

HOLIDAY HOME WORK

ENGLISH CORE

CLASS XII

READING AND WRITING

1. Practice Comprehension Passage and Note making passages (any five) from your Goyal's Assignments.
2. Write Notices on the following occasions (three of each category)
 - a. Tours
 - b. Sports
 - c. Cultural / Extra- curricular activities
 - d. Lost & Found
 - e. Appeals
3. Draft advertisements on the following topics (three of each category)
 - a. Situation Vacant
 - b. Situation Wanted
 - c. Sale and Purchase
 - d. Lost & Found
 - e. Matrimonial
4. Draft posters to create awareness on the following topics:
 - a. Measures and prevention of Covid 19
 - b. Prevention of Drug Abuse
 - c. Violence Against Women
 - d. Fire Safety and prevention
5. Write Formal letters on the following topics (three of each category)
 - a. Complaint
 - b. Editor
 - c. Placing order
 - d. Enquiry
 - e. Job Application
6. Write articles on the following topics (Word-limit 150- 200)
 - a. My vision of future India
 - b. Digital education in India
 - c. Women safety in India
 - d. 50- years of Earth Day

LITERATURE

Go through the links given for each lesson before attempting the assignments.

FLAMINGO

L-4 The Rattrap by Selma Lagerlof

<https://youtu.be/QFObwSI2hvw>

Short questions (Think as you read)

- Questions 1, 3, 4, 5 & 6 (page no. 34)
- Questions 1 to 5 (page no. 41)
- Questions 1 & 2 (page no. 42)

Long answer type questions (understanding the text)

- Questions 3 and 5 (page no. 43)

Talking about the text

- Question 2

Poem 4- A Thing of Beauty by John Keats.

<https://youtu.be/iPz7KyQlauU>

Short questions. Page no.99

Think it out

- Question No. 1, 2,3,4,5 and 7.

R.T.C. (Refer Goyal's)

1. "Therefore, on every..... gloomy days"
 - Questions 1,2 & 3
2. "All lovely tales..... heaven's brink."
 - Questions 1, 2, 3 and 4
3. A thing of beauty..... quiet breathing"
 - Questions 1, 2 and 3

VISTAS

Lesson 4. The Enemy by Pearl S. Buck

<https://youtu.be/Cy1ti9cYoZw>

Reading with insight

- Questions 1 to 6 (100 to 120 words)

Short answer type questions:

1. Who was Dr. Sadao? Where was his house?
2. Where did Sadao meet Hana? How they married?
3. Why did the servants leave Dr. Sadao's house?

4. What did Sadao do to get rid of the enemy?

All the work assigned till date should be neatly written in your C.W. notebook and submitted for checking after the holidays.

All the Best!!!

HOLIDAY HOMEWORK

CLASS XII

PHYSICS

- Write about five Physicists – 3 pages each in scrap book.
- Learn chapter 1,2,3 and 4 notes (Already given to you).
- Do 20 numericals (Previous board exam numericals) from each chapter in separate copy.(From any help book such as S.L.Arora or any else or Together with).

HOLIDAY HOMEWORK

CLASS - XII

CHEMISTRY

1. Write notes, all the solved examples and NCERT exercise question answers of Chapters- Solutions, Haloalkane and Haloarene and Alcohols, Phenols and Ethers in your note book properly.

2. Learn the above mentioned chapters.

3. Learn the s-, p-, and d- block elements of Modern Periodic table.

4. Practical file work is attached in this PDF. Write the given activities in Chemistry lab manual.

5. Project work details will be provided to you through whatsapp.

Note:- Update your note book by completing all the work assigned till date.

Aim- To analyse the given salt qualitatively and systematically.

Physical characteristics

1) Colour-White

2) Odour -Ammonical odour

3) State- Amorphous

4) Solubility- Soluble in cold distilled water

Preliminary dry heating test

Experiment	Observation	Inference
Salt is taken in a dry test tube and heated.	White fumes evolve, white sublimate on the cooler walls of the test tube.	May be NH_4^+

Analysis of Acidic radical

1) Salt is taken in perfectly dry test tube and dilute H_2SO_4 is added to it.	Brisk effervescence obtained, when pass through lime water, it turn milky but not turn potassium dichromate green.	May be CO_3^{2-}
Confirmatory test Salt is taken in a test tube and MgSO_4 is added to it.	White precipitate.	CO_3^{2-} confirmed.

Analysis of Basic radical

1) Salt solution is taken in attest tube and NaOH is added to it. Warm the test tube.	White fumes with ammonical odour comes out which turns dense on bringing a glass rod dipped in dilute HCl solution.	May be NH_4^+
2) To the salt solution, Nessler's reagent is added.	Reddish brown precipitate obtained.	NH_4^+ confirmed.

Result- Salt is Ammonium carbonate

Acidic radical- CO_3^{2-}

Basic radical- NH_4^+

Aim-To analyse the given salt qualitatively and systematically.

Physical characteristics

- 1) Colour-White
- 2) Odour – Vinegar like odour
- 3) State- Crystalline
- 4) Solubility- Soluble in cold distilled water

Preliminary dry heating test

Experiment	Observation	Inference
Salt is taken in a dry test tube and heated.	White fumes evolve with vinegar like smell.	May be CH_3COO^-

Analysis of Acidic radical

1) Salt is taken in perfectly dry test tube and dilute H_2SO_4 is added to it.	No reaction.	CO_3^{2-} , S^{2-} , SO_3^{2-} , NO_2^- absent
2) Salt is taken in a dry test tube and conc. H_2SO_4 is added to it and heated.	White fumes evolved with vinegar like smell.	May be CH_3COO^-
Confirmatory test		
1) Salt is taken in a watch glass and mixed with solid oxalic acid and paste is prepared.	Vinegar like smell	CH_3COO^- confirmed.
2) Salt solution is taken and FeCl_3 solution is added to it.	Red coloured filtrate obtained.	
Divide filtrate into two parts:		
a) To the first part, HCl is added followed by water.	Red colour disappears.	CH_3COO^- confirmed.
b) To the second part distilled water is added and boiled.	Reddish brown precipitate obtained.	CH_3COO^- confirmed.

Analysis of Basic radical

1) To the salt solution, Nessler's reagent is added.	No Reddish brown precipitate obtained.	NH_4^+ absent.
2) To the salt solution, dilute HCl is added.	White precipitate obtained. Dissolve the precipitate in hot water and divide into 2 parts.	Pb^{2+} confirmed.
b) To the first part potassium chromate solution is added.	Yellow precipitate obtained which dissolves in NaOH solution.	Pb^{2+} confirmed.
c) To the second part, Potassium iodide solution is added.	Yellow precipitate obtained.	Pb^{2+} confirmed.

Result- Salt is lead acetate

Acidic radical- CH_3COO^-

Basic radical- Pb^{2+}

Aim- To analyse the given salt qualitatively and systematically.

