

# SRINIVASA RAMANUJAN







## MATHEMATICS

### ACTIVITY BOOK



SRINIVASA RAMANUJAN

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10<sup>th</sup> STANDARD



GUIDE TEACHER :

2020 - 2021

Student Name :

Roll Number :

Section :

Vice principal  
( Signature with seal )

Index				
	CHAPTER	NAME OF THE ACTIVITY	OLLOTED MARKS	OBTAINED MARKS
SA <sub>1</sub> FA - 01 A - 01	Arithmetic progression	1. Completing the number puzzle by solving problems.	15	
A - 02	Triangles	1. Completing the four theorems in triangles & their problems.	15	
FA - 02 A - 01	Pair of linear equations in two variables	1) Complete the following table. 2) Solve the following pair of linear equation. 3) Solve the following pair of linear equation by graphical method.	15	
A - 02	Constructions	1. Line bisects. 2. Tangents. 3. Similar triangles.	15	
SA <sub>2</sub> FA - 03 A - 01	Coordinate geometry	1. Find the distance between the i) origin and the point. ii) two points. 2. Find the area of triangle.	15	
A - 02	Trigonometry	1. List all the formulas in trigonometry. 2. Write the trigonometric ratios. 3. Solve the following problems.	15	
FA - 04 A - 01	Statistics	1. Solve Mean, Mode & Median problems. 2. Draw less than Ogive for following. 3. Draw more than Ogive for following.	15	
A - 02	Surface area and volumes	1) Name the following solids and plane figures. 2) Complete the formula chart. 3) Distinguish between the solids and plane figures. 4) Solve the following problems based on solids	15	
TOTAL			120	

SA - 01

FA - 01

## ACTIVITY – 01

: UNIT :

# ARITHMETIC PROGRESSION

**ACTIVITY NAME : COMPLETE THE NUMBER PUZZLE  
BY SOLVING GIVEN PROBLEMS**

### TYPE OF ACTIVITY : INDIVIDUAL

CHECK LIST	MAXIMUM MARKS	MARKS	(OBJECTIVES) PARAMETERS
1) TEXT BOOK USAGE	3		1) VERY GOOD
2) SOLVING THE PROBLEMS FROM LEFT TO RIGHT	3		( 3 Marks )
3) SOLVING THE PROBLEMS FROM LEFT TO RIGHT	3		2) GOOD ( 2 Marks )
4) WRITE THE SOLUTIONS IN NUMBER PUZZLE	3		3) OK ( 1 Marks )
5) OVERALL IMPRESSION	3		4) IMPROVE IT ( 0 Marks )

**TOTAL MARKS :**

**COMPLETE THE NUMBER PUZZLE BY SOLVING BELOW PROBLEMS**

1		2		B 3		4
		C				
	5			5	6	
			D			
7		8		9		10
		E				
F				G		

**FROM LEFT TO RIGHT :**

- A) 27, 40, 53, 66, . . . . . 24<sup>th</sup> term of this A.P. is
- B) 5, 12, 19, 26, . . . . . 34<sup>th</sup> term of this A.P. is
- C) 5, 10, 15, 20, . . . . . 61<sup>th</sup> term of this A.P. is
- D) If  $a_n = 3n - 9$ , then  $a_6$  is
- E) 6, 38, 70, 102, . . . . . 21<sup>th</sup> term of this A.P. is
- F) 2, 14, 26, 38, . . . . . 40<sup>th</sup> term of this A.P. is
- G) 7, 24, 41, 58, . . . . . 28<sup>th</sup> term of this A.P. is

**FROM TOP TO BOTTOM :**

- 1)  $1 + 2 + 3 + 4 + \dots$  Sum of first 25 natural integers is
- 2)  $1 + 2 + 3 + 4 + \dots$  Sum of first 35 natural integers is
- 3)  $1 + 3 + 5 + 7 + \dots$  Sum of first 16 odd positive integers is
- 4)  $1 + 3 + 5 + 7 + \dots$  Sum of first 25 odd positive integers is
- 5)  $2 + 4 + 6 + 8 + \dots$  Sum of first 12 even positive integers is
- 6)  $2 + 4 + 6 + 8 + \dots$  Sum of first 20 even positive integers is
- 7) 2, 7, 12, 17, . . . . . Sum of the 12 terms of this A. P. is
- 8) 5, 9, 13, 17, . . . . . Sum of the 20 terms of this A. P. is
- 9)  $3 + 8 + 13 + 18 + \dots$  Sum of the 8 terms of this A. P. is
- 10)  $4 + 7 + 10 + 13 + \dots$  Sum of the 12 terms of this A. P. is

**A) 27, 40, 53, 66, . . . . . 24<sup>th</sup> term of this A.P. is**

**B) 5, 12, 19, 26, . . . . . 34<sup>th</sup> term of this A.P. is**

**C) 5, 10, 15, 20, . . . . . 61<sup>th</sup> term of this A.P. is**

**D) IF  $a_n = 3n - 9$ , then  $a_6$  is**

**E) 6, 38, 70, 102, . . . . . 21<sup>th</sup> term of this A.P. is**

**F) 2, 14, 26, 38, . . . . . 40<sup>th</sup> term of this A.P. is**

<p><b>G) 7, 24, 41, 58, . . . . . 28<sup>th</sup> term of this A.P. is</b></p>	<p><b>1) <math>1 + 2 + 3 + 4 + . . . . .</math> Sum of first 25 natural integers is</b></p>
<p><b>2) <math>1 + 2 + 3 + 4 + . . . . .</math> Sum of first 35 natural integers is</b></p>	<p><b>3) <math>1 + 3 + 5 + 7 + . . . . .</math> Sum of first 16 odd positive integers is</b></p>
<p><b>4) <math>1 + 3 + 5 + 7 + . . . . .</math> Sum of first 25 odd positive integers is</b></p>	<p><b>5) <math>2 + 4 + 6 + 8 + . . . . .</math> Sum of first 12 even positive integers is</b></p>

<p><b>6) <math>2 + 4 + 6 + 8 + \dots</math> Sum of first 20 even positive integers is</b></p>	<p><b>7) <math>2, 7, 12, 17, \dots</math> Sum of the 12 terms of this A. P. is</b></p>	
<p><b>8) <math>5, 9, 13, 17, \dots</math> Sum of the 20 terms of this A. P. is</b></p>	<p><b>9) <math>3 + 8 + 13 + 18 + \dots</math> Sum of the 8 terms of this A. P. is</b></p>	
<p><b>10) <math>4 + 7 + 10 + 13 + \dots</math> Sum of the 12 terms of this A. P. is</b></p>	<p><b>ANSWERS</b></p>	<p><b>2)</b></p>
	<p><b>A)</b></p>	<p><b>3)</b></p>
	<p><b>B)</b></p>	<p><b>4)</b></p>
	<p><b>C)</b></p>	<p><b>5)</b></p>
	<p><b>D)</b></p>	<p><b>6)</b></p>
	<p><b>E)</b></p>	<p><b>7)</b></p>
	<p><b>F)</b></p>	<p><b>8)</b></p>
	<p><b>G)</b></p>	<p><b>9)</b></p>
	<p><b>1)</b></p>	<p><b>10)</b></p>



SA - 01

FA – 01

## ACTIVITY – 02

: UNIT :

## TRIANGLES

**ACTIVITY NAME :** Completing the five theorems  
in triangles and four application  
problems.

### TYPE OF ACTIVITY : INDIVISUAL

CHECK LIST	MAXIMM MARKS	MARKS	(OBJECTIVES) PARAMETERS
1) TEXT BOOK USAGE	3		1) VERY GOOD ( 3 Marks )
2) WRITING THE STATEMENT, DATA AND TO PROVE	3		
3) WRITING THE PROOF	3		2) GOOD ( 2 Marks )
4) SKILL OF CONSTRUCTION	3		3) OK ( 1 Marks )
5) OVERALL IMPRESSION	3		4) IMPROVE IT ( 0 Marks )

**TOTAL MARKS :**

# THALES [BASIC PROPORTIONALITY] THEOREM

STATEMENT :

FIGURE

DATA

TO PROVE

CONSTRUCTION

: PROOF:

# A - A CRITERIA THEOREM

STATEMENT :

FIGURE

DATA

TO PROVE

CONSTRUCTION

: PROOF:

# AREAS OF SIMILAR TRIANGLES THEOREM

STATEMENT :

FIGURE

DATA

TO PROVE

CONSTRUCTION

: PROOF:

# PYTHAGORAS THEOREM

STATEMENT :

FIGURE

DATA

TO PROVE

CONSTRUCTION

: PROOF :

# CONVERSE OF PHYTHAGORS THEOREM

STATEMENT :

FIGURE

DATA

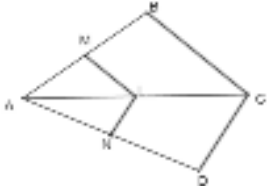
TO PROVE

CONSTRUCTION

: PROOF :

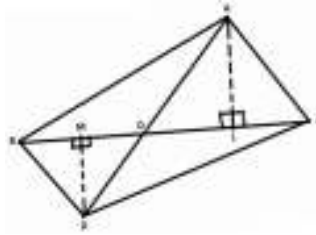
**ANSWER THE FOLLOWING QUESTIONS**

1) Adjoining figure, if  $LM \parallel CB$  &  $LN \parallel CD$ .



