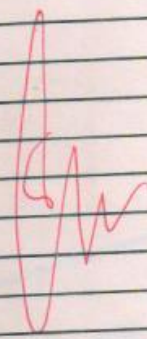
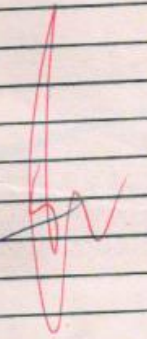
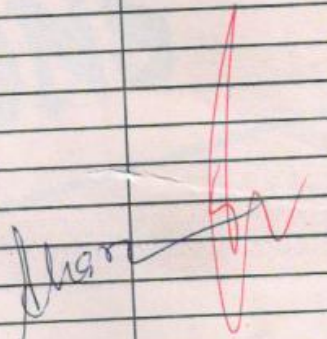
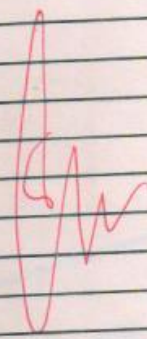
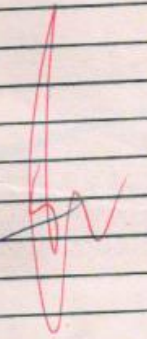
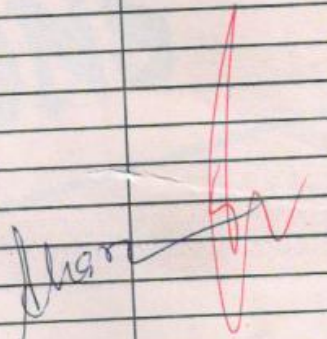


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1)	Micro Teaching Lessons			
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2.	Profit and loss			
3.	Integers			
4.	Three dimensional shape			
5.	Compound Interest			
2)	Mega Lessons			
1.	Curved & Total Surface area			
2.	Curved & T.S.A of Cylinder			
3.	Polynomials			
4.	Algebraic Expression			
5.	Volume of right circular cyl.			
3)	Discussion Lesson-I			
	Sum of the $\angle$ of Δ is 180°			
4)	School Teaching Practice Lessons			
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3.	Height and Distance			
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6.	Parts of a circle			
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17.	Pie chart			
18.	Theorem			
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20.	Three dimensional shape			
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19.	Properties of angle in circle			
20.	Three dimensional shape			
5)	Discussion Lesson-II			
	S.A. of cube & cuboid			
6)	Observation Lessons			
7)	School Report			

Lesson No :1.....

1

Date.....12.01.13.....

Duration of the period.....6 mins.....

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....MATHEMATICS.....

Topic.....Circle.....

Skill - Skill of Questioning

Component used:-

1. Prompting
2. Seeking Further Information
3. Refocusing
4. Redirection
5. Increasing critical Awareness

Opening Statement:-

Good morning students:- Today we will discuss about circle.

Presentation:-

P. T. A.	P. A.	B. B. W.	Component used
What is circle?	Circle is a round figure	Circle is a round figure bounded by equidistance point from a centre	Prompting. Redirections
Can you tell me more about circle Hint:- about any fixed point	NO answer		
Teacher asked this question to another			

2)

Teacher asked the student who has not given answer before
→ can you tell me things shape like circle

Bangle

Refocus

Seeking further form

Why sun, moon and CD are circle?

Because they are round in shape and also has a fixed point as centre

increa critical aware

What is diameter of circle?

No answer

Teacher ask this question to another student

Diameter - The line which passes through centre of circle and touches two point at the boundary of a circle.

Redi

What is relation between diameter and radius of circle?

$$d = 2r$$

Seeking further info

What is the area of circle?

$$\text{Area} = \pi r^2$$

What is the area of semicircle?

$$\text{Area} = \frac{1}{2} \pi r^2$$

How the area of semicircle become $\frac{1}{2} \pi r^2$

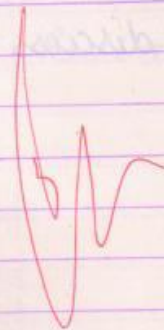
Because semicircle is half of the circle so area of semicircle become $\frac{1}{2} \pi r^2$

Closing Statement:-

OK students today we have discuss about circle and its area.

Observation table

	0	1	2	3	4	5
1. Prompting				✓		
2. Redirection			✓			
3. Refocusing					✓	
4. Seeking further information					✓	
5. Increasing critical awareness					✓	



Lesson No :2.....

5

Date.....14.01.13.....

