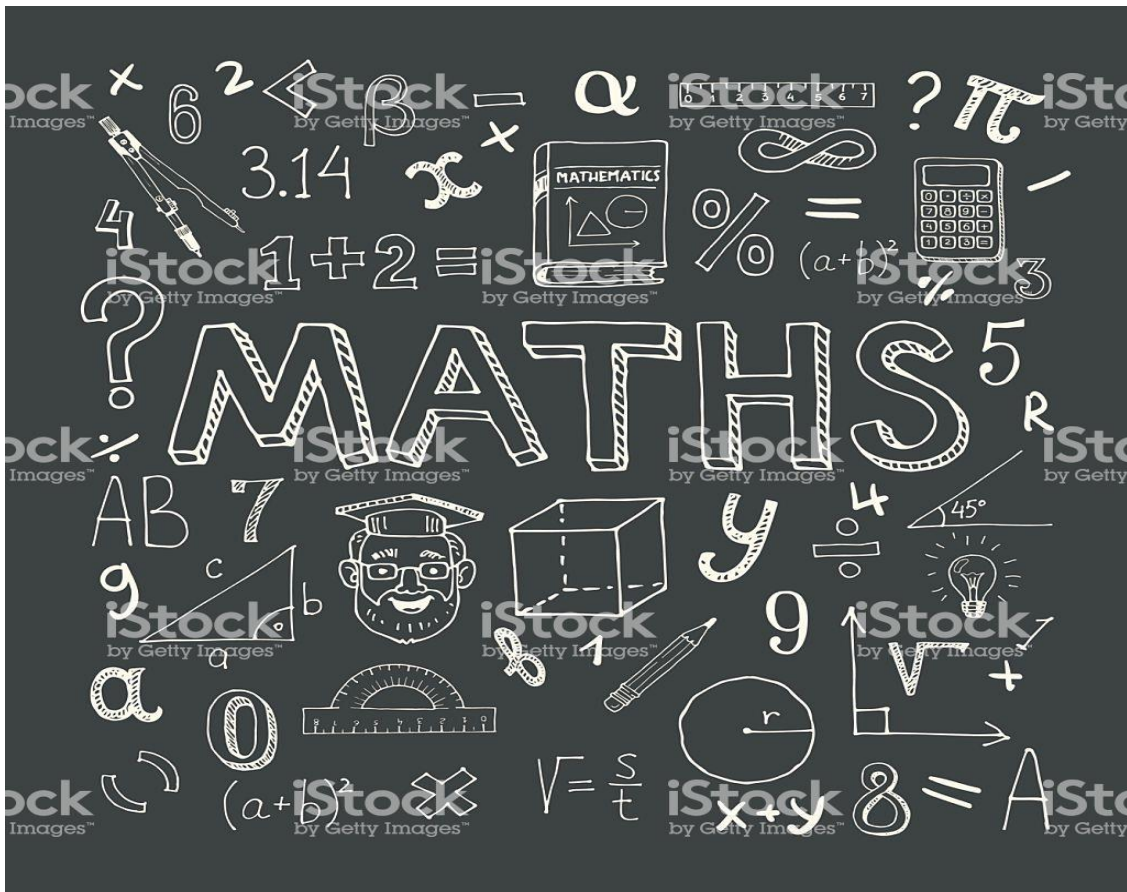# District Public School & College, Depalpur

Summer Task / Homework Assignment

Session : 2020-21

Class : 7th   **Subject : Mathematics**

Student's Name : _____

Section : _____

COVID-19 Know The Facts

World Health Organization — Western Pacific Region

COVID-19 spreads primarily from person to person

- Droplets released when someone sick sneezes or coughs can land on the mouths or noses of people nearby
- Close contact with someone sick — like hugging or shaking hands

COVID-19 mainly spreads from person to person But it can also be left on objects and surfaces…

tissue

laptop and mouse

doorknobs

lift buttons

pens

digital devices

So if you touch something contaminated and then touch your face or another's face, you might all fall ill.

Reduce your risk of COVID-19

Clean your hands often

Cough or sneeze in your bent elbow — not your hands!

Avoid touching your eyes, nose and mouth

Limit social gatherings and time spent in crowded places

Avoid close contact with someone who is sick

Clean and disinfect frequently touched objects and surfaces

Q # 1 : From where corona virus has came?

_____

_____

Q # 2 : How COVID-19 spreads from person to person?

_____

_____

Q # 3 : How we can reduce the risk of COVID-19 ?

_____

_____

_____

_____

Date : 18-june-2020   Day: Thursday

Unit # 1

Sets

- **Introduction of set and its form**
  - **Web Link https://youtu.be/No1diVESHTI**

Q # 1 : Define set with atleast five examples.

Ans :

_____

_____

_____

_____

_____

Q # 2 : Write thefollowing sets in Tabular form.