Prove that  $\frac{AM}{AB} = \frac{AN}{AD}$

2)  $\Delta ABC$  and  $\Delta DBC$  are lies on the same base in the picture. AD intersects BC at O.  $AL \perp BC$  and  $DM \perp BC$ . Prove that



$\frac{\text{Area of } \Delta ABC}{\text{Area of } \Delta DBC} = \frac{AO}{DO}$

3) Diagonals of rhombus are 16cm and 12cm. Find the side of the rhombus.

4)  $\Delta PQR$  is right angled at P and M is a point on QR such that  $PM \perp QR$ . Show that  $PM^2 = QM.MR$











SA - 01

FA – 02

## ACTIVITY – 01

### UNIT : PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

#### ACTIVITY :

- 1) COMPLETE THE FOLLOWING TABLE.
- 2) SOLVE THE FOLLOWING PAIR OF LINEAR EQUATION.
- 3) SOLVE THE FOLLOWING PAIR OF LINEAR EQUATION BY GRAPHICAL METHOD.

#### TYPE OF ACTIVITY : INDIVISUAL

CHECK LIST	MAXIMM MARKS	MARKS	(OBJECTIVES) PARAMETERS
1) TEXT BOOK USAGE	3		1) VERY GOOD ( 3 Marks )
2) SKILL OF COMPLETIG THE TABLE	3		
3) SOLVING THE GIVEN PROBLEMS	3		2) GOOD ( 2 Marks )
4) DRAWING SKILL IN GRAPH	3		3) OK ( 1 Marks )
5) OVERALL IMPRESSION	3		4) IMPROVE IT ( 0 Marks )

**TOTAL MARKS :**

**1) COMPLETE THE FOLLOWING TABLE.**

Sl. No	Comparing the ratios	Representing on graph	Algebraic solution	Consistency	
1.	$\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$				
2.	$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$				
3.	$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$				
Sl. No	Pair of linear equations	Comparing the ratios	Representing on graph	Algebraic solution	Consistency
1	$5x - 4y + 8 = 0$ $7x + 6y - 9 = 0$				
2	$9x + 3y + 12 = 0$ $18x + 6y + 24 = 0$				
3	$6x - 3y + 10 = 0$ $2x - y + 9 = 0$				
4	$3x + 2y = 5$ $2x - 3y = 7$				
5	$2x - 3y = 8$ $4x - 6y = 9$				
6	$x + y = 5$ $2x + 2y = 10$				
7	$x - y = 8$ $3x - 3y = 16$				
8	$2x + y - 6 = 0$ $4x - 2y - 4 = 0$				
9	$2x - 2y - 2 = 0$ $4x - 3y - 5 = 0$				

**2) Solve the following pair of linear equations. ( Any method )**

**1)  $x + 2y = 9$  &  $2x - y = 8$**

**2)  $x + y = 14$  &  $x - y = 4$**

**3)  $x + y = 5$  &  $2x - 3y = 4$**

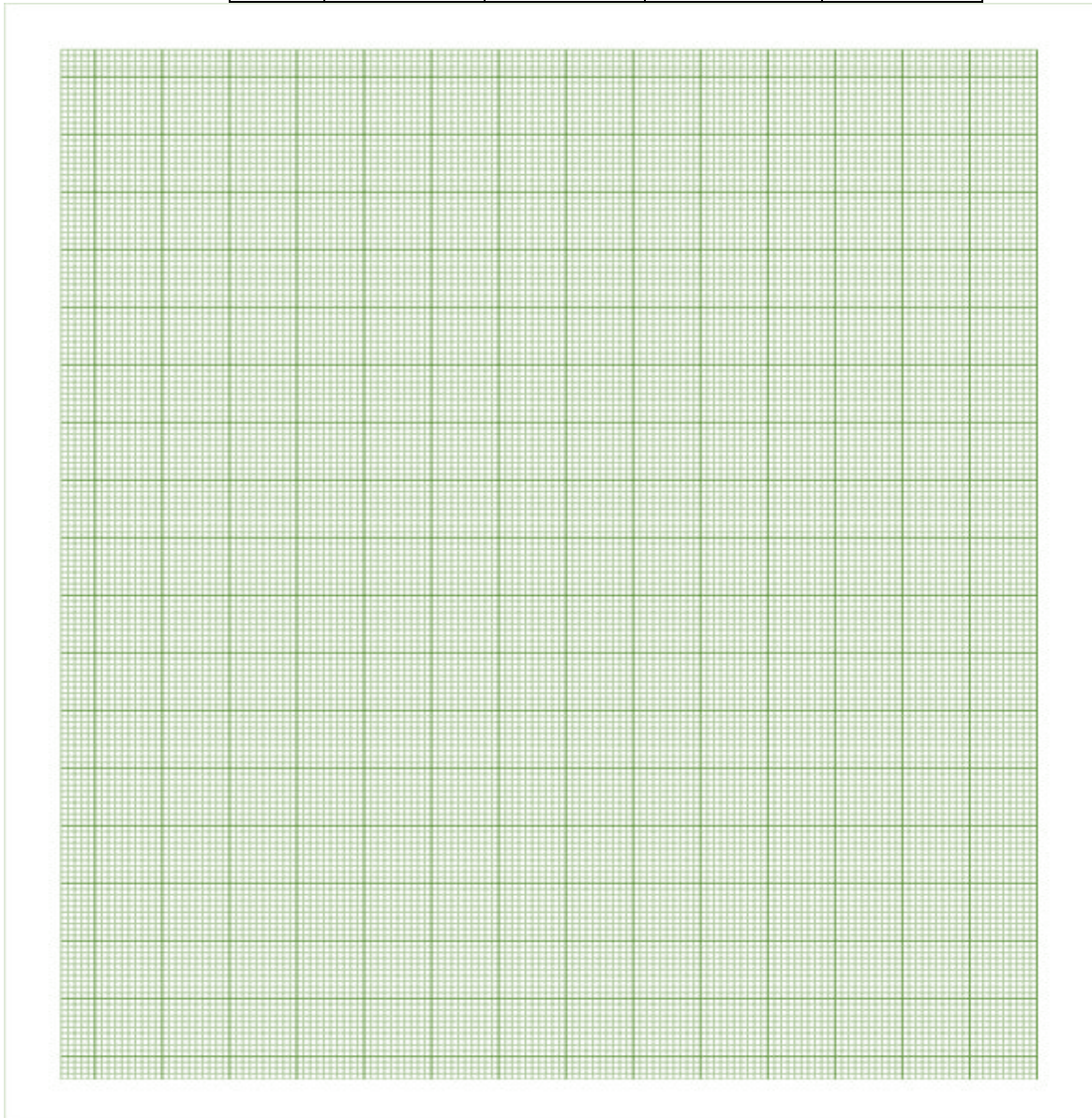
**4)  $3x + 4y = 10$  &  $2x - 2y = 2$**

**3) Solve following pair of linear equations by graphically**

A)  $y = 6 - 2x$  and  $y = 2x - 2$ .      B)  $y = 2x - 2$  and  $y = 4x - 4$ .

$y = 6 - 2x$		$y = 2x - 2$	
x =	$y = 6 - 2( ) = 6 - ( ) =$	x =	$y = 2( ) - 2 = ( ) - 2 =$
x =		x =	
x =		x =	
x =		x =	