Duration of the period.....6 mins.....

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....67.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Profit And Loss.....

Skill - Skill of explaining

- Component used:-
1. Opening Statement
 2. using app. link
 3. covering main ideas
 4. Fluency
 5. Testing pupil understanding
 6. Closing statement

Opening Statement:-

Good morning students. Today we will study about profit and loss.

Presentation:-

P.T.A.	P.A.	B.B. Work	Component use
Teacher announce topic in the class	Pupil listen to the teacher	Profit and loss	
Teacher tells the definition of selling Price → The price at which an article is sold is called selling price and is	Pupil write the definition in their n/b	Selling Price	Covering idea

written as S.P.

Teacher tells the definition of cost price →

The price at which anything is bought is called cost price and written as C.P.

Pupil write the definition of cost price in their n/b

Cost
Price

Covering
main idea

Now teacher tell the student about Profit and loss:-

if S.P. is more than C.P. then we say that profit earned so we calculate profit as:-

$$S.P. - C.P.$$

Pupil write the formula of finding profit in their n/b

$$\begin{aligned} \text{Profit} &= \\ S.P. - C.P. \\ \text{Sale Price} \\ C.P. + \text{Profit} \\ \text{Cost Price} &= \\ S.P. - \text{Profit} \end{aligned}$$

Covering
main
idea using
explaining
links

If S.P. is less than C.P. then we say there is loss. So we can calculate loss as:-

$$C.P. - S.P.$$

Pupil write the formula of finding loss in their n/b.

$$\begin{aligned} \text{Loss} &= \\ C.P. - S.P. \end{aligned}$$

Covering
main idea
using
explaining
links

Now teacher give
an example on
profit and loss

(i) Suppose C.P. =
100 ₹

S.P. = 120 ₹

Pupil note the
example in their
note book

There is
profit because

SP - CP

$$120 - 100 \\ = 20/-$$

Covering
idea using
explaining
links.

(ii) Suppose

CP = 1500 ₹

S.P. = 1367 ₹

Pupil note the
ex. in their
N.B.

AS $CP > S.P.$
therefore

there is
loss.

Because

CP - SP

$$= 1500 - 1367$$

$$= 133 \text{ Rs}$$

loss

Covering
main idea
using
explaining
link.

Now teacher
give a question
to student

Solve it =

C.P. = 2675 ₹

S.P. = 3150 ₹

Teaching
pupil
understanding

Closing Statement:

OK students today we have discuss about Profit and loss.

Observation table :-

	0	1	2	3	4	5
1. Opening Statement					✓	
2. using explaining link				✓		
3. covering main idea					✓	
4. Fluency				✓		
5. Testing pupil understanding					✓	
6. Closing Statement					✓	

Lesson No :3.....

9

Date.....15.01.13.....

Duration of the period.....6mins.....9

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Integers.....

Skills of Integration

(Skill of Questioning, Explaining S.B. B. Work)

Opening Statement

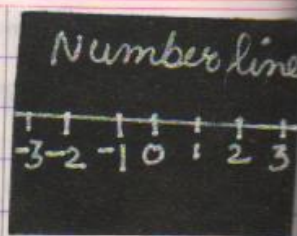
Good morning students, today we will discuss about integers and its properties.

Presentation:-

T.P.	P. T. A.	P. A.	B. B. Work
Integers	Q. What are Integers	All positive, negative number including zero	Integer: Whole NO.: Negative No
	Now teachers give the definition of integers :- It is a collection of whole no. and negative number.	Pupil write the definition in n.b.	
	Q. Can you give me example of Integers?	0, -1, 2	Example 0, -3, -5, 7, 4
Representation of Integers	Q How can you represent an		

integer on number line?

No answer



Hint: - Centre,
right positive No,
left negative No.

Teacher draw
a number line
on black board
and explain it.

Pupil listen
to teacher
carefully.

Now teacher
explain increasing
and decreasing
order on
number line.

i) The value of
integer increase
from left to
right

Ascending
order:
Left to Right

ii) Value of integer
decrease right
to left.

Descending
order:
Right to Left

Additive inverse
of Integer

Additive opposite
of that no. which
has same value
but opp. sign ex $\Rightarrow$
 $8 = -8$

properties of
addition and
subtraction
Integer

Teacher tell
the properties
one by one and
explain them

1. Closure under
Addition:
i.e. $a+b = \text{Integer}$

2. Closure under
subtraction:
i.e. $a-b = \text{Integer}$
So integers are
closed under
add. and sub.

3. Connectivity
properties:-

$$a+b = b+a$$

but

$$a-b \neq b-a$$

$$\text{take } a=3 \quad b=5$$

Pupil write that
addition has
connectivity but
subtraction
not.