 A = {*a, e, i, o, u*}

 C = {3, 6, 9, … ,99}

M = {*football, hockey , cricket*}

N = {1, 2, 3, 4, …}

Q # 3 : Write thefollowing sets in Descriptive form.

N = set of natural numbers

Z = set of integers

P = set of prime numbers

W = set of whole numbers

Learn and Write Table of 6

Date : <u>19-june-2020</u>   Day: <u>Friday</u>

Exercise # 1.1

- **Web Link   https://youtu.be/0jizAekSw0k**

Q # 1 :Write the following sets in descriptive form.

Example :N = {1,2,3,4,...}

Sol:

   N = Set of natural numbers

(i) A = {*a, e, i, o, u*)   **(ii) B = {3, 6, 9, 12, ...}**

Sol: **Sol:**

Q # 2 >Write the following sets in tabular form.

Example : V = Set of vowels

Sol:

   V = {a,e,i,o,u}

   (i)   A = Letters of the word "hockey"

Sol:

   (ii) B = Two colours in the rainbow

Sol:

Learn and Write Table of 7

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Date : <u>20-june-2020</u>   Day: <u>Saturday</u>

Exercise # 1.2

- **Web link**   **https://youtu.be/eA1meAeU6FM**

Example Union : If A = {a, e, i, o} and B = {a, b, c}, then find AUB

Solution:

 A = {a, e, i, o}, B = {a, b, c}

 AUB = {a, e, i, o} U {a, b, c}

 = {a, e, i, o, a, b, c}

Example Intersection : If A = {a, e, i, o, u} and B= {a, b, c, d, e}, then find A∩B
Solution:
 A = {a, e. i, o, u}, B = {a, b, c, d, e}
 A ∩ B = {a, e, i, o, u} ∩{a, b, c, d, e}

 = {a, e}

Q # 3 : If P = set of Prime numbers and C = set of Composite numbers, then find P U C and P ∩C

Q # 6. If X = {1, 2, 3, ..., 10}, Y = {2, 4, 6, 8, 12} and Z = {2, 3, 5, 7, 11}, then find: X U (Y U Z)

Learn and Write Table of 8

Date : <u>22-june-2020</u>   Day: <u>Monday</u>

<div align="center">**Exercise # 1.2**</div>

- **Web link** **https://youtu.be/GSgBanNcWug**

Example Difference of sets : If A = {1, 3, 6} and B = {1, 2, 3, 4, 5}, then find:

 (i) A - B   (ii) B - A

Solution:

 A = {1, 3, 6}, B = {1, 2, 3, 4, 5}

 (i) A - B = {1, 3, 6} - {1, 2, 3, 4, 5}

 = {6}

(ii) B - A = {1, 2, 3, 4, 5} – {1, 3, 6}

 = {2, 4, 5}

7. If R = {0, 1, 2, 3}, S = [0, 2, 4) and T = {1, 2, 3, 4}, then find:

   (i)   R \ S

   (ii)   T \ S

   (iii)   R \ T

Learn and Write Table of 9

Date : <u>23-june-2020</u>   Day: <u>Tuesday</u>

Exercise # 1.3

- Web link   https://youtu.be/hfF16-UvSMI

• Disjoint Sets
Two sets A and B are said to be disjoint sets, if there is no
common element between them.

• Overlapping Sets
Two sets A and B are called overlapping sets, if there is at
least one element common between them but none of them
is a subset of the other .

Q # 1. Look at each pair of sets to separate the disjoint and overlapping
sets.

(i)   A = {*a, b, c, d, e*}, B = {*d, e, f, g, h*}

(ii)   L = {2, 4, 6, 8, 10}, M = {3, 6, 9, 12}

(iii)   P = Set of Prime numbers, C = Set of Composite numbers

(iv)   E = Set of Even numbers, O = Set of Odd numbers

Learn and Write Table of 10

Date : 24-june-2020   Day: Wednesday

Exercise # 1.3

- **Web link https://youtu.be/fvqbxOO7_2Y**
  - **• Complement of a Set**

Consider a set B whose universal set is U, then the difference set U \ B or U - B is called the complement of a set B, which is denoted by B' or Bc and read as "B complement".

Example :   If U = {1, 2, 3, ..., 10} and B = {1, 3, 7, 9}, then find B'.

Solution:

U = {1, 2, 3, ...,10}, B = {1, 3, 7, 9}

B' = U − B

= {1, 2, 3, ... , 10} − {1, 3, 7, 9}

= {2, 4, 5, 6, 8, 10}

Q # 2. If U = {1, 2, 3, ..., 10}, A = {1, 2, 3, 4, 5}, B = {1, 3, 5,7, 9}, C = {2, 4, 6,8, 10} and D = 3, 4, 5, 6, 7}, then find: A'

Q # 4. If U= {1, 2, 3, ..., 20}, A= {1, 3, 5, ... ,19} and B = {2, 4, 6, ... ,20}, thenprove that: B' = A

Learn and Write Table of 11

Date : 25-june-2020   Day: Thursday

Exercise # 1.3

- **Web link   https://youtu.be/fvqbxOO7_2Y**
  - **• Complement of a Set**

Consider a set B whose universal set is U, then the difference set U \ B or U - B is called the complement of a set B, which is denoted by B' or Bc and read as "B complement".