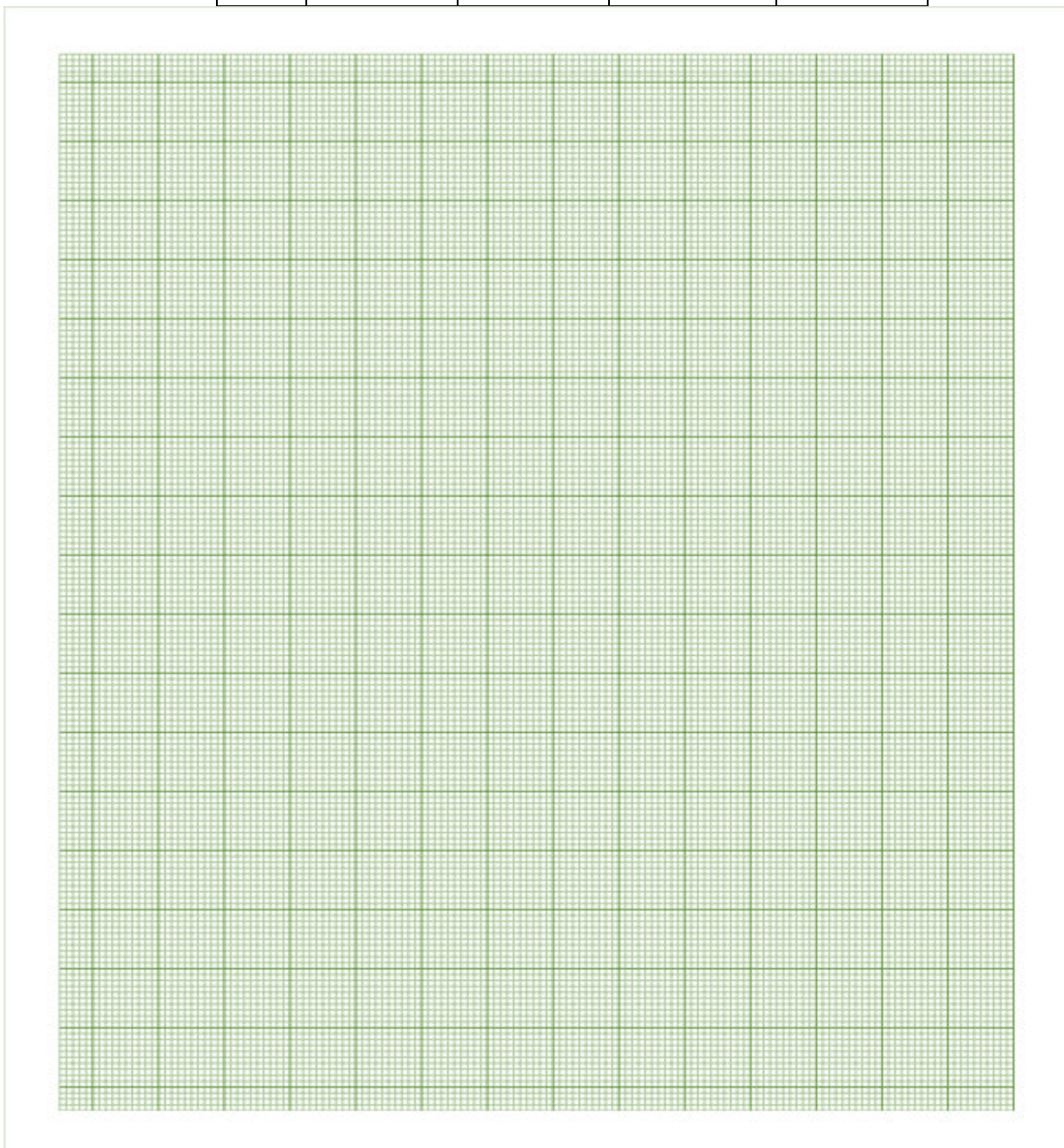
x				
y				
(x,y)				



B)  $y = 2x - 2$  and  $y = 4x - 4$ .

$y = 2x - 2$		$y = 4x - 4$	
x =	$y = 2( \quad ) - 2 = ( \quad ) - 2 =$	x =	$y = 4( \quad ) - 4 = ( \quad ) - 4 =$
x =		x =	
x =		x =	
x =		x =	

x				
y				
(x,y)				





SA - 01

FA – 02

## ACTIVITY – 02

: UNIT :

## CONSTRUCTIONS

**ACTIVITY :** DRAW 1) LINE BISECT

2) TANGENTS

3) SIMILAR TRIANGLES

BY USING GIVEN DATA

### TYPE OF ACTIVITY : INDIVISUAL

CHECK LIST	MAXIMUM MARKS	MARKS	(OBJECTIVES) PARAMETERS
1) TEXT BOOK USAGE	3		1) VERY GOOD ( 3 Marks )
2) SKILL OF CONSTRUCTION OF LINE BISECT BY USING GIVEN DATA	3		
3) SKILL OF CONSTRUCTION OF TANGENTS BY USING GIVEN DATA	3		2) GOOD ( 2 Marks )
4) SKILL OF CONSTRUCTION OF SIMILAR TRIANGLES BY USING GIVEN DATA	3		3) OK ( 1 Marks )
5) OVERALL IMPRESSION	3		4) IMPROVE IT ( 0 Marks )

**TOTAL MARKS :**

1. Draw a line segment of length 7.6 cm and divide it in the ratio 5 : 8. Measure the two parts.

2. Draw a line segment of length 10 cm and divide it in the ratio 2 : 3. Measure the two parts.

3. Draw a line segment of length 8 cm and divide it in the ratio 3 : 5. Measure the two parts.

01. Construct a triangle with sides 4 cm, 5 cm and 6 cm. then another triangle whose sides are  $\frac{2}{3}$  of the corresponding sides of the first triangle.

02. Construct a triangle with sides 5 cm, 6 cm and 7 cm. then another triangle whose sides are  $\frac{7}{5}$  of the corresponding sides of the first triangle.

03. Construct a triangle ABC with sides  $BC = 6$  cm,  $AB = 5$  cm and  $\angle ABC = 60^\circ$  cm. then another triangle whose sides are  $\frac{4}{3}$  of the corresponding sides of triangle ABC.

01. Draw a pair of tangents to a circle of radius 3 cm which are inclined to each other at an angle of  $60^\circ$ .

02. Draw a pair of tangents to a circle of radius 3.5 cm which are inclined to each other at an angle of  $65^\circ$ .

03. Draw a pair of tangents to a circle of radius 4 cm which are inclined to each other at an angle of  $70^\circ$ .

04. Draw a circle of radius 6cm. From a point 10cm away from its centre, construct the pair of tangents to the circle and measure their length.

05. Draw a circle of radius 4cm. From a point 8cm away from its centre, construct the pair of tangents to the circle and measure their length.

SA - 02

FA – 03

## ACTIVITY – 01

: UNIT :

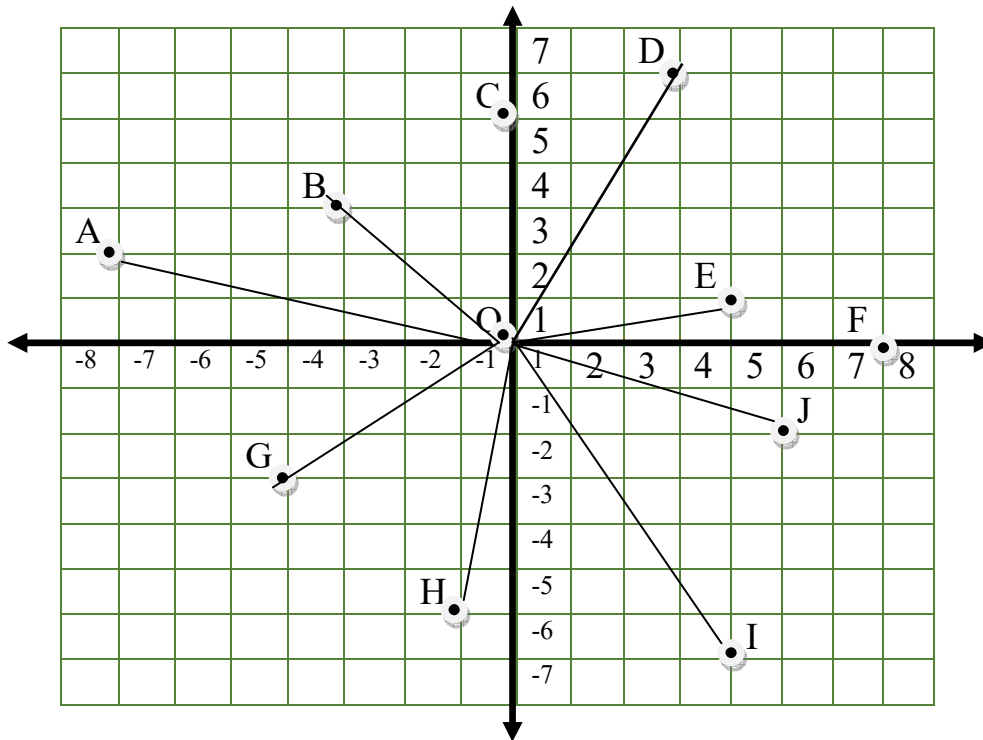
### CO - ORDINATE GEOMETRY

- ACTIVITY :** 1) FIND THE DISTANCE BETWEEN
- i) ORIGIN AND THE GIVEN POINT
  - ii) TWO POINTS
- 2) FIND THE AREA OF TRIANGLE

**TYPE OF ACTIVITY : INDIVISUAL**

<b>CHECK LIST</b>	<b>MAXIMUM MARKS</b>	<b>MARKS</b>	<b>(OBJECTIVES) PARAMETERS</b>
1) TEXT BOOK USAGE	3		
2) FINDING THE DISTANCE BETWEEN ORIGIN AND THE GIVEN POINT	3		1) VERY GOOD ( 3 Marks )
3) FINDING THE DISTANCE BETWEEN THE GIVEN TWO POINTS	3		2) GOOD ( 2 Marks )
4) FINDING THE AREA OF TRIANGLE	3		3) OK ( 1 Marks )
5) OVERALL IMPRESSION	3		4) IMPROVE IT ( 0 Marks )

**TOTAL MARKS :**



1) Identify the coordinates of the above graph and find the distance between different points to origin.