Physical characteristics

- 1) **Colour**-White
- 2) **Odour** – Odourless
- 3) **State**- Amorphous
- 4) **Solubility**- Soluble in cold distilled water

Preliminary dry heating test

Experiment	Observation	Inference
Salt is taken in a dry test tube and heated.	White fumes evolve with water droplets on inner cooler walls of the test tube.	May be Cl^-

Analysis of Acidic radical

1) Salt is taken in perfectly dry test tube and dilute H_2SO_4 is added to it.	No reaction.	CO_3^{2-} , S^{2-} , SO_3^{2-} , NO_2^- absent
2) Salt is taken in a dry test tube and conc. H_2SO_4 is added to it and heated.	White fumes evolved which become dense on bringing a glass rod dipped in NH_4OH solution.	May be Cl^-
Confirmatory test	Red fumes of chromyl chloride	

3) Take salt in a test tube and solid $\text{K}_2\text{Cr}_2\text{O}_7$ is added followed by conc. H_2SO_4 and the mixture is heated. To the yellow solution, acetic acid along with lead acetate solution is added.	come out. On passing through NaOH solution, it turns yellow. Yellow precipitate obtained.	Cl^- confirmed. Cl^- confirmed.
4) To the salt solution few drops of HNO_3 is added followed by silver nitrate solution.	White precipitate obtained which is completely soluble in NH_4OH solution	Cl^- confirmed.

Analysis of Basic radical

1) To the salt solution, Nessler's reagent is added.	No Reddish brown precipitate obtained.	NH_4^+ absent.
2) To the salt solution, dilute HCl is added.	No white precipitate obtained.	Group 1 absent
3) Pass H_2S gas through the above solution.	No precipitate obtained.	Group 2 absent.
4) Add conc. HNO_3 and boil to expel out H_2S gas. Then solid ammonium chloride is added followed by NH_4OH in excess.	Gelatinous white precipitate obtained.	Group 3 present. May be Al^{3+}
5) Lake test Dissolve white precipitate in dilute HCl . To it one drop blue litmus solution is added. Then NH_4OH is added dropwise till blue colour disappears.	Blue precipitate floating in colourless solution obtained which gives appearance of a blue lake.	Al^{3+} confirmed.

Result- Salt is Aluminium chloride

Acidic radical- Cl^-

Basic radical- Al^{3+}

Aim- To analyse the given salt qualitatively and systematically.

Physical characteristics

- 1) **Colour**-White
- 2) **Odour** – Odourless
- 3) **State**- Amorphous
- 4) **Solubility**- Soluble in cold distilled water

Preliminary dry heating test

Experiment	Observation	Inference
Salt is taken in a dry test tube and heated.	White fumes evolve with water droplets on inner cooler walls of the test tube.	May be Zn^{2+}

Analysis of Acidic radical

1) Salt is taken in perfectly dry test tube and dilute H_2SO_4 is added to it.	No reaction.	CO_3^{2-} , S^{2-} , SO_3^{2-} , NO_2^- absent
2) Salt is taken in a dry test tube and conc. H_2SO_4 is added to it and heated.	No change.	Cl^- , Br^- , I^- , NO_3^- , CH_3COO^- absent
Confirmatory test for SO_4^{2-}		
3) To the salt solution add dilute HCl followed by few drops of $BaCl_2$ solution.	White precipitate obtained which are insoluble in conc HCl	SO_4^{2-} confirmed.
4) To the salt solution add few drops of acetic acid and then lead acetate is added.	White precipitate obtained which are insoluble in hot ammonium acetate solution.	SO_4^{2-} confirmed.

Analysis of Basic radical

1) To the salt solution, Nessler's reagent is added.	No Reddish brown precipitate obtained.	NH_4^+ absent.
2) To the salt solution, dilute HCl is added.	No white precipitate obtained.	Group 1 absent.
3) Pass H_2S gas through the above solution.	No precipitate obtained.	Group 2 absent.
4) Add conc. HNO_3 and boil to expel out H_2S gas. Then solid ammonium chloride is added followed by NH_4OH in excess.	No precipitate obtained.	Group 3 absent.
5) Through the above solution H_2S gas is passed.	Dirty white precipitate obtained.	Group 4 present. May be Zn^{2+}
6) Dissolve the precipitate in dilute HCl and boil the solution to expel out H_2S gas.		
7) Divide the solution in two parts:		
a) Add NaOH to the first part.	White precipitate obtained which dissolves in excess of NaOH.	Zn^{2+} obtained.
b) Add potassium ferrocyanide to the second part.	Bluish white precipitate obtained.	Zn^{2+} obtained.

Result- Salt is Zinc sulphate

Acidic radical - SO_4^{2-}
Basic radical - Zn^{2+}

Aim- To analyse the functional group present in the given organic compound. (Ketone)

EXPERIMENT	OBSERVATION	INFERENCE
1) 2,4 –Dinitrophenyl hydrazine test To the organic compound dissolved in ethanol, 2 ml of 2,4-DNp solution is added. Corked the test tube and shake it and allowed to stand for 5 minutes.	Formation of yellow-orange precipitate.	Indicates the presence of carbonyl group.
2) Sodium bisulphite test- To the organic compound, NaHSO ₃ solution is added. Test tube is corked, shaken and left to stand for 20 minutes.	Formation of crystalline white precipitate takes place..	Indicates the presence of carbonyl group.
3) m- Dinitrobenzene test- To the organic compound, finely powdered m- Dinitrobenzene is added followed by dilute NaOH and the test tube is shaken.	Appearance of violet colour takes place which fades slowly.	Ketonic group present.
4) Sodium nitroprusside test- Dissolve a crystal of sodium nitroprusside in water. Add the organic compound to the above solution followed by addition of NaOH dropwise.	Red coloured solution obtained.	Ketonic group present.

Result- The given organic compound contains Ketone.

Aim- To analyse the functional group present in the given organic compound. (Carboxylic acid)

EXPERIMENT	OBSERVATION	INFERENCE
1) Litmus test- To a drop of compound blue litmus is added.	Blue litmus turns red.	Acidic group. May be carboxylic acid group.
2) Sodium bicarbonate test- To the organic compound, saturated solution of NaHCO_3 is added.	Brisk effervescence of CO_2 gas evolved.	Carboxylic acid group present.
2) Ester test- Add 1 ml of ethanol to organic compound taken in a test tube followed by 4-5 drops of conc. H_2SO_4 . Contents are heated on a water bath for 10 minutes and emptied in a beaker containing one test tube water.	Formation of fruity smelling substance called ester.	Carboxylic acid group present.

Result- The given organic compound contains Carboxylic acid.

Aim- To analyse the food stuff (carbohydrate) present in the given sample.