Example :   If U = {1, 2, 3, ..., 10} and B = {1, 3, 7, 9}, then find B'.

Solution:

U = {1, 2, 3, ...,10}, B = {1, 3, 7, 9}

B' = U – B

= {1, 2, 3, ... , 10} – {1, 3, 7, 9}

= {2, 4, 5, 6, 8, 10}

Q # 5. If U = set of integers and W = set of whole numbers, then find the complement of set W.

Q # 6. If U = set of natural numbers and P = set of prime numbers, then find the complement of set P.

Learn and Write Table of 12

Date :26-june-2020   Day: Friday

Exercise # 1.4

- **Properties Involving operations on sets**
- **Web link   https://youtu.be/fxWbmGNJ1Z4**

Example: If A = {1, 2, 3, 4, 5}, B = {1, 3, 5, 7} and C = {2, 4, 6, 8},
then verify that: A Uj (BU C) = (AU B)U C
Solution:
L.H.S = A j (B j C)
= {1, 2, 3, 4, 5} U({1, 3, 5, 7} j {2, 4, 6, 8})
= {1, 2, 3, 4, 5} U{l, 2, 3, 4, 5, 6, 7, 8}
= {1, 2, 3, 4, 5, 6, 7, 8}
R.H.S = (A UB) UC
= ({1, 2, 3, 4, 5} U{1, 3, 5, 7}) U{2, 4, 6, 8}
= {1, 2, 3, 4, 5, 7} U{2, 4, 6, 8}
= {1, 2, 3, 4, 5, 6, 7, 8}
    We see that L.H.S = R.H.S

Example : If A = {1, 2, 5, 8}, B = {2, 4, 6} and C = {2, 4, 5, 7}, then
    verify that: A k (B ∩C) = (A ∩B) ∩C

Solution:
A = {1, 2, 5, 8}, B = {2, 4, 6}, C = {2, 4, 5, 7}
L.H.S = A ∩(B ∩C)
= {1, 2, 5, 8} ∩({2, 4, 6} ∩{2, 4, 5, 7})
= {l, 2, 5, 8} ∩{2, 4} = {2}
R.H.S = (A ∩B) k C
= ({l, 2, 5, 8} ∩{2, 4, 6}) ∩{2, 4, 5, 7}
= {2} ∩{2, 4, 5, 7} = {2}
    It is verified that L.H.S = R.H.S

Learn and Write Table of 13

Date : <u>27-june-2020</u>   Day: <u>Saturday</u>

Exercise # 1.4

- Web Link https://youtu.be/nw3_u9U8hu0

Example 1 : If A= {1, 2, 3} and B = {2, 4, 6}, then verify that:

AUB = BUA.
Solution:
 A U B = {1, 2, 3} j {2, 4, 6}
 = {1, 2, 3, 4, 6}
 B U A = {2, 4, 6} j {1, 2, 3}
 = {1, 2, 3, 4, 6}
From the above, it is verified that:
 AUB = BUA

Example 2: If a = {a, b, c, d} and B = {a, c, e, g}, then verify that
A ∩ B = B ∩ A.
Solution:
 A ∩ B = {a, b, c, d} ∩ {a, c, e, g}
 = {a, c}
 B ∩ A = {a, c, e, g} ∩ {a, b, c, d}
 = {a, c}
From the above it is verified that A ∩ B = B ∩ A

Q # 1. If A= {a, e, i, o, u}, B = {a, b, c} and C = {a, c, e, g}, then verify that:

   (i) A ∩ B = B ∩ A   **(ii) A U B = B U A**

Learn and Write Table of 14

Date : <u>29-june-2020</u>   Day: <u>Monday</u>

Exercise # 1.4

- **Web linkhttps://youtu.be/-WcbfY3hUF4**

Example 1 : If A= {1, 2, 3} and B = {2, 4, 6}, then verify that:

AUB = BUA.
Solution:
 A U B = {1, 2, 3} j {2, 4, 6}
 = {1, 2, 3, 4, 6}
 B U A = {2, 4, 6} j {1, 2, 3}
 = {1, 2, 3, 4, 6}
From the above, it is verified that:
 AUB = BUA

Example 2: If a = {a, b, c, d} and B = {a, c, e, g}, then verify that
A ∩ B = B ∩ A.
Solution:
 A ∩ B = {a, b, c, d} ∩ {a, c, e, g}
 = {a, c}
 B ∩ A = {a, c, e, g} ∩ {a, b, c, d}
 = {a, c}
From the above it is verified that A ∩ B = B ∩ A

Q # 4. If O = {1, 3, 5, 7.....}, E = {2, 4, 6, 8......} and N = {1, 2, 3, 4....}, thenverify that:
(i) O ∩ (E ∩ N) = (O ∩ E) ∩ N   (ii) O U(E UN) = (O UE)UN

Learn and Write Table of 15

.