NAME OF THE COORDINATE	COORDINATES (x, y)
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
O	

POINTS	DISTANCE
OA	
OB	
OC	
OD	
OE	
OF	
OG	
OH	
OI	
OJ	

$$1) \quad AB = d = \sqrt{x^2 + y^2}$$

$$5) \quad IJ = d = \sqrt{x^2 + y^2}$$

$$2) \quad CD = d = \sqrt{x^2 + y^2}$$

$$6) \quad KL = d = \sqrt{x^2 + y^2}$$

$$3) \quad EF = d = \sqrt{x^2 + y^2}$$

$$7) \quad MN = d = \sqrt{x^2 + y^2}$$

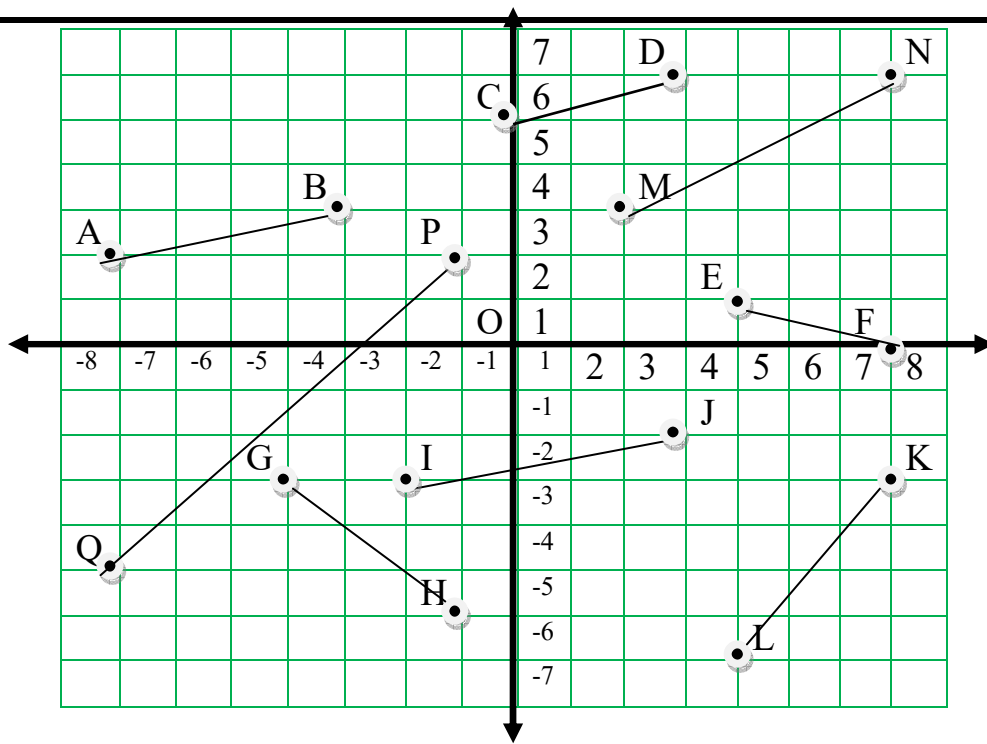
$$4) \quad GH = d = \sqrt{x^2 + y^2}$$

$$8) \quad PQ = d = \sqrt{x^2 + y^2}$$

$$5) \quad OE = d = \sqrt{x^2 + y^2}$$

$$10) \quad OJ = d = \sqrt{x^2 + y^2}$$





2) Identify the coordinates of the above graph and find the distance between different the two points.

NAME OF THE COORDINATE	COORDINATES ( x, y)
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	
M	
N	
P	
Q	

POINTS	DISTANCE
A (    ,    ), B (    ,    )	
C (    ,    ), D (    ,    )	
E (    ,    ), F (    ,    )	
G (    ,    ), H (    ,    )	
I (    ,    ), J (    ,    )	
K (    ,    ), L (    ,    )	
M (    ,    ), N (    ,    )	
P (    ,    ), Q (    ,    )	

$$1) AB = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$5) IJ = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$2) CD = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

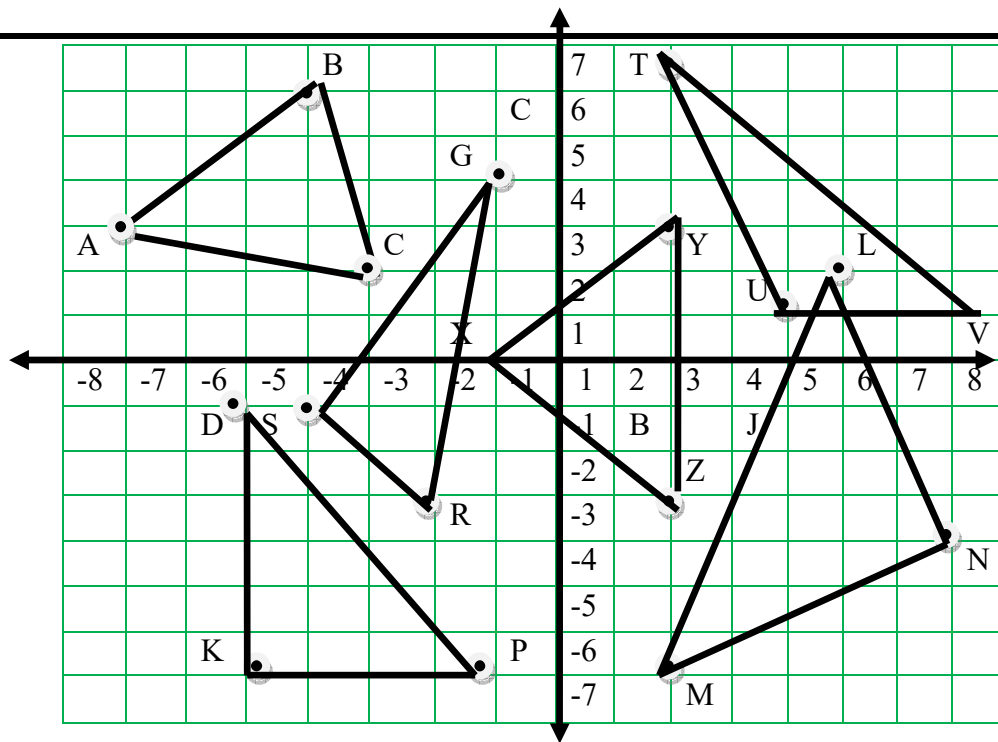
$$6) KL = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$3) EF = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$7) MN = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$4) GH = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$8) PQ = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



3) Identify the coordinates of the above graph and find the area of triangle.

POINTS	( x, y)
A	
B	
C	
D	
K	
P	
G	
S	
R	
X	
Y	
Z	
M	
N	
L	
T	
U	
V	

POINTS	AREA
A (     ), B (     ), C (     )	
D (     ), K (     ), P (     )	
G (     ), S (     ), R (     )	
X (     ), Y (     ), Z (     )	
T (     ), U (     ), V (     )	
M (     ), N (     ), L (     )	

1) A (-7, 3), B (-4, 6), C (-3, 2) $A = \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$	2) D (-5, -1), K (-5, -7), P (-1, -7) $A = \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$
3) G (-1, 4), S (-4, -1), R (-2, -3) $A = \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$	4) X (-1, 0), Y (2, 3), Z (2, -3) $A = \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$
5) T (2, 7), U (4, 1), V (8, 1) $A = \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$	6) M (2, -7), N (7, -4), L (5, 2) $A = \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$

SA - 02

FA – 03

## ACTIVITY – 02

### UNIT : TRIGNOMETRY

#### ACTIVITY NAME :

- 1) LIST ALL THE FORMULAS OF TRIGNOMETRY.
- 2) WRITE THE TRIGNOMETRIC RATIOS.
- 3) SOLVE THE GIVEN PROBLEMS

#### TYPE OF ACTIVITY : INDIVISUAL

CHECK LIST	MAXIMUM MARKS	MARKS	(OBJECTIVES) PARAMETERS
1) TEXT BOOK USAGE	3		1) VERY GOOD ( 3 Marks )
2) LISTING ALL THE FORMULAS OF TRIGNOMETRY.	3		
3) WRITING THE TRIGNOMETRIC RATIOS.	3		2) GOOD ( 2 Marks )
4) SOLVE THE GIVEN PROBLEMS	3		3) OK ( 1 Marks )
5) OVERALL IMPRESSION	3		4) IMPROVE IT ( 0 Marks )