EXPERIMENT	OBSERVATION	INFERENCE
1) Molisch's test- To an aqueous sample of the food, Molisch's reagent (10% alcoholic solution of α -naphthol) is added. 1ml of conc. H_2SO_4 is then added dropwise through the walls of the test tube.	Purple ring is produced at the junction of the two layers.	Carbohydrate confirmed.
2) Fehling's test- Mix equal amount of Fehling A and B in a test tube. To this solution food sample is added and the contents are heated on a water bath.	Red precipitate of Cu_2O is obtained.	Indicates the presence of a reducing sugar.
3) Benedict's test- To the aqueous solution of food sample, Benedict's reagent is added and test tube is heated on a water bath.	Red precipitate of Cu_2O is obtained.	Indicates the presence of a reducing sugar.
4) Tollen's test- To silver nitrate solution, 2-3 ml of dilute NaOH is added which results in the formation of a brown precipitate. NH_4OH is then added till brown precipitate disappears. To the above liquid, food sample is added and mixture is heated on a water bath for 8-10 minutes.	Shining silver mirror obtained.	Indicates the presence of a reducing sugar.

Result- The given food stuff contains Carbohydrate.

Aim- To analyse the food stuff (oils/fats) present in the given sample.

EXPERIMENT	OBSERVATION	INFERENCE
1) Solubility test- Food sample solution is taken in 3 test tubes. To the first test tube water is added. To the second ethanol is added and to the third chloroform is added. Each test tube is shaken vigorously and observed carefully.	a) Immiscible in water b) In alcohol it forms lower layer which dissolves on heating. c) Miscible in chloroform.	Oil/Fat is confirmed.
2) Translucent spot test- A drop of given food sample is taken on the filter paper which is folded and pressed a little.	On unfolding a translucent or greasy spot is obtained.	Oil/Fat is confirmed.
3) Acrolein test- Food sample is heated with crystals of KHSO_4 in a test tube.	Pungent irritating odour of acrolein is obtained.	Oil/Fat is confirmed.

Result- The given food stuff contains Oil/Fat.

Aim- To analyse the food stuff (proteins) present in the given sample.

EXPERIMENT	OBSERVATION	INFERENCE
1) Biuret test- To the dispersion of food sample, 2 ml of NaOH solution is added followed by 4-5 drops of 1 % CuSO ₄ solution.	Bluish violet colouration obtained	Protein confirmed.
2) Xanthoproteic test- To 2 ml of dispersion of HNO ₃ is added and contents are heated on a water bath.	Yellow coagulum obtained.	Protein confirmed.
3) Million's test- To the dispersion of the given food sample, Million's reagent is added.	White precipitate of obtained which changes to brick red on boiling.	Protein confirmed.
4) Ninhydrin test- To the dispersion of the given food sample, Ninhydrin solution is added and the contents are boiled.	Intense blue colouration obtained.	Protein confirmed.

Result- The given food stuff contains Protein.

HOLIDAY HOMEWORK

CLASS - XII

BIOLOGY

- Write notes and question- answers of chapters 3 and 4 in your notebook.
- Learn Q/Answers of Ch 1, 2, 3 and 4. Go through the important points of these chapters.
- Write Activities 'SECTION- A, 1 to 8' in your BIOLOGY Practical File. (It should be neat and clean with diagrams).
- Make an Investigatory Project on a topic related to a disease.
(Name of the disease and other related information will be provided through WhatsApp.)

CLASS Xii

(computer science /informatics practices)

HOLIDAYS HOMEWORK (2020-21)

- Do all the MCQ Test Paper in your Register.
- Make a practical file of MYSQL. The list of questions are given in PDF format link.
- <https://drive.google.com/open?id=1mpObOlyevkEQ1pOjyMaaf7QK7brBNUeL>

HOLIDAY H.W. (2020 – 21)

MATHEMATICS (041)

CLASS – XII-C/E

1. The following activities (3, 4, 5 & 6) to be done in MATHS practical file. FIGURE should be drawn on the left side plain page.
2. (i) Write all solved examples of Chapter- 2, 3 & 4.
(ii) Learn and write all formulas of ITF & Differentiation.
(iii) Solve all questions from PRACTICE MATERIAL FOLDER of chapter- 2, 3, & 4.
 - Complete your notebook. (10 MARKS)
 - Complete MATHS practical file. (10 MARKS)

ACTIVITY- 3



- **Objective:** To draw the graph of $\sin^{-1}x$, using the graph of $\sin x$ and demonstrate the concept of mirror reflection (about the line $y=x$).

Prerequisite Knowledge: Knowledge of plotting the graph of $\sin x$ and basic knowledge of inverse trigonometric functions.

- **Materials Required:** Graph paper, ruler, eraser, pencil, colour pens, nail/safety pins

- **Procedure:** (i) Take a graph paper & cut it into a square shape. Draw two perpendiculars on the graph using ruler.

(ii) Name them as XOX' and YOY' as coordinate axes as shown in fig: 1



- (iii) Mark the points ~~on~~ the positive y-axis 0.5, 1, 1.5, 2. Similarly, mark the points on the negative y-axis -0.5, -1, -1.5, -2.
- (iv) Graduate the axes and mark approximately the points $(\frac{\pi}{6}, \sin \frac{\pi}{6})$, $(\frac{\pi}{4}, \sin \frac{\pi}{4})$, ..., $(\frac{\pi}{2}, \sin \frac{\pi}{2})$ i.e., $(\frac{\pi}{6}, 0.5)$, $(\frac{\pi}{4}, 0.71)$, $(\frac{\pi}{3}, 0.87)$ and $(\frac{\pi}{2}, 1)$ in the coordinate plane.
- (v) Make hole on these pts using pin or nail. Name them

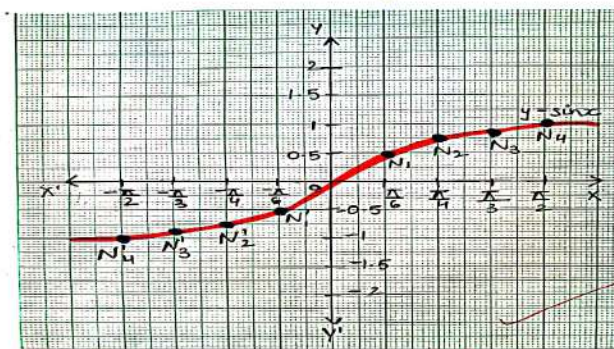


Fig. 1

as N_1, N_2, N_3 & N_4 as shown in fig 1

(vi) Repeat the above process on the negative x -axis, by making the pts $(-\frac{\pi}{6}, \sin -\frac{\pi}{6}), (-\frac{\pi}{4}, \sin -\frac{\pi}{4}), \dots, (-\frac{\pi}{2}, \sin -\frac{\pi}{2})$, i.e.,

$(-\frac{\pi}{6}, -0.5), (-\frac{\pi}{4}, -0.71), (-\frac{\pi}{3}, -0.87)$ and $(-\frac{\pi}{2}, -1)$

and make a hole on the points using safety pin or nail and name them as N'_1, N'_2, N'_3 & N'_4 . Also make hole at 0.