Date : <u>30-june-2020</u>   Day: <u>Tuesday</u>

Exercise # 1.4

- **Web link   <u>https://youtu.be/fINgYHB4aVY</u>**

Q # 5. If U = {a, b, c, ...,z}, S = {a, e, i, o, u} and T = {x, y, z},then verify that:
   (i) S U f = S   **(ii) T ∩ U = T**

Q # 6. If A = {1, 7, 9, 11}, B = {1, 5, 9, 13}, and C = {2, 6, 9, 11},then verifythat:
(i) A - B ≠ B − A   **(ii) A - C ≠ C - A**

Learn and Write Table of 16

Date : <u>1-july-2020</u>   Day: <u>Wednesday</u>

Exercise # 1.4

- **Web link** **https://youtu.be/8cVGuAagx7M**

Q # 7. If U = {0, 1, 2,....,15}, L = {5, 7, 9,....,15}, and M = {6, 8, 10, 12, 14},then verify the identity properties with respect to union an intersection of sets.

Learn and Write Table of 17

Unit # 1

Review Exercise

Q # 1: Tick (✓) the correct answer

i- To write an empty set, we use the symbol:

(a) U   (b) φ   (c) ^   (d) \

ii- The complement of a set A can be written as:

  (a)B\A   (b)A '   (c) n(A)   (d) A

iii- If A= {1,2} and B= {a,b},then A ∩ B = ____

(a) {1,2}   (b) {a,b}   (c) {1,2,a,b}   (d) { }

iv- If A= {1,3} and B= {1,2,3},then A U B =____

(a) {1,2,3} (b) {1}   (c) { } (d) {1,3}

v- "B difference A" is represented by :

(a) A-B   (b) A   B   (c) B \ A   (d) A U B

vi- A' U A = --------

(a) U   (b) φ   (c) A   (d) A'

Q # 2 : Fill in the blanks.

(i) The symbol " ^ " means _____.

   (ii)   The set consisting of only common elements of two sets
            is called the _____ of two sets.
   (iv)   A set which contains all the possible elements of the sets
            under consideration is called the _____ set.
   (v)   Two sets are called _____ if there is at least one   element
           common between them and non of the sets is subset of the other.
   (vi)   In sets, the universal set acts as _____ for intersection.

Definitions

Set:

" A set is a collection of well defined objects/numbers. The objects/numbers in any set are called its members or elements"

Examples of a set:
A = The set of counting numbers.
B = The set of Pakistani Provinces.
C = The set of geometrical instruments

Proper subset :

If set A is subset of set B and set B is not subset of A , then set A is called proper subset of set B .

Improper subset :

If two sets are equal , then they are improper subsets of each other.

Finite - Infinite set :

A set having a finite numberof elements is called a finite set and a set having unlimited number of elements is called an infinite set .

singleton set :A set having a single element is called a singleton set .

Empty set : A set having no element is called empty set.

Write and Learn tables from 6 to 20.

Learn and Write Table of 18

Date : <u>3-july-2020</u>   Day: <u>Friday</u>

Unit 2

Rational Numbers

- Introduction to Rational Numbers
- Web link   https://youtu.be/aYiX5rxBmOE

Q # 1 : Define Rational numbers and give atleast 5 examples.

Ans:_____
_____
_____
_____
_____

Q # 2 : What is a number line.

Ans:_____
_____
_____
_____
_____

Q # 3 : Draw a number line and represent the rational number $-\frac{10}{3}$.

Learn and Write Table of 19

Exercise # 2.1

- Web link   https://youtu.be/3qR1yC45TR0

Example 1: Draw a number line and represent the rational number -10/3

Solution:

Step 1: Draw a number line as given below.

Step 2: Convert -10/3 to mixed fraction $-3\frac{1}{3}$

Step 3: Divide the line segment of the number line between
- 4 and -3 in three equal parts and start counting from the point -3
to -4 on the first part is $-3\frac{1}{3}$ which is our required number.

1. Write "T" for a true and "F" for a false statement.
(i) Positive numbers are rational numbers.
(ii) "0" is not a rational number.
(iii) An integer is expressed in form.
(iv) Negative numbers are not rational numbers.
(v) In any rational number q can be zero.

2. Represent each rational number on the number line.

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

(ii) $\frac{2}{3}$

Learn and Write Table of 20