**TOTAL MARKS :**

## 1) FORMULAS OF TRIGONOMETRY

1) $\sin \theta =$	1) $\sin \theta =$	1) $\sin (90^\circ - \theta) =$
2) $\cos \theta =$	2) $\cos \theta =$	2) $\cos (90^\circ - \theta) =$
3) $\tan \theta =$	3) $\tan \theta =$	3) $\tan (90^\circ - \theta) =$
4) $\operatorname{cosec} \theta =$	4) $\operatorname{cosec} \theta =$	4) $\operatorname{cosec}(90^\circ - \theta) =$
5) $\sec \theta =$	5) $\sec \theta =$	5) $\sec (90^\circ - \theta) =$
6) $\cot \theta =$	6) $\cot \theta =$	6) $\cot (90^\circ - \theta) =$

**Table for the values of the all trigonometric ratios**

$\theta$	$0^\circ$	$30^\circ$	$45^\circ$	$60^\circ$	$90^\circ$
<b>sin <math>\theta</math></b>					
<b>cos <math>\theta</math></b>					
<b>tan <math>\theta</math></b>					
<b>cosec <math>\theta</math></b>					
<b>sec <math>\theta</math></b>					
<b>cot <math>\theta</math></b>					

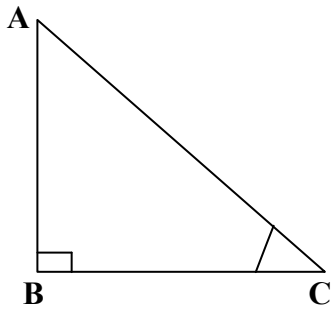
### Trigonometric Identities

1)

2)

3)

02. Write the trigonometric ratios for following figures :



1)  $\sin c =$

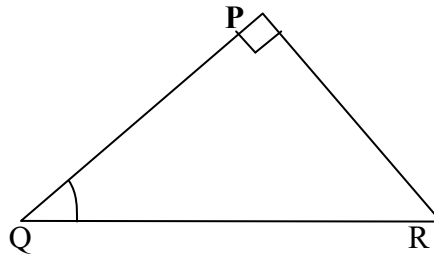
2)  $\cos c =$

3)  $\tan c =$

4)  $\operatorname{cosec} c =$

5)  $\sec c =$

6)  $\cot c =$



1)  $\sin Q =$

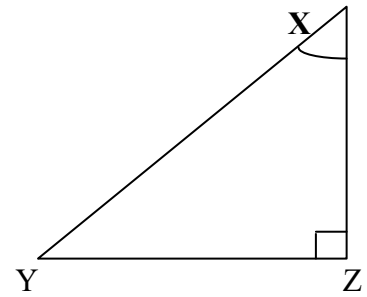
2)  $\cos Q =$

3)  $\tan Q =$

4)  $\operatorname{cosec} Q =$

5)  $\sec Q =$

6)  $\cot Q =$



1)  $\sin Z =$

2)  $\cos Z =$

3)  $\tan Z =$

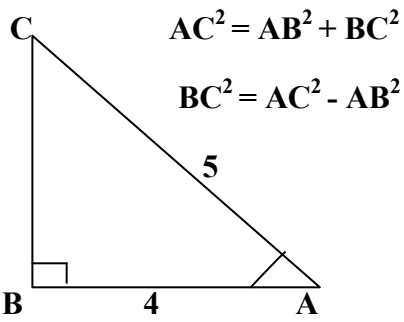
4)  $\operatorname{cosec} Z =$

5)  $\sec Z =$

6)  $\cot Z =$

03. If i)  $\sin A = \frac{3}{5}$     ii)  $15 \cot Q = 8$     iii)  $\sec \theta = \frac{13}{12}$ .

Calculate all other trigonometric ratios.



1)  $\sin c =$

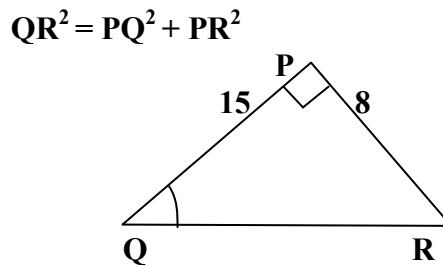
2)  $\cos c =$

3)  $\tan c =$

4)  $\operatorname{cosec} c =$

5)  $\sec c =$

6)  $\cot c =$



1)  $\sin Q =$

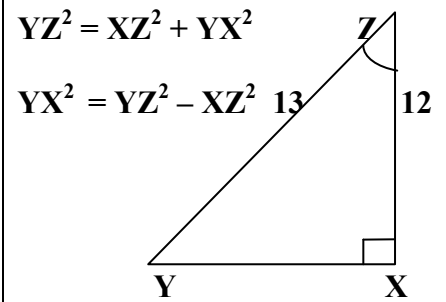
2)  $\cos Q =$

3)  $\tan Q =$

4)  $\operatorname{cosec} Q =$

5)  $\sec Q =$

6)  $\cot Q =$



1)  $\sin Z =$

2)  $\cos Z =$

3)  $\tan Z =$

4)  $\operatorname{cosec} Z =$

5)  $\sec Z =$

6)  $\cot Z =$



#### 4. EVALUATE :

1.  $\frac{\tan 65^\circ}{\cot 25^\circ}$

3.  $\operatorname{cosec} 31^\circ - \sec 59^\circ$

2.  $\frac{\sin 36^\circ}{\cos 54^\circ} - \frac{\sin 54^\circ}{\cos 36^\circ}$

4.  $\sec 70^\circ \sin 20^\circ - \cos 70^\circ \operatorname{cosec} 20^\circ$

#### 4. FIND $\theta$ , IF $[ 0 \leq \theta \leq 90^\circ ]$

1)  $\sqrt{2} \cos \theta = 1$

2)  $3 \tan \theta = \sqrt{3}$

3)  $2 \sin \theta = \sqrt{3}$

4)  $5 \sin \theta = 0$

#### 5) FIND THE VALUE OF THE FOLLOWING :

1)  $\sin 30^\circ \cos 60^\circ - \tan^2 45^\circ$

3)  $\frac{\cos 45^\circ}{\sec 30^\circ + \operatorname{cosec} 30^\circ}$

2)  $4 \sin^2 60^\circ + 3 \tan^2 30^\circ - 8 \sin 45^\circ \cos 45^\circ$

4)  $\cos 60^\circ \cos 30^\circ - \sin 60^\circ \sin 30^\circ$

## ACTIVITY – 01

UNIT : STATISTICS**ACTIVITY :**

- 1) FIND OUT THE MEAN, MEDIAN AND MODE FOR THE GIVEN DATA.
- 2) DRAW OGIVE LESS THAN TYPE AND MORE THAN TYPE FOR THE GIVEN DATA.

**TYPE OF ACTIVITY : INDIVISUAL**

<b>CHECK LIST</b>	<b>MAXIMM MARKS</b>	<b>MARKS</b>	<b>(OBJECTIVES) PARAMETERS</b>
1) TEXT BOOK USAGE	3		1) VERY GOOD ( 3 Marks ) 2) GOOD ( 2 Marks ) 3) OK ( 1 Marks ) 4) IMPROVE IT ( 0 Marks )
2) FINDING THE MEAN, MEDIAN AND MODE FOR THE GIVEN DATA.	3		
3) SKILL OF CONSTRUCTION LESS THAN TYPE OGIVE	3		
4) SKILL OF CONSTRUCTION MORE THAN TYPE OGIVE	3		
5) OVERALL IMPRESSION	3		

**TOTAL MARKS :**

01. Find the mean for the following distribution table.

C - I	$f_i$	$x_i$	$f_i x_i$
15 - 25	6		
25 - 35	11		
35 - 45	7		
45 - 55	4		
55 - 65	4		
65 - 75	2		
75 - 85	1		
$\Sigma f_i =$		$\Sigma f_i x_i =$	

$$\text{Mean} = \bar{X} = \frac{\Sigma f_i x_i}{\Sigma f_i}$$

C - I	$f_i$	$x_i$	$f_i x_i$
0 - 2	1		
2 - 4	2		
4 - 6	1		
6 - 8	5		
8 - 10	6		
10 - 12	2		
12 - 14	3		
$\Sigma f_i =$		$\Sigma f_i x_i =$	

$$\text{Mean} = \bar{X} = \frac{\Sigma f_i x_i}{\Sigma f_i}$$

C - I	$f_i$	$x_i$	$f_i x_i$
11 - 13	7		
13 - 15	6		
15 - 17	9		
17 - 19	13		
19 - 21	20		
21 - 23	5		
23 - 25	4		
$\Sigma f_i =$		$\Sigma f_i x_i =$	

$$\text{Mean} = \bar{X} = \frac{\Sigma f_i x_i}{\Sigma f_i}$$

02. Find the median for the following distribution table.

C - I	f	cf
30 - 35	14	
35 - 40	16	
40 - 45	18	
45 - 50	23	
50 - 55	18	
55 - 60	08	
60 - 65	03	
<b>n =</b>	$\frac{n}{2} =$	

$$\text{Median} = \ell + \left[ \frac{\frac{n}{2} - cf}{f} \right] \times h$$

C - I	f	cf
0 - 20	6	
20 - 40	8	
40 - 60	10	
60 - 80	12	
80 - 100	6	
100 - 120	5	
120 - 140	3	
<b>n =</b>	$\frac{n}{2} =$	

$$\text{Median} = \ell + \left[ \frac{\frac{n}{2} - cf}{f} \right] \times h$$

C - I	f	cf
0 - 10	5	
10 - 20	8	
20 - 30	20	
30 - 40	15	
40 - 50	7	
50 - 60	5	
<b>n =</b>	$\frac{n}{2} =$	

$$\text{Median} = \ell + \left[ \frac{\frac{n}{2} - cf}{f} \right] \times h$$

03. Find the mode for the following distribution table.

C - I	f	
0 - 20	10	
20 - 40	35	
40 - 60	52	→ $f_0$
60 - 80	61	→ $f_1$
80 - 100	38	→ $f_2$
100 - 120	29	

$$\text{Mode} = \ell + \left[ \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right] \times h$$