(vii) Draw a free hand curve by joining all the pin holes to get the graph of $\sin x$ from $-\frac{\pi}{2}$ to $\frac{\pi}{2}$ as shown in fig 1

(viii) Fold the square paper along the diagonal to get the graph $y=x$. Using ruler, draw a line on a square sheet of paper where the crease formed as shown in fig. 2.

(ix) Draw a perpendicular from the points N_1, N_2, N_3, N_4 on the line $y=x$ and produce these lines such that the length of perpendicular on both sides of the line $y=x$ are equal. Name the points on the other sides of the line as $1, 2, 3$ and 4 as shown in fig 2.



- (x) Repeat the above ~~process~~ on the -ve x -axis to get the images as l'_1, l'_2, l'_3 and l'_4 .
- (xi) Join all the pts l_1 to l_4 and l'_1 to l'_4 on both sides of the line $y=x$ to obtain the graph of $y = \sin^{-1} x$.
- (xii) clearly, the two functions $\sin x$ and $\sin^{-1} x$ are the major images of each other as shown in Fig 2.



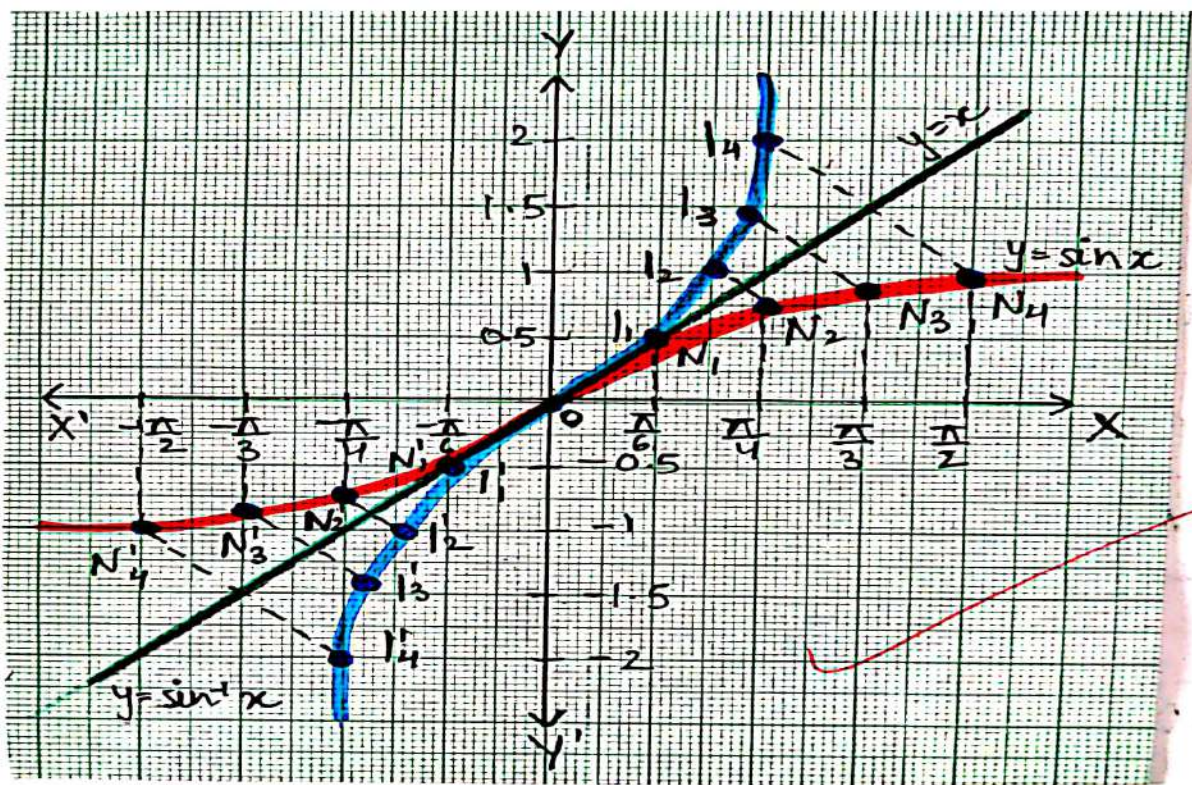


Fig. 2

• Observation :

OBSERVATION TABLE		
Points	Images of points in the mirror [the line $y=x$]	Is the line joining the pts perpendicular to $y=x$ (Yes/No)
N_1	$I_1 = (0.5, \pi/6)$	NO - points are coinciding Yes
N_2	$I_2 = (0.71, \pi/4)$	
N_3	$I_3 = (0.87, \pi/3)$	
N_4	$I_4 = (1, \pi/2)$	
N'_1	$I'_1 = (-0.5, -\pi/6)$	NO - points are coinciding Yes
N'_2	$I'_2 = (-0.71, -\pi/4)$	
N'_3	$I'_3 = (-0.87, -\pi/3)$	
N'_4	$I'_4 = (-1, -\pi/2)$	

The image of the graph of $\sin x$ in $y=x$ is the graph of $\sin^{-1} x$ in $y=x$, and the image of the graph of $\sin^{-1} x$ in $y=x$ is the graph of $\sin x$.

- Conclusion: The graph of $\sin x$ is plotted using the graph of $\sin^{-1} x$. It has been verified that the two graphs are mirror images of each other in the line $y=x$.

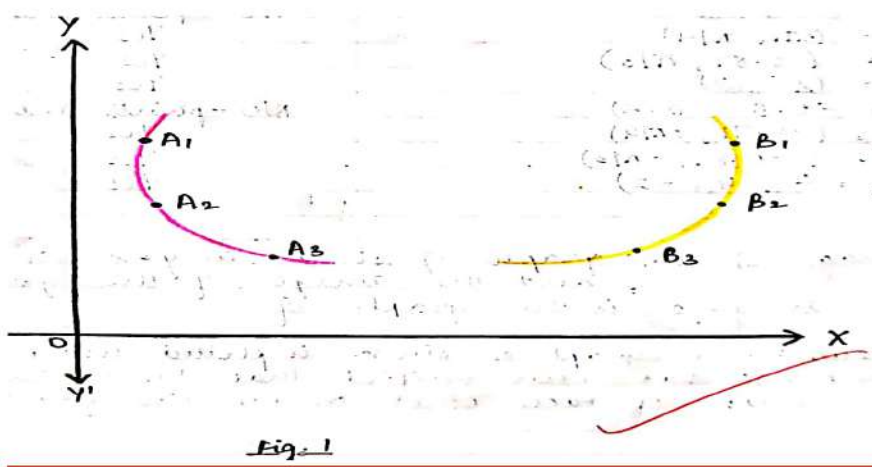


ACTIVITY 4

- **AIM :** To understand the concept of decreasing and increasing functions
- **Prerequisite knowledge :** concept of tangents, slope of line, knowledge of increasing & decreasing functions
- **Materials required :** pencil, ruler, white paper, trigonometric tables, colour pens.
- **Procedure :** (i) Take a white paper and draw two perpendicular lines to represent x and y -axis.
(ii) Draw 2 curves representing 2 fncs. Take 3 pts on left curve as A_1, A_2 & A_3 . Similarly, take 3 pts on right curve as B_1, B_2 & B_3 as in fig 1.
(iii) Draw a tangent on the left of the curve at the pt A , making an angle α , with the +ve direction of x -axis as shown in fig 2.