4. Associate
property

$$\text{i.e. } a+(b+c) = (a+b)+c$$

$$\text{suppose } a=2 \quad b=1$$

$$c=1 \quad \text{So, addition}$$

is associ-
ated for integer

Pupil write
associate property
in note book.

Example:-
Additive in
verse of:-

$$3 = -3$$

$$5 = -5$$

Commutative
property

$$3+5 = 8 = 5+3$$

$$3-5 \neq 5-3$$

$$-1 \neq 2$$

Associate
property

$$\text{L.H.S. } 2(1-1) = 2$$

$$\text{R.H.S. } (2+1)-1 = 2$$

$$\therefore \text{L.H.S.} = \text{R.H.S.}$$

Closing Statement :- OK student, today we have discussed

Observation table :-

	0	1	2	3	4	5
1. Prompting					✓	
2. Redirection				✓		
3. All essential points are covered					✓	
4. Continuity in explaining					✓	
5. Students participation in development of lesson					✓	
6. Points written on black board were simple and brief.					✓	
7. Black board were neat, legible and appropriate					✓	
8. Testing pupil understanding					✓	
9. Integration of skill.					✓	

Lesson No : 4

13

Date 16.01.13

Duration of the period 6 min

Pupil Teacher's Name

Pupil Teacher's Roll No. 17

Class

Average Age of the pupils

Subject

Topic Three dimensional shape

Skill of Integration:-

Skill of Stimulus Variation, Explanation

Illustration with examples with B.B.W

Opening Statement:-

Good morning students. Today we shall discuss about three dimensional shape of objects.

Presentation:-

T.P.	P. T. A.	P. A .	B. B. W
Three Dimensions	Teacher shows the student two objects one is 2 dimensional and other is 3 dimensional	Pupil look carefully at the objects.	Rectangle 2 Dimensional 3 Dimensional
	Ask the students to differentiate between them and explain the term 3 dimensional.		
Three dimensional	Now teacher shows some 3 D objects		

shape

one by one and discuss about their shapes

Pupil look at the object and give answer to teacher

Cube is 3-D length, breadth, height

1) Cuboid

Q What is its shape?

Cuboidal

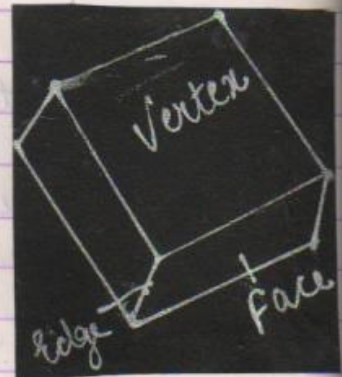
Q How many vertex, edges and faces it has?

Vertex - 8

Edges - 12

Faces - 6

After that teacher explain and write the vertex, edges and faces of cuboidal shapes?



2) Cylinder

Q What is its shape?

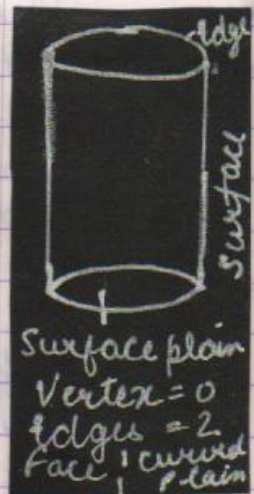
Cylinder

Q How many vertex, edges and faces it has?

Vertex = 0

Edges = 2

Faces = 2



3) Sphere

Q What is its shape?

Spherical

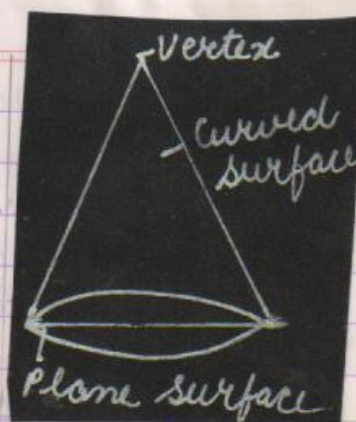
Q How many vertex, edges and faces it has?

no vertex, no edges, only one curved surface

Cone

Q What is its shape? Conical

Q Can you tell me Vertex-1, 1 curved surface, vertex, edges, and 1 plain face in conical surface and edge shape?