C - I	f	
0 - 10	7	
10 - 20	14	
20 - 30	13	
30 - 40	12	→ $f_0$
40 - 50	20	→ $f_1$
50 - 60	11	→ $f_2$
60 - 70	15	
70 - 80	8	

$$\text{Mode} = \ell + \left[ \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right] \times h$$

C - I	f	
10 - 25	2	
25 - 40	3	→ $f_0$
40 - 55	7	→ $f_1$
55 - 70	6	→ $f_2$
70 - 85	6	
85 - 100	6	

$$\text{Mode} = \ell + \left[ \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right] \times h$$

04. Find the mean, median and mode for the following distribution table.

C - I	$f_i$	$x_i$	$f_i x_i$
0 - 10	7		
10 - 20	10		
20 - 30	23		
30 - 40	51		
40 - 50	6		
50 - 60	3		
$\Sigma f_i =$		$\Sigma f_i x_i =$	

$$\text{Mean} = \bar{X} = \frac{\Sigma f_i x_i}{\Sigma f_i}$$

C - I	f	cf
0 - 10	7	
10 - 20	10	
20 - 30	23	
30 - 40	51	
40 - 50	6	
50 - 60	3	
n =	$\frac{n}{2} =$	

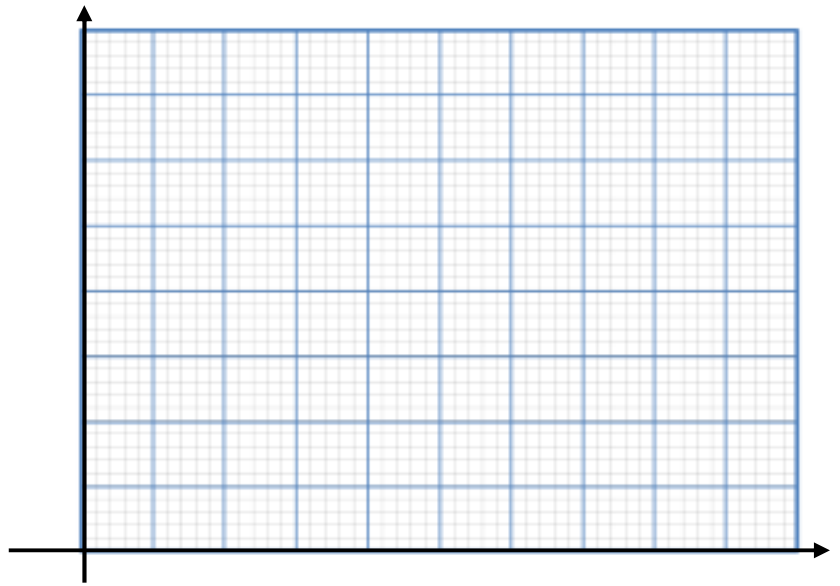
$$\text{Median} = \ell + \left[ \frac{\frac{n}{2} - cf}{f} \right] \times h$$

C - I	f	
0 - 10	7	
10 - 20	10	
20 - 30	23	→ $f_0$
30 - 40	51	→ $f_1$
40 - 50	6	→ $f_2$
50 - 60	3	

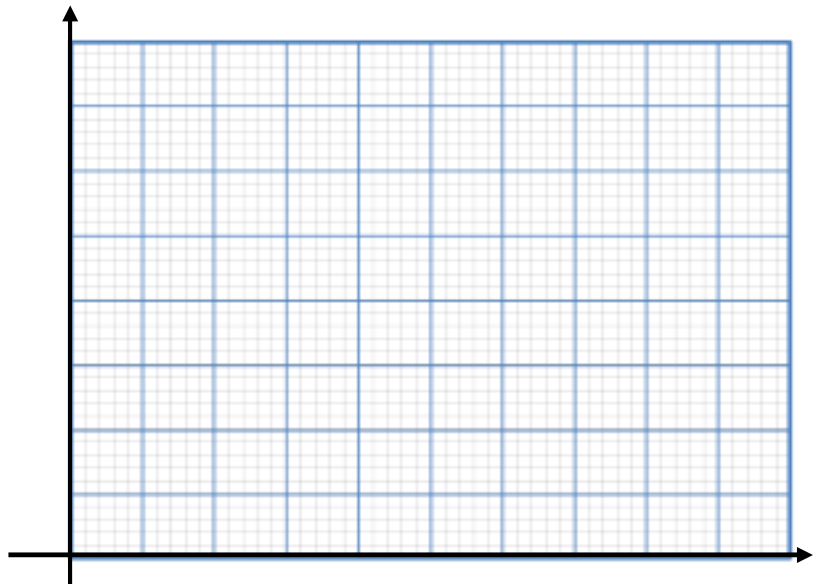
$$\text{Mode} = \ell + \left[ \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right] \times h$$

05. Draw a less than type ogive for the given data.

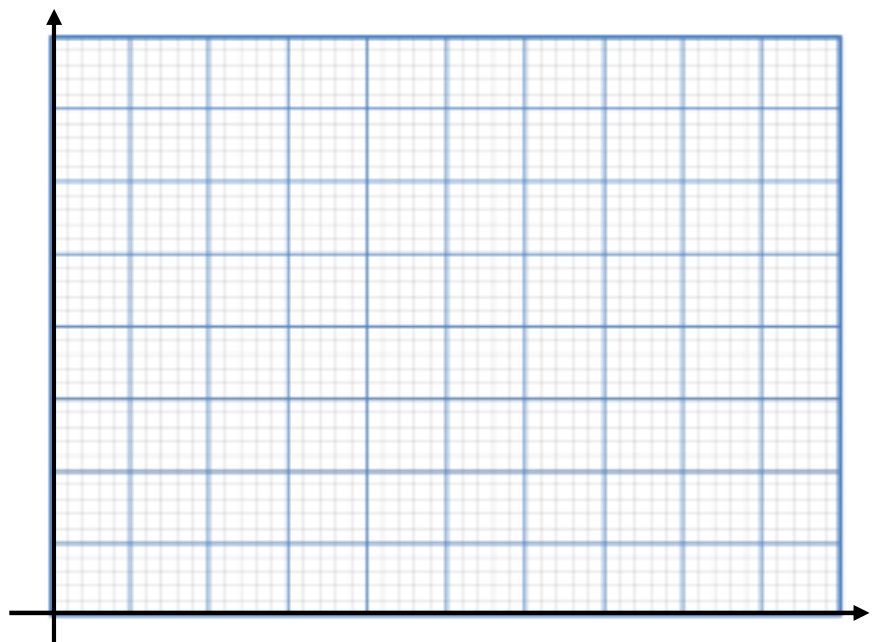
C - I	f	cf
100 – 120	12	
120 – 140	14	
140 – 160	8	
160 – 180	6	
180 – 200	10	