- (iv) α_1 is an obtuse angle, so $\tan \alpha_1$ is $-ve$, i.e. the slope of tangent at A_1 (der. of the func. at A_1) is $-ve$.
- (v) Take another 2 pts. A_2 & A_3 on the same curve & draw tangents at these pts making an angle α_2 and α_3 resp. with the $+$ ve direction of x -axis.
- (vi) Angle α_2 and α_3 are obtuse angles & therefore slopes of tangents $\tan \alpha_2$ and $\tan \alpha_3$ are both $-ve$, i.e., derivatives of func. at A_2 & A_3 are $-ve$.



(vii) The function gives the curve in fig 2, is a decreasing function.

(viii) From the 3 pts B_1, B_2 and B_3 given on the right curve, draw the tangent from each pt making angles β_1, β_2 , & β_3 respectively with the +ve direction of x-axis as shown in fig 3.

(ix) β_1, β_2 & β_3 are all acute angles & therefore the slope of tangents at B_1, B_2 & B_3 are +ve i.e. the derivative of the function at these pts are +ve. Thus, func. given by this curve is an increasing func.

• Observation :

OBSERVATION TABLE

Angles on the left curve ($> 90^\circ$)	Slope (+ve/-ve)	Angles on the right curve ($< 90^\circ$)	Slope (+ve/-ve)
$\alpha_1 = 100^\circ$	$\tan \alpha_1 = -ve$	$\beta_1 = 80^\circ$	$\tan \beta_1 = +ve$
$\alpha_2 = 130^\circ$	$\tan \alpha_2 = -ve$	$\beta_2 = 45^\circ$	$\tan \beta_2 = +ve$
$\alpha_3 = 150^\circ$	$\tan \alpha_3 = -ve$	$\beta_3 = 25^\circ$	$\tan \beta_3 = +ve$



Thus, the function represented by the curve (on left) is

Thus, the function represented by the curve (on right) is

- Conclusion: If $f'(x)$ is +ve then the func. is increasing & if $f'(x)$ is -ve then the function is decreasing. The concept of increasing & decreasing func. is explained by this activity.

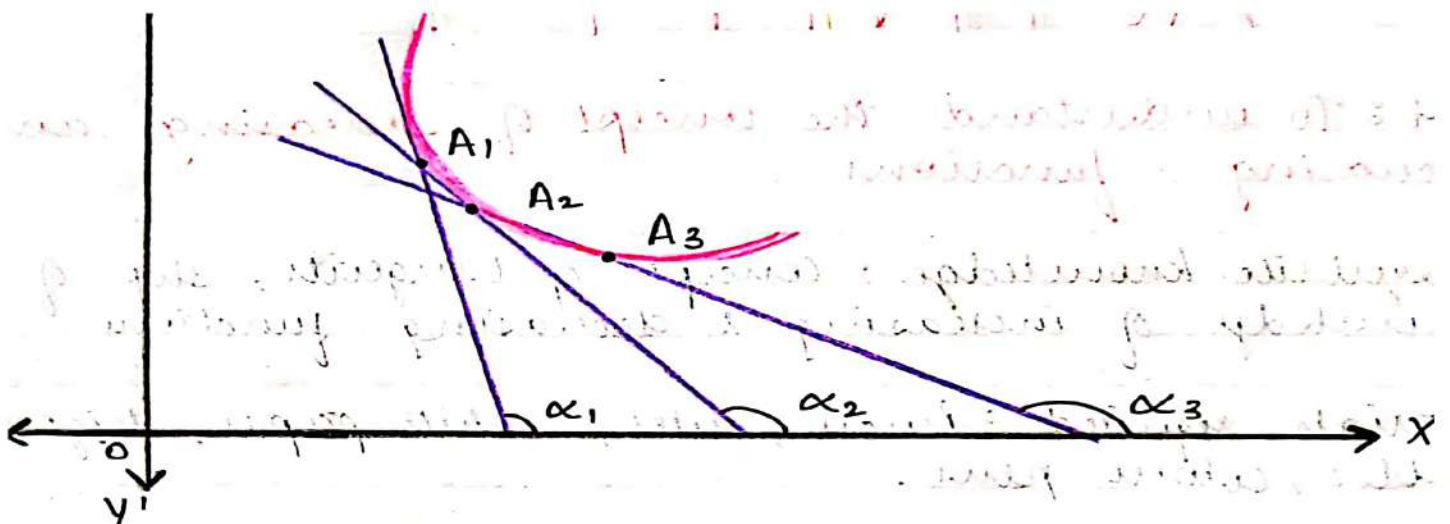


Fig. 2.