Teaching Pupil understanding

P. T. A

Q What are dimensional of your classroom?

P. A.

Length

Breadth

Height

Q How many vertex and sphere has?

No vertex

Q How many vertex and edges cuboid has?

12 Edges

Q What is the shape of ice cream cone?

Conical

Closing Statement:-

Well we have discussed about 2 and 3D shapes

Observation table:

	0	1	2	3	4	5
1. Introducing statement was appropriate					/	
2. All essential points were covered.				/		
3. Continuity in explaining				/		
4. Simple, relevant examples are used				/		
5. use of Inductive-deductive approach				/		
6. Diff. stimuli were used to draw for attention of pupil				/		
7. Students participation was appropriate				/		
8. Concluding statement was appropriate				/		
9. Integration of skill				/		

Lesson No :5.....

17

Date.....17.01.13.....

Duration of the period.....6 mins.....

17

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Compound Interest.....

Skill of Integration:-

Skills of stimulus variation, explanation. Illustration with example with pupil's Activity

Opening Statement:-

Good morning students, Today we shall discuss about 'Compound Interest'.

Presentation:-

P. T. A.	S. A.	Components
1) To find out compound interest on Rs 20,000 for 3yr. at 10% P.A.	listening carefully	
2) The pupil teacher will solve the whole problem on the black board.	looking towards the black board	To write only after proper cleaning of black board.
3) First find out the compound interest on Rs 100 for 3yr at 10% amount at the end of 1st year = Rs(100+10) = 110 Rs	listen carefully	

This becomes the principal for 2nd year.

Appropriate size and shape of letter

$$\text{Int for 2nd year} = \left(\frac{110 \times 10 \times 1}{100} \right) = 11 \text{ Rs}$$

look at the black writing in board and listen straight line carefully

Amount at the end of IInd year

$$110 + 11 = \text{Rs } 121$$

legibility of hand writing

again this become principal for IIIrd year

Side by side rubbing of unessential parts

Int for 3rd year

$$= \frac{121 \times 10 \times 1}{100}$$

$$= 12.10 \text{ Rs}$$

Amount at the end of 3rd year

$$121 + 12.10 = 133.1$$

Compound Interest

$$\text{Rs } 133.1 - 100$$

$$= 33.10$$

Now, Amt. on interest on Rs 100 =

$$133.1$$

$$\text{Inten Rs} = \frac{133.1}{100}$$

Hence Amt. on Rs
20,000 is

$$\text{Rs } \frac{133.10}{100} \times 20000$$

$$= \text{Rs } 26620$$

Side by Side rubbing
essential parts

Adoption of correct
posture while
writing

$$\begin{aligned} \text{Compound Interest} & \text{ look at the} \\ = \text{Amount} - \text{Principal} & \text{ black board and} \\ = 26620 - 20000 & \text{ listen carefully} \\ = \text{Rs } 6620 \end{aligned}$$

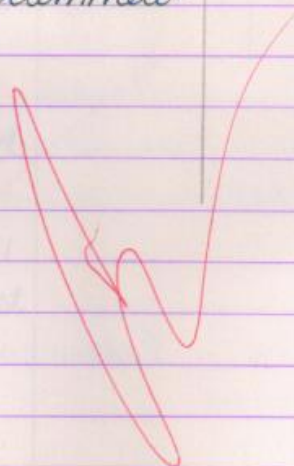
Thus the required
amount is Rs
26620 and Comp-
ound int. is
Rs 6620

Focusing
Interest

Observation cum Rating scale for the sk of using black board

Components		0	1	2	3	4
1) Cu	1. The size and shape of letter is appropriate					✓
	2. Writing was in straight line.					✓
	3. Writing was quite eligible.					✓
	4. Non essential work on board was rubbed.					✓
	5. Posture of teacher quite appropriate.					✓
	6. Starts writing on black board after cleaning.					✓
2) Cu	1. There was no grammatical mistake.					✓

3) S



Lesson No :1.....

Date.....18.01.13.....

Duration of the period.....40 mins..... 21

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Curved and Total Surface
area of cone

Instructional Objectives

Knowledge:-

Students will be able to recall shape, area of circle and triangle.

Understanding:-

Students will be able to explain curved surface area of right circular cone.

Students will be able to explain total surface area of right circular cone.

Application:-

Students will be able to predict the shape of cone.