C - I	f	cf
5 – 15	6	
15 – 25	11	
25 – 35	21	
35 – 45	23	
45 - 55	14	
55 – 65	5	

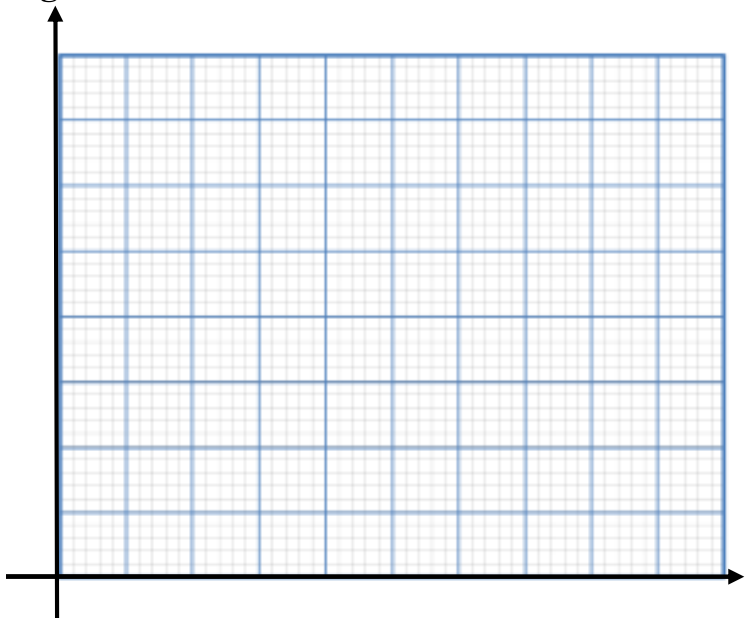


C - I	f	cf
50 – 55	2	
55 – 60	8	
60 – 65	12	
65 – 70	24	
70 – 75	18	
75 – 80	16	

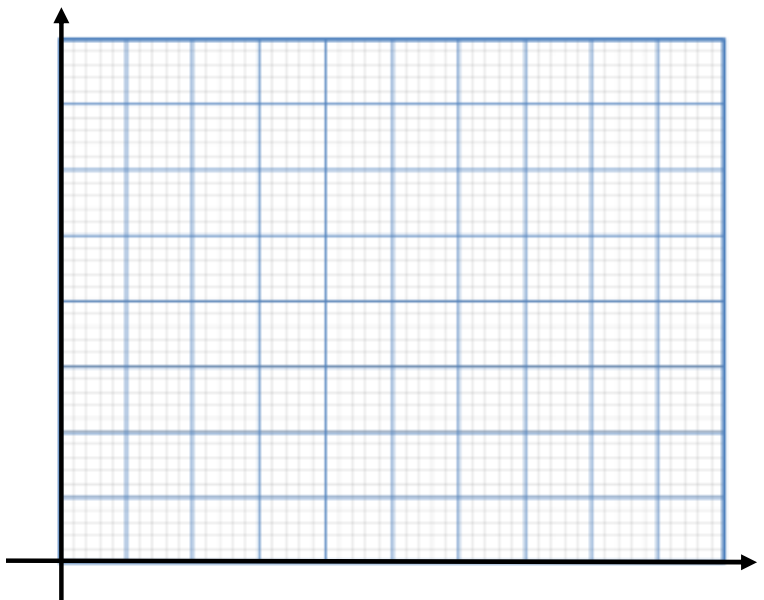


06. Draw a more than type Ogive for the given data.

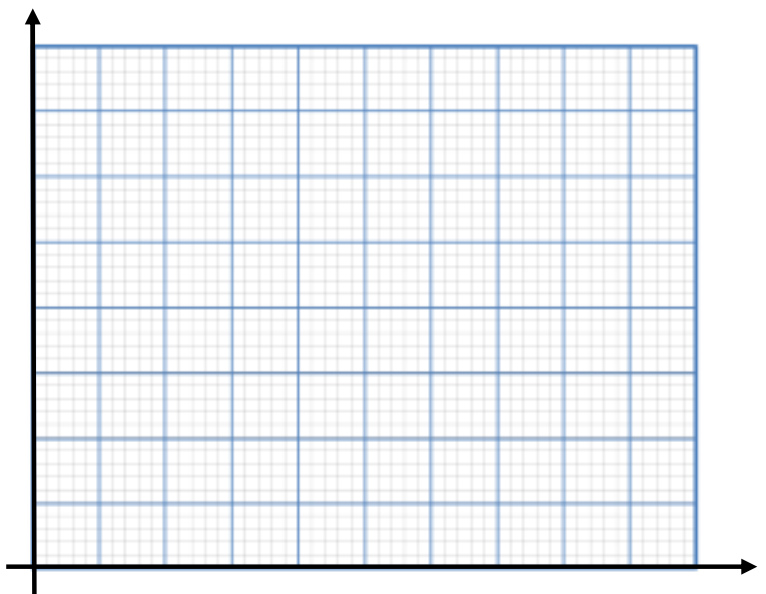
C - I	f	cf
100 - 120	12	
120 - 140	14	
140 - 160	8	
160 - 180	6	
180 - 200	10	



C - I	f	cf
50 - 55	2	
55 - 60	8	
60 - 65	12	
65 - 70	24	
70 - 75	18	
75 - 80	16	



C - I	f	cf
5 - 15	6	
15 - 25	11	
25 - 35	21	
35 - 45	23	
45 - 55	14	
55 - 65	5	





SA - 02

FA – 04

## ACTIVITY – 02

UNIT :

# SURFACE AREA AND VOLUMES

### ACTIVITY :

- 1) NAME THE FOLLOWING SOLIDS AND PLANE FIGURES.
- 2) COMPLETE THE FORMULA CHART.
- 3) DISTINGUSH BETWEEN THE SOLIDS AND PLANE FIGURES.
- 4) SOLVE THE FOLLOWING PROBLEMS BASED ON SOLIDS

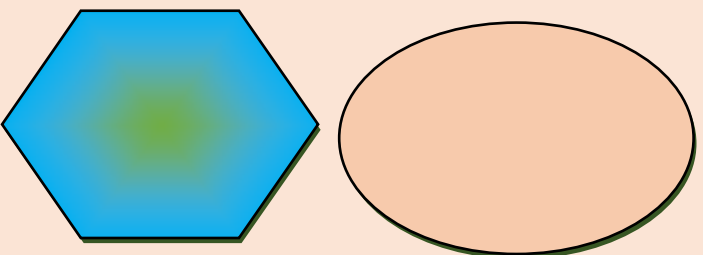
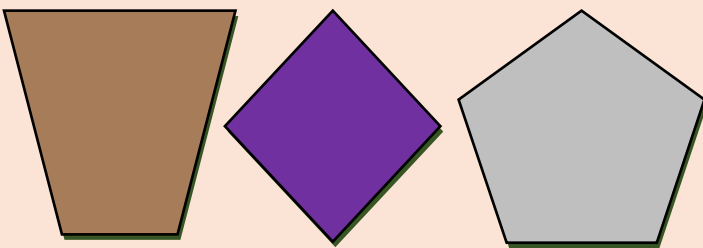
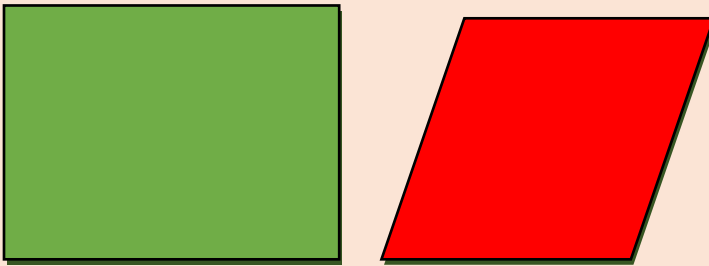
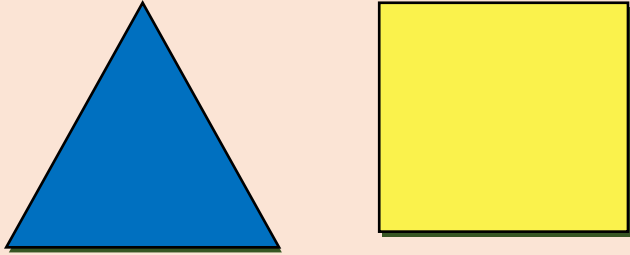
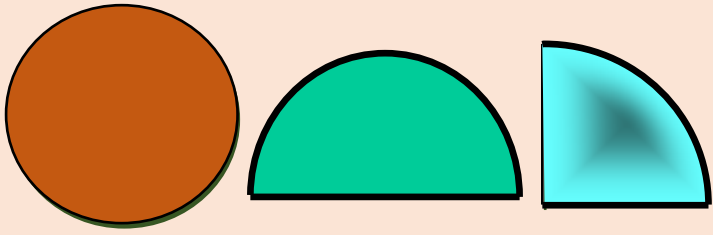
### TYPE OF ACTIVITY : INDIVISUAL

CHECK LIST	MAXIMUM MARKS	MARKS	(OBJECTIVES) PARAMETERS
1) TEXT BOOK USAGE	3		1) VERY GOOD ( 3 Marks )
2) NAMING THE FOLLOWING SOLIDS AND PLANE FIGURES	3		
3) COMPLETING THE FORMULA CHART.	3		2) GOOD ( 2 Marks )
4) SOLVE THE FOLLOWING PROBLEMS BASED ON SOLIDS	3		3) OK ( 1 Marks )
5) OVERALL IMPRESSION	3		4) IMPROVE IT ( 0 Marks )