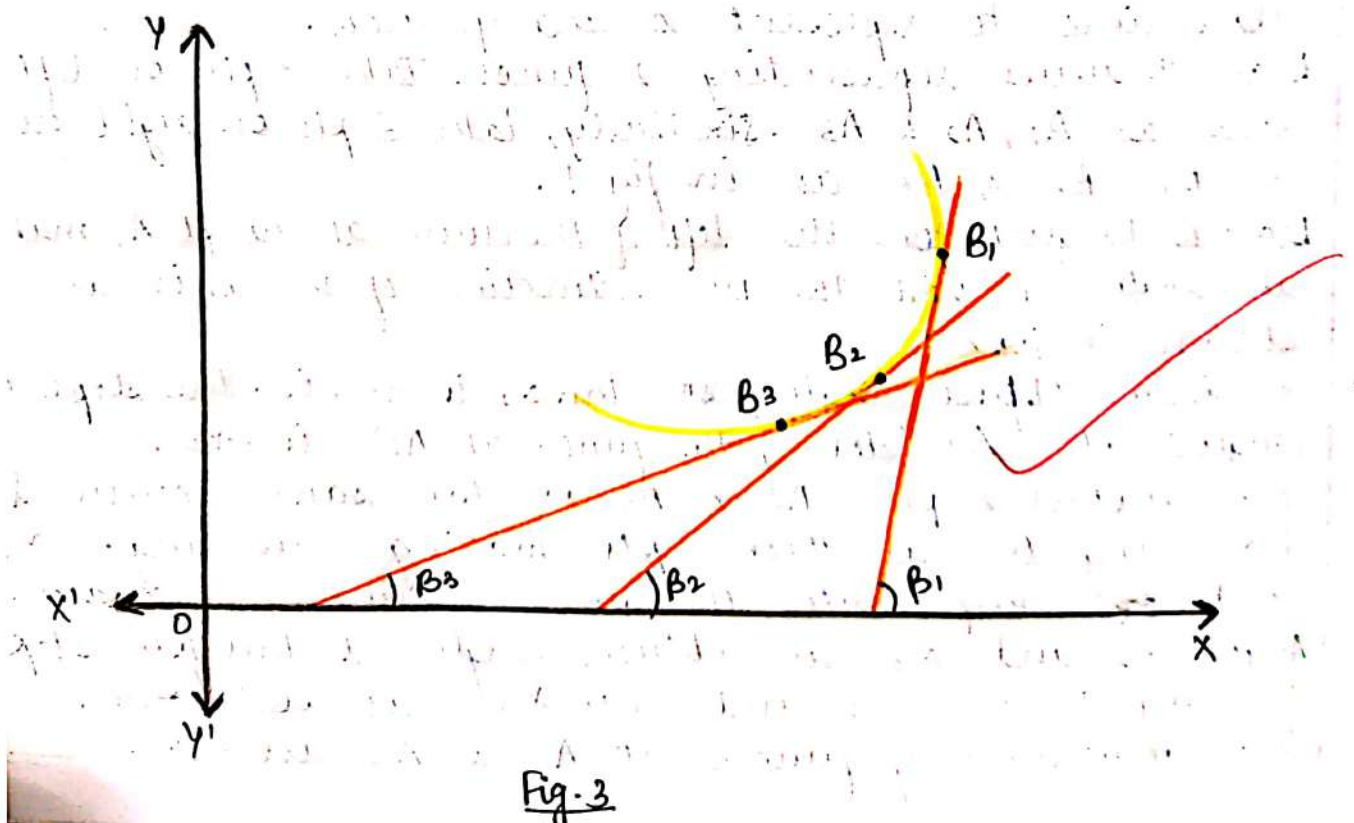


Fig-3

ACTIVITY 5.

- Objective: To understand the concepts of local maxima, local minima and point of inflection.
- Pre-requisite knowledge: Concept of tangents, knowledge of maxima, minima, local minima, local maxima and pt of inflexion.
- Procedure: (i) Take a cardboard sheet of convenient size & paste white paper on it.
(ii) Draw two perpendicular lines $X'OX$ and YOY' intersecting at O , which represents x -axis & y -axis.
(iii) Now, draw a curve as shown in Fig 1.



- (iv) Take 5 pts on the curve A, B, C, D & E, and draw a line of 2 cm on each pt on the curve.
- (v) The lines at the A, B, C & E represents tangents to the curve & are parallel to the x-axis. The slopes of tangents at these pts are 0, i.e., the value of the first derivative at these pts is 0. The tangent at D intersects the curve.
- (vi) Take 2 pts, one to the immediate left of A & other to the immediate right of A. Name these pts as A_1 & A_2 .
- (vii) Repeat the process for pts for B, C, D and E. Let their respective pts be (B_1, B_2) , (C_1, C_2) , (D_1, D_2) and (E_1, E_2) .
- (viii) Draw tangents at pts $A_1, A_2, B_1, B_2, C_1, C_2, D_1, D_2, E_1, E_2$.
- (ix) Sign of the slope of the ^{tangent} derivative (first derivative) at a pt. immediate left of A (i.e. A_1) is negative &



sign of the slope of the tangent (first derivative) at a pt immediate right of A (ie. A_2) is +ve. This implies at pt A, sign of the first derivative changes from -ve to +ve. So, the pt A is pt of local minima.

(x) Similarly, at pt C the sign of the first derivative changes from -ve to +ve. When we move from pt C_1 to C_2 . So, the pt C is also a pt of local minima.

(xi) Sign of the slope of the tangent (first derivative) at pt. on the curve immediate left of B (ie. B_1) is +ve & immediate right of B (ie. B_2) is -ve. This implies that at pt B, sign of derivative changes from +ve to -ve. So, the pt B is the pt of local maxima.

(xii) Similarly, we can show that pt E is also pt of local maxima.

(xiii) At the pt D, sign of first derivative does not change. So, it is a pt of inflexion.



• Observation :

OBSERVATION TABLE			
POINTS	NATURE OF FUNC.	PT. OF LOCAL MAXIMA/MINIMA	REMARKS
A ₁	Decreasing		Decreasing
A	None	Pt. of local minima	to
A ₂	Increasing		increasing

B ₁	Increasing	Pt. of	Increasing to
B	None	local	Decreasing
B ₂	Decreasing	maxima	
C ₁	Decreasing	Pt. of local	Decreasing
C	None	minima	to
C ₂	Increasing		Increasing
D ₁	Increasing	Pt. of	
D	None	inflection	None
D ₂	Increasing		
E ₁	Increasing	Pt. of	Increasing
E	None	local	to
E ₂	Decreasing	maxima	Decreasing



- Conclusion: Point of local maxima occurs when slope of the tangent changes sign from +ve to -ve & pt. of local minima occurs when slope of the tangent changes sign from -ve to +ve. If slope of the tangent does not change sign at a pt., then such a pt is called pt. of inflection.

• 6.



- **Objective:** To identify whether the given function is many-one or one-one, into or onto by considering domains & codomains.



- Pre-requisite knowledge: Knowledge of sets, elements, relations, function & types of functions.
- Procedure: (i) Take 2 colour sheets of paper, cut out 4 rectangular strips from a blue sheet & cut out 4 rectangular strips from a green colour sheet & paste them on the cardboard as shown in figures.
- (ii) Name the blue rectangular strip as A & green strip as B.
- (iii) Let us consider a function $f(x) = x^2$. Assume the domain & the codomain for the function $f(x)$ represented by set A & B respectively.
- (iv) Join the elements of set A to the elements of set B as shown in fig. 1.
- (v) Again, assume $A = [0, 1, 2]$ and $B = [0, 1, 4, 9]$. Join the elements of set A to the elements of set B as shown in fig. 2.
- (vi) For the same function, $f(x) = x^2$. Take the set $A = [-1, 0, 1, 2]$ and set $B = [0, 1, 4]$. Join the elements of set A to the elements of set B as shown in fig. 3.



