{aligned} 1\text{kg} &= 1000\text{g} \\ \frac{1}{2} \text{ kg} &= \frac{1}{2} \times 1000\text{g} \\ &= \mathbf{500\text{g}} \end{aligned}$$

3. 2.5kg

$$\begin{aligned} 1\text{kg} &= 1000\text{g} \\ 2.5\text{kg} &= (2.5 \times 1000)\text{g} \\ &= 2500\text{g} \end{aligned}$$

### **Changing grams to kilograms**

#### **Examples**

1. Express 2000g as kg

$$\begin{aligned} 1000\text{g} &= 1 \text{ kg} \\ 1\text{g} &= \frac{1}{1000} \text{ kg} \\ 2000\text{g} &= \frac{1}{1000} \times 2000 \\ &= \mathbf{2 \text{ kg}} \end{aligned}$$

2. Change 4500 to kg

$$\begin{aligned} 1000\text{g} &= 1\text{kg} \\ 1\text{g} &= \frac{1}{1000} \text{ kg} \\ 4500\text{g} &= \frac{1}{1000} \times 4500 \\ &= \mathbf{4.5 \text{ kg}} \end{aligned}$$

### **Addition of kilograms and grams**

#### **Examples**

1. Add:
- |  | kg | g   |
|--|----|-----|
|  | 2  | 250 |

$$\begin{array}{r} + 3 \quad 150 \\ \hline 5 \quad 400\text{g} \end{array}$$

2. Find the sum of 104kg 420g and 187kg 350g

$$\begin{array}{r} \text{Kg} \quad \text{g} \\ 104 \quad 420 \\ + 187 \quad 350 \\ \hline 291 \quad 770 \end{array}$$

3. A farmer took 2 sacks of coffee to the store for sell. One weighed 96kg 480g and the other 88kg 776g. Find the total weight of the two bags.

$$\begin{array}{r} \text{Kg} \quad \text{g} \\ 96 \quad 480 \\ + 88 \quad 776 \\ \hline 185 \quad 256 \end{array} \quad \begin{array}{l} 480 + 776 = 1256 \\ 1\text{kg} = 1000\text{g} \\ 1256 \div 1000 = 1 \text{ rem } 256 \end{array}$$

### **Activity**

1. What is the total weight when you add 40kg 130g to 24kg 243g?
2. Add 12kg 125g to 132kg 820g.
3. Add 136kg 268g to 98kg 75g.
4. What is the sum of 709kg 285g and 98kg 56g.
5. Alice bought 25kg 135g of rice. She later bought 15kg 234g more. How much rice did she buy?

### **Subtraction of kilograms and grams**

#### **Examples**

1. Subtract

$$\begin{array}{r} \text{Kg} \quad \text{g} \\ 75 \quad 640 \\ - 28 \quad 450 \\ \hline 47 \quad 190 \end{array}$$

2. Nakato had 40kg 350g of ghee. She sold 26kg 850g of it.  
How much ghee did she remain with?

	Kg	g	
She had	40	350	$1000 + 350 = 1350$
She sold	- 26	850	$1350 \div 850 = 500$
She remained with	13	500	

### **Activity**

1. Work out the following.

a)

	Kg	g
	81	366
-	33	424

b)

	kg	g
	48	760
-	31	720

2. Subtract 36kg 785 g from 48kg 460g  
 3. A builder used 10kg of nails from 13kg 72g. What is the total weight of the remaining nails?  
 4. What weight remains when 26kg 15g is removed from 61kg 16g?  
 5. Subtract 24kg 490g 72kg 365g.

### **Multiplication of kilograms and grams**

#### **Examples**

1. Work out: kg g

32	120	$120 \times 9 = 1080$
x	9	since 1000g = 1kg
289	80	Then 1000g + 80g = 1kg 80g

2. Multiply; kg g

12	40
x	4
48	160

### **Activity**

Work out the following

a)

	Kg	g
	4	310
x		3

b)

	kg	g
	34	89
x		2

### **Division of kilograms and grams**

#### **Examples**

1. Work out the following

$$\begin{array}{r}
 \text{Kg} \qquad \text{kg} \\
 06 \qquad 11 \\
 4 \overline{)24} \qquad 44 \\
 - 0 \qquad \qquad \\
 \hline
 24 \qquad \qquad \\
 24 \qquad \qquad \\
 \hline
 \qquad \qquad 44 \\
 \qquad \qquad - 4 \\
 \qquad \qquad \hline
 \qquad \qquad 4 \\
 \qquad \qquad \hline
 \qquad \qquad 4
 \end{array}$$

2. Divide 16kg 240g by 8

$$\begin{array}{r}
 08\text{kg} \qquad 030\text{g} \\
 8 \overline{)16} \qquad 240 \\
 - 0 \qquad \qquad \\
 \hline
 16 \qquad \qquad \\
 16 \qquad \qquad \\
 \hline
 \qquad \qquad 240 \\
 \qquad \qquad 0 \\
 \qquad \qquad \hline
 \qquad \qquad 24 \\
 \qquad \qquad 24 \\
 \qquad \qquad \hline
 \qquad \qquad 0
 \end{array}$$

### **Activity**

Work out the following.

a) 
$$\begin{array}{r}
 \text{Kg} \qquad \text{g} \\
 4 \overline{)16} \qquad 24
 \end{array}$$

b) 
$$\begin{array}{r}
 \text{kg} \qquad \text{g} \\
 5 \overline{)5} \qquad 10
 \end{array}$$

c) 
$$\begin{array}{r}
 \text{kg} \qquad \text{g} \\
 6 \overline{)30} \qquad 42
 \end{array}$$

d) 
$$\begin{array}{r}
 \text{kg} \qquad \text{g} \\
 2 \overline{)4} \qquad 8
 \end{array}$$

e) 
$$\begin{array}{r}
 \text{kg} \qquad \text{g} \\
 3 \overline{)9} \qquad 12
 \end{array}$$

f) 
$$\begin{array}{r}
 \text{kg} \qquad \text{g} \\
 7 \overline{)14} \qquad 21
 \end{array}$$

g) 
$$\begin{array}{r}
 \text{kg} \qquad \text{g} \\
 2 \overline{)6} \qquad 8
 \end{array}$$

h) 
$$\begin{array}{r}
 \text{kg} \qquad \text{g} \\
 8 \overline{)8} \qquad 16
 \end{array}$$