Skill:-

Students will be able to understand - ing the method for determining curved and total surface area of right circular cone.

Instructional Teaching Aids:-

Chalk, duster, roller, black board, pointer etc.

Previous Knowledge:

Pupils are familiar with shape and area of circle is triangle.

Previous Knowledge Testing:

- 1) What is the area of triangle?
- 2) What is the area of circle?
- 3) What is the hypotenuse of right triangle.

Announcement of Topic:-

Well student today we will learn to find out the curved and total surface area of right circular cone.

Presentation:-

T.P.	P.T.A.	S.A.	B.B.W.
Introduction to right circular cone	What is the area of triangle? good, Now the area of each triangle	$\frac{1}{2} \times b \times h$	

area of
circle

$$= \frac{1}{2} \times \text{base of } \Delta \times h$$

Area of entire
piece of circle
= sum of area of
all small Δ

$$= \frac{1}{2} \times b_1 \times l + \frac{1}{2} \times b_2 \times l + \dots$$

Is anything common

Yes

$$= \frac{1}{2} l (b_1 + b_2 + \dots)$$

$= \frac{1}{2} \times l \times$ entire
curved
boundary

What is the
circumference of
circle?

$$2\pi r$$

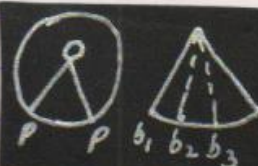
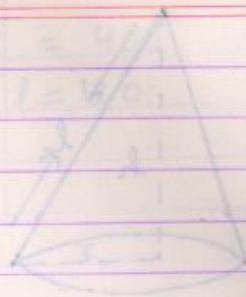
formula
for curved
surface area
of cone

curved surface
area of cone =

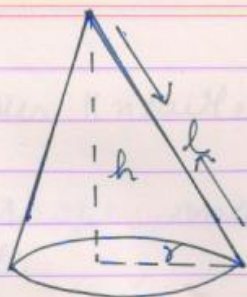
$$\frac{1}{2} \times l \times 2\pi r$$

$$= \pi r l$$

where r is radius
and l is its
slant height



Area of entire
piece = sum of all
small $\Delta = \frac{1}{2} (b_1 l + b_2 l + \dots)$
 $= \frac{1}{2} l (b_1 + b_2 + \dots)$
 $= \frac{1}{2} \times l \times 2\pi r$
 $= \pi r l$



now if the base of cone is to be closed then what is the area of circle.

$$\begin{aligned}\therefore \text{Total surface area of cone is} \\ &= \pi r l + \pi r^2 \\ &= \pi r (l + r)\end{aligned}$$

lets do a question

Q. Find the curved surface area of cone where $r = 12\text{ cm}$ and height $= 16\text{ cm}$

Sol:- What is the formula for curved surface area. Yes, $\text{CSA of cone} = \pi r l$
What is
 $\text{CSA} = \pi r l$

$$\pi r l$$

$$l^2 = 12^2 + 16^2$$

$$\text{Sol: C.SA of cone} = \pi r l$$

$$l^2 = r^2 + h^2$$

$$l^2 = 12^2 + 16^2$$

$$l^2 = 144 + 256$$

$$l = \sqrt{400}$$

$$l = 20$$

Date: 17.01.13

Duration of the period: 40 min

25

$= \frac{22}{7} \times 12 \times 20$ $= 1206.8 \text{ cm}^2$	$= 400$ $l = 20$
--	------------------

Instructional Objectives:-

Evaluation:

- Find the total surface area of cone if its slant height is 21 cm and diameter is 24 cm.
- Find the curved surface area ~~of~~ and total surface area where radius is 12 cm and slant height is 14 cm.

Home Work:

Diameter of the base of cone is 10.5 cm and slant height is 10 cm find its curved and total surface area?

Assessment:-

The student will be able to find the slant height of right circular cylinder.

Skill:-

The student will be able to understand the method for finding out the curved surface area and total surface area of cylinder.

Instructional Aids:-

Chart, model, diagram, etc.

Lesson No :2.....

26

Date.....19.01.13.....

Duration of the period.....40mins.....

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Curved and Total surface area of cylinder

Instructional Objectives:-

Knowledge:-

The students will be able to recall the area of rectangle, circle and circumference of circle

Understanding:-

The student will be able to explain the method for determining curved surface area of cylinder.

The student will be able to explain the method for determining total surface area of cylinder

Application:-

The student will be able to predict the shape of right circular cylinder

Skill:-

The student will be able to understand the method for finding out the curved surface area and total surface area of cylinder.