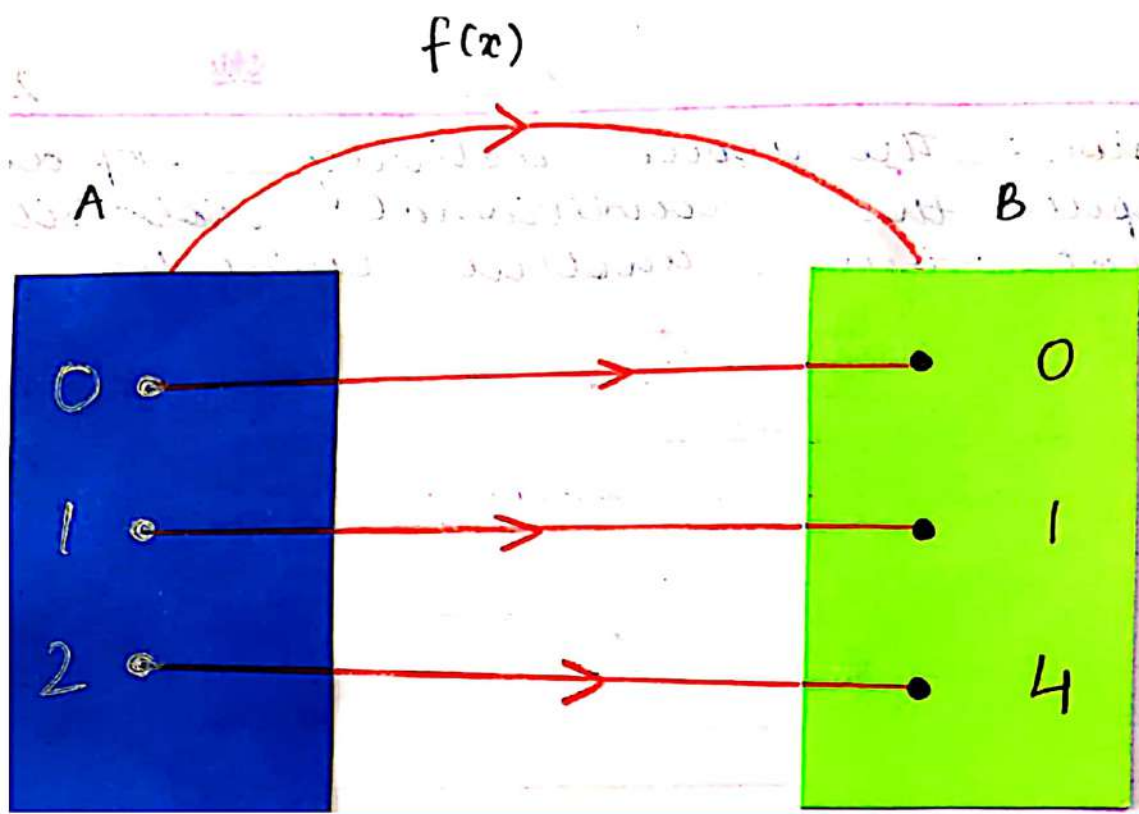


Fig. 1

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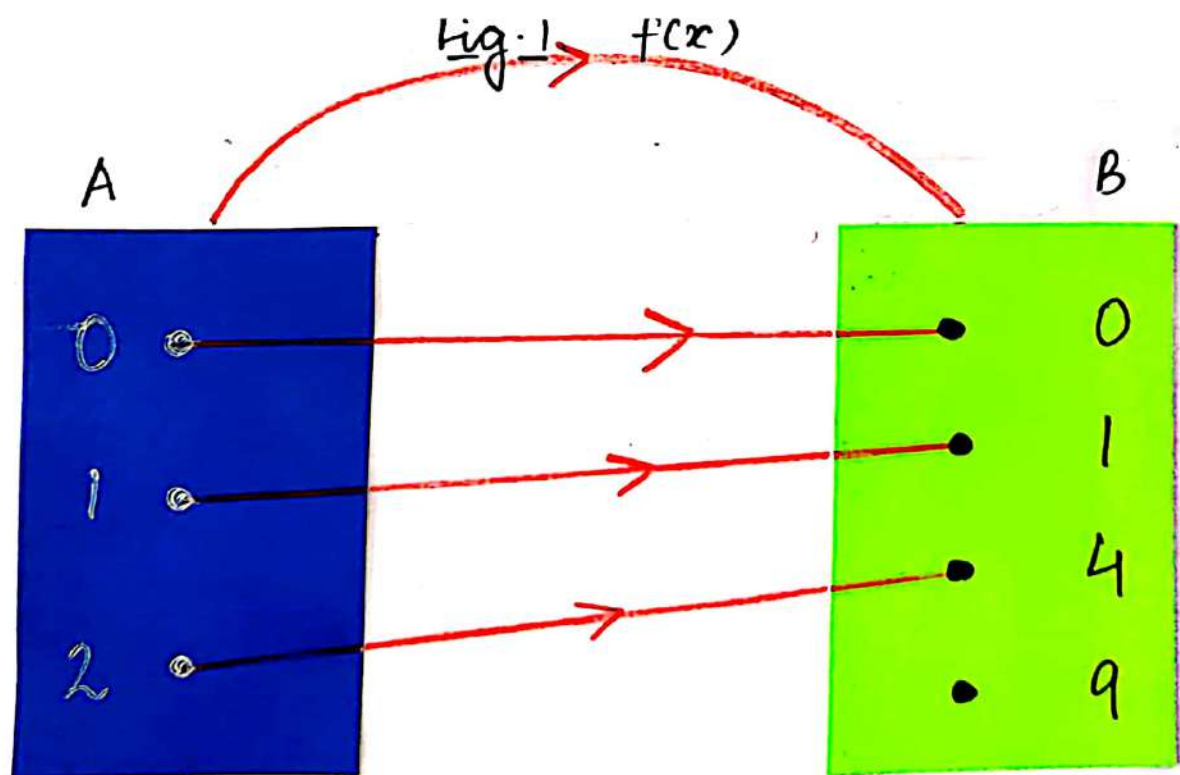


Fig. 2

(vii) let $A = [-1, 0, 1, 2]$ and $B = [0, 1, 4, 9]$. Now, join the elements of set A to the elements of set B as shown in fig B.

• Observation :

OBSERVATION TABLE				
FUNCTION	DOMAIN	CODOMAIN	ONE-ONE/ MANY-ONE	INTO/ ONTO
$f(x) = x^2$	$\{0, 1, 2\}$	$\{0, 1, 4\}$	ONE-ONE	ONTO
$f(x) = x^2$	$\{0, 1, 2\}$	$\{0, 1, 4, 9\}$	ONE-ONE	INTO
$f(x) = x^2$	$\{-1, 0, 1, 2\}$	$\{0, 1, 4\}$	MANY-ONE	ONTO
$f(x) = x^2$	$\{-1, 0, 1, 2\}$	$\{0, 1, 4, 9\}$	MANY-ONE	INTO

• conclusion : Any function, whether it is many-one or one-one, into or onto can be identified by this activity.