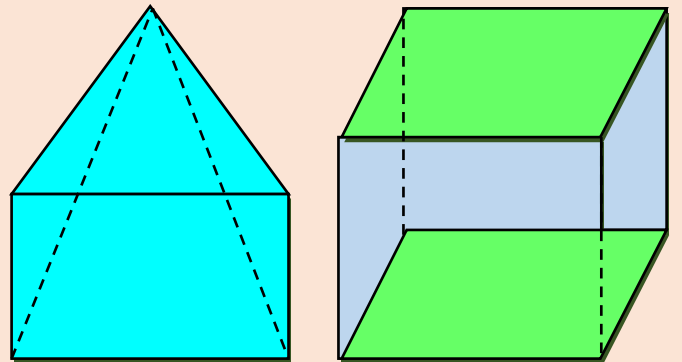
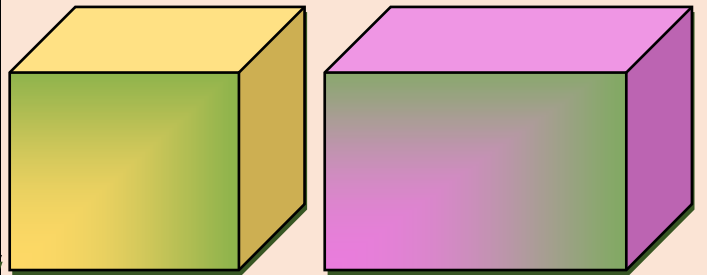
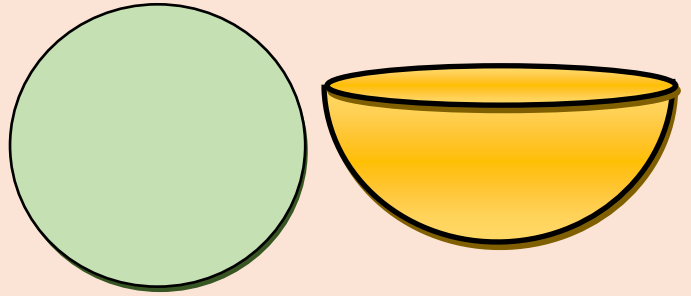
**TOTAL MARKS :**

1) Name the following solid and plane figures.

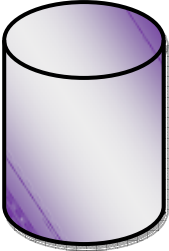
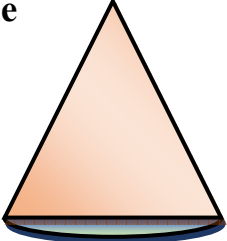
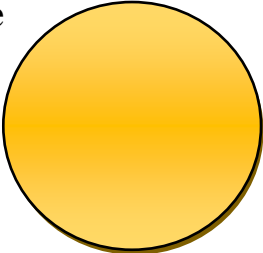
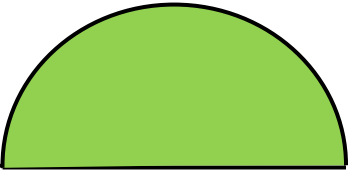
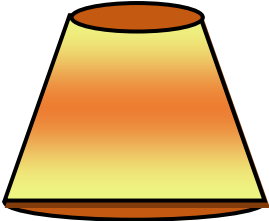
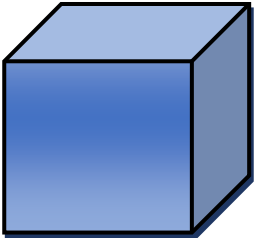
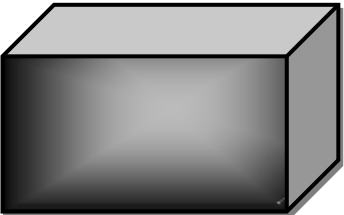
**PLANE FIGURES**



**SOLID FIGURES**



2) Complete the following formula chart

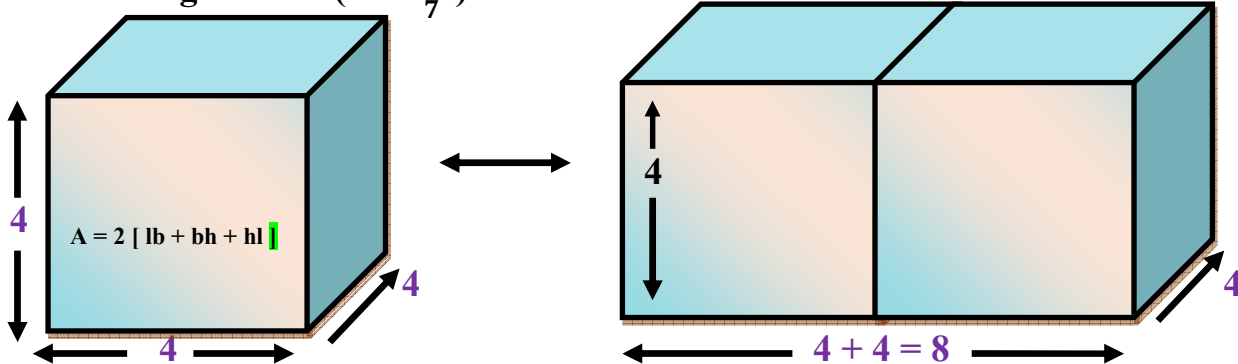
Solids	CSA [LSA]	Total surface area	Volume
<p>1) Cylinder</p> 			
<p>2) Cone</p> 			
<p>3) Sphere</p> 			
<p>4) Hemisphere</p> 			
<p>5) Frustum of a cone</p> 			
<p>6) cube</p> 			
<p>7) Cuboid</p> 			

### 3) Distinguish between plane and solid figures.

Plane figures	Solid figures

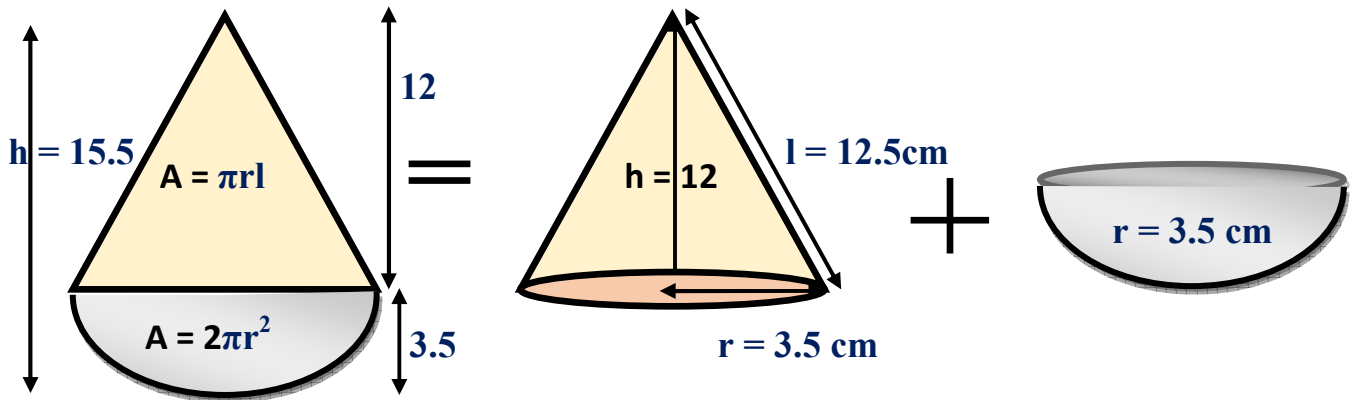
### 4) Solve the following problems

1. Two cubes each of volume  $64 \text{ cm}^3$  are joined end to end. Find the surface area of the resulting cuboid. ( $\pi = \frac{22}{7}$ )

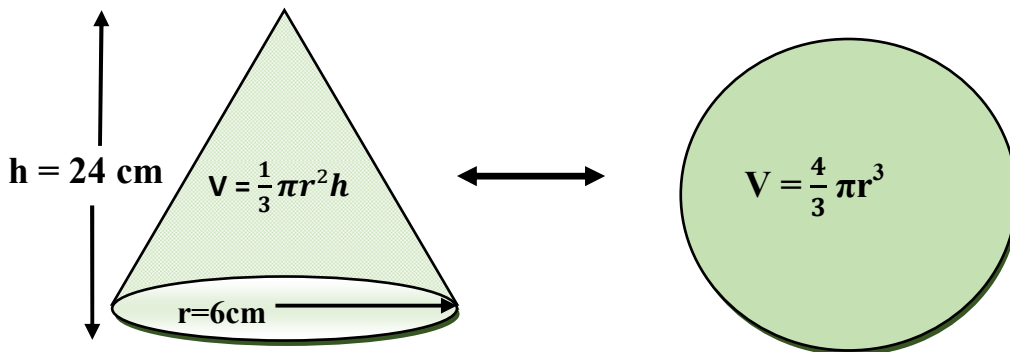


**Surface area of resulting cuboid**

2. A toy is in the form of a cone of radius 3.5 cm mounted on a hemisphere of same radius. The total height of the toy is 15.5 cm. Find the T S A of the toy. ( $\pi = \frac{22}{7}$ )



3. A cone of height 24 cm and radius of base 6 cm is made up of modelling clay. A child reshapes it in the form of sphere. Find the radius of the sphere.



# THANK YOU

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DAVANAGERE DIST.

