PRIMARY FOUR MATHEMATICS WORK BOOK TERM ONE.

THEME: SETS
TOPIC: Set Concepts

DEFINITION OF A SET A set is a collection of well-defined elements or numbers.

EXAMPLE 1
A = {even numbers less than 9}
B= {vowel letters} X = {a, e, i, o, u}

SET SYMBOLS

∪ - Union set ∩ - Intersection set/
∅ - Empty set or null set.
↮ - Non – equivalent sets
∈ - Member of a given set
�c - Subset
{ } –Empty set ↔ Equivalent sets n (B) – Number of elements in set B.

ε - Universal set

EXAMPLE 2

EQUIVALENT SETS

They have the same number of members

Set X 3, 6, 5 = { □ △ ⬭ }

Set Y =

∴ Set x is equivalent to Set y or $x \leftrightarrow y$

NON – EQUIVALENT SETS

They have different number of members.

Set T = {3, 6, 8, 9, 5} Set V = {9, 4, 7, 2}

∴ Set T is non – equivalent to set V or T ↔ V

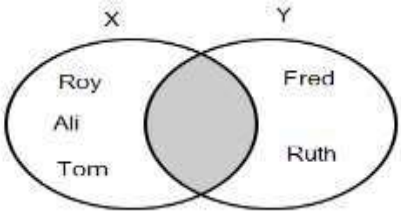
EMPTY SET
A set without members.
Symbol for empty set or null set is ∅
EXAMPLE 1

a) K = {Pupils in P.4 with blue legs}
Set K = { }

b) M = {Mothers who are five years old}
Set M = ∅

DISJOINT SETS

These are sets without common members.



$X \cap Y = \emptyset$ OR

$X \cap Y = \{\ \}$

EXAMPLES 1

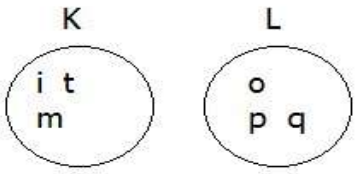
F = {orange, egg, yam, mango}

G = {Cabbage, carrot, pawpaw}

Sets F and G have no common members so they are **disjoint.**

ACTIVITY

1. Describe the following sets.
   a) B = {Green pupils in your class}
   b) K = {P.4 pupils who don't eat food}
   c) E = {Teachers in your school}
   d) A = {Elephants in the game park}
   e)



Sets K and L are

……

f) D = {a, b, c, d, e} E = { 4, 5, 6, 7 }

Sets D and E are

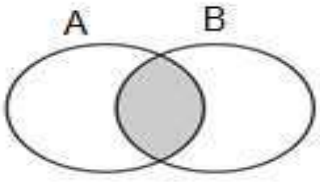
……

2. Form two empty sets

INTERSECTION OF SETS

These are sets with common members,

Symbol for intersection set is ∩



The shaded region represents A ∩ B.

EXAMPLE 1

S = {1, 2, 3, 4, 5, 6}

T = {2, 3, 4, 6, 8, 9}

S ∩ T = {2, 3, 4, 6}

EXAMPLE 2

P = {a, e, I, o, u} Q = {a, b, c, o, e, f}

P ∩ Q = {a, o, e}

MEMBERS OF SETS ONLY

If two sets let's say X and Y have members with others intersecting, Members of X only is given as

X–Y. Those of Y only is as Y–X as shown in the

Venn diagram below

(a) A – B (A only)

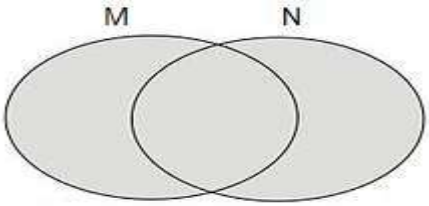
c) S = {1, 2, 3, 4} T = {g, t, m}

UNION OF SETS

This is the collection of all members of the given sets without repeating any members

d) X = {letters in the word Friday} Symbol for union set ″ ∪ ″

Y = {letters in the word Monday}



e) E = {odd numbers less than 13}

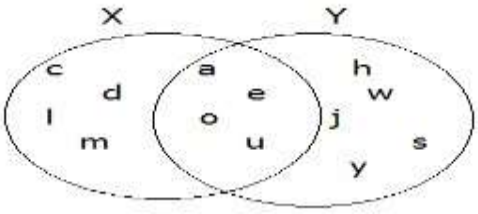
F = {even numbers less than 12}

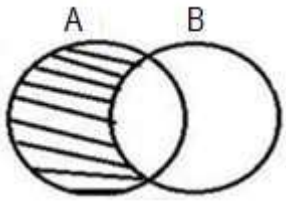
The shaded region represents M ∪ N.

EXAMPLE 1 A = {1, 2, 3, 4, 5, 6} B = {0, 1, 9, 3, 7, 2, 4}

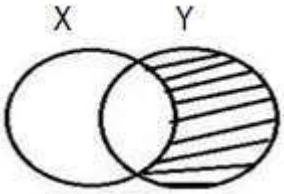
A ∪ B = {1, 2, 3, 4, 5, 6, 0, 7}

2. Use the Venn diagram to answer the questions that follow:





(b) Y–X (Y only)



EXAMPLE 2

P= {a, b, c} Q = {b, d, e, f}

P ∪ Q = {a, b, c, d, e, f}

ACTIVITY

1. Find the union set

ACTIVITY

1. Write the intersection sets.

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

b) P = {a, e, I, o, u k, m} Q = {a, b, c, o, e, f m}

a)

List down the elements of set X

a) Find n(Y)

b) Find X ∩ Y

c) Find X – Y

d) Find Y – X

e) Find n(Y – X)

K = {2, 4, 5, 0} J = {1, 2, 3, 4, 6, 7}

A = {oranges, mangoes, pawpaws, peas}
B = {peas, pineapples, mangoes}

S = {hut, cat, house, pig} T = {cat, sheep, goat, pig}

K = {2, 4, 6, 8} L = {1, 2, 3, 4,5 ,6, 7, 9}

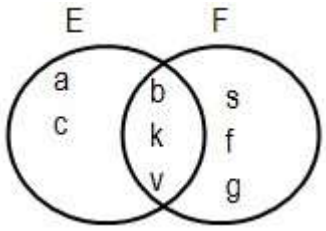
e) X = {a, e, I, o, u} Y = {b, I, g, e, r}

b)

f) W = {g, b, k, r} N = {1, 5, 6}

c)

2. Use the Venn diagram



d)

a) List down the elements of set E

b) Find n (F)

c) Find E∩ F

d) Find E ∪ F

NB: What you have finished is a **small part** of the material that compose a **whole book**. In case you are

interested in the complete set of this book, contact;

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