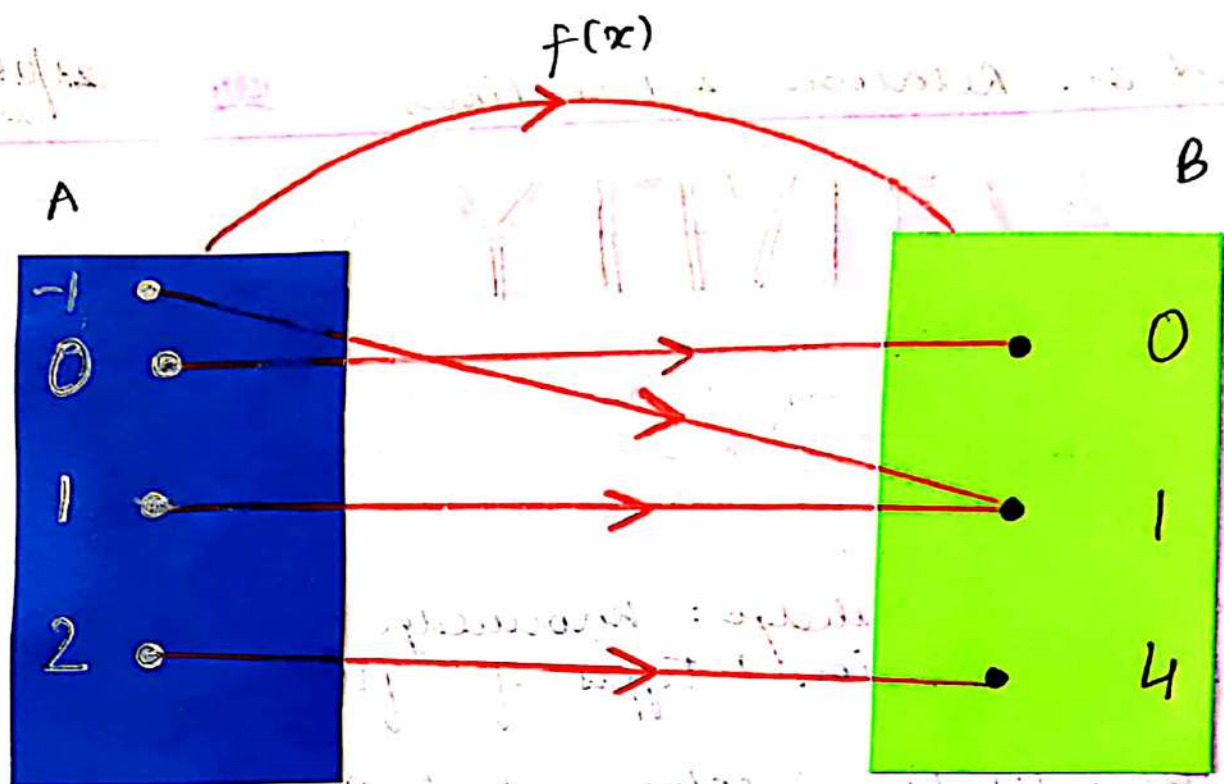


Fig. 3

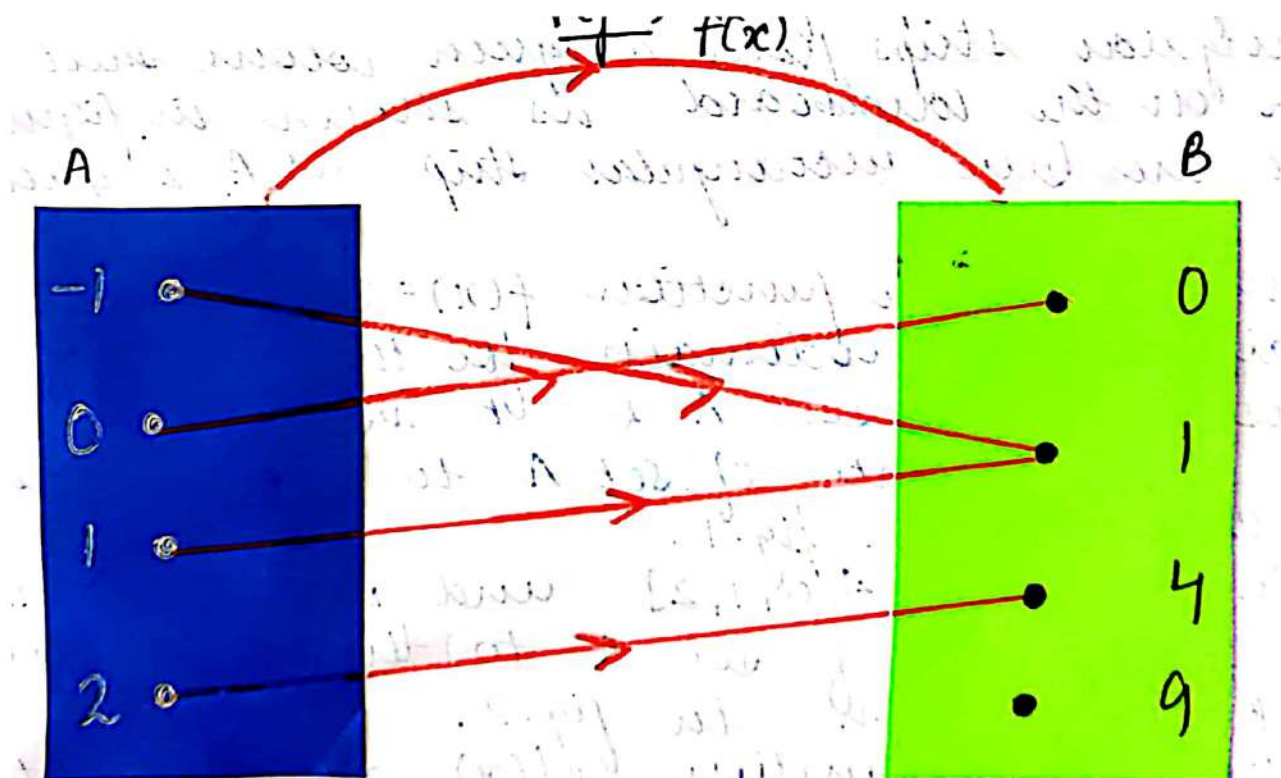


Fig .4

All the best and take care. **BY: AKS(9818448039)**

HOLIDAY HOMEWORK

CLASS - 12

SUBJECT - PHYSICAL EDUCATION (048)

THEORY

- Read the following chapters.
- Write and learn the question answers of these chapters.
- Chapters are as follows :

Unit - 1 Planning in Sports

Unit - 2 Sports & Nutrition

Unit - 3 Yoga & Lifestyle

Unit - 4 Physical Education & Sports for CWSN (Children With Special Needs)

PRACTICAL

- Prepare record file for Physical Education.
- Record file shall include :

1) **Any one game** of your choice out of the list below.

Volleyball, Basketball, Cricket, Kho - Kho.

Description of game should include history of game, labelled diagram of field

and court, rules, skills, terminologies, important tournaments and famous personalities.

2) Procedure for Asanas, benefits and contraindications for any two asanas for each lifestyle disease.

Lifestyle diseases are :

Obesity, Diabetes, Asthma, Hypertension and Back pain.

Instructions for record file :

- Use A4 size sheets.
- Plain paper should be arranged on left hand side and ruled paper on right hand side.
- Diagram should be drawn or pasted on plain paper and handwritten work on ruled sheets.

BHRIGURAJ SHARMA