Instructional Aids:-

Chalk, roller, duster, pointer, board

Previous Knowledge Assured:

The students are familiar with shape and area of circle and rectangle.

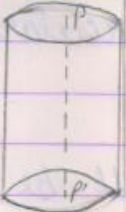
Previous Knowledge Testing:

- (1) What is the area of circle?
- (2) What is the area of rectangle?
- (3) What is the circumference of circle?

Announcement of Topic:-

Well students today we will learn to find out curved and total surface area of right circular cylinder.

Presentation:

T.A.	P.T.A.	P.A.	B.B.W
Introduction to right circular cylinder	Name some objects like this figure.  What is this figure called?	Glass, tube, light, rod NO response	 ex-glass, tube-light it is called cylinder. it has top & bottom in circular shape and curved in b/w CSA & TSA of one.
	OK, this figure is called cylinder. it is curved in		

shape and it has circular top and bottom.

To find
out
curved
surface area
of cylinder

The area of curved part of cylinder having out area of top and bottom is curved surface area of cylinder

Suppose we cut this figure from P to P, it look like a rectangle

So, tell me the area of rectangle.

Area of rec. =
length $\times$ Breadth

Yes it is $= L \times B$

So, what is L here

L is equal to circumference of circular top & bottom of cylinder which is

$2\pi r$ and h is height of cylinder

So, area of rectangle
 $= 2\pi r \times h$

which is?

Yes

if $r = 14\text{cm}$
 $h = 10\text{cm}$
 Find CSA
 $= 2\pi r h$
 $= 2 \times \frac{22}{7} \times 14 \times 10$
 $= 880\text{cm}^2$
 T.S.A
 $= 2 \times \frac{22}{7} \times 14 \times (10+14)$
 $= 88 \times 24$
 $= 2112\text{cm}^2$

Total Surface area of cylinder Now we can add to this area, the area of top & bottom of cylinder to find the total surface area of cylinder.

So, total surface area of cylinder =
Curved surface area +
(Area of top & bottom)

What is area of circle?

$$\pi r^2$$

$$\text{So TSA} = 2\pi r h + 2\pi r^2$$

Anything Common
Yes, $\text{TSA} = 2\pi r (h + r)$

Evaluation:

- (1) Find the curved surface area and total surface area of right circular cylinder and solve problem related to this.

Home Work:-

- (1) Find the curved and total surface area

Date : 24/12

Duration of the period : 40 min

30

of cylinder where radius is 4.9cm and height is 5cm.

- 2) Find the total and curved surface area of cylinder whose circumference is 13.2cm and whose height is 8cm?

The students will recall the formula of $(x+y)^2$, $(x-y)^2$ and x^2-y^2 .

Understanding -

The student will be able to explain the term and coefficient of polynomials.

Application:-

The student will be able to predict the degree of polynomials.

Skills -

The student will be able to predict the degree of polynomials.

They will be able to understand the method for determining the term, coefficient, degree and zero of polynomial.

Instructional Aids -

Chalk, roller, board, black board, pointer etc.

Lesson No : 3

Date 21.01.13

Duration of the period 40 mins 31

Pupil Teacher's Name

Pupil Teacher's Roll No 17

Class

Average Age of the pupils

Subject

Topic Polynomials

Instructional Objectives :

Knowledge :-

The students will recall the formula of $(x+y)^2$, $(x-y)^2$ and $x^2 - y^2$.

Understanding :-

The student will be able to explain the term and coefficient of polynomials.

Application :-

The student will be able to predict the degree of polynomials.

Skills :-

The student will be able to predict the degree of polynomials.

They will be able to understand the method for determining all the terms, co-efficient, degree and zero's of polynomial.

Instructional Aids :-

Chalk, roller, duster, black board, pointer etc.

Previous Knowledge:-

The student are familiar with formula of $(x+y)^2$, $(x-y)^2$ and x^2-y^2 .

Previous Knowledge Testing:-

- (1) What is the formula of $(a+b)^2$
- (2) What is the formula of $(a-b)^2$
- (3) What is the formula of a^2-b^2

Announcement of Topic:-

Well student today we will study about 'polynomials'.

Presentation:-

T.P.	P.T.A.	P.A.	B.B.W.
Questions	what is $(x+y)^2$ equal to? what is $(x-y)^2$? what is x^2-y^2 ? what is polynomial?	$x^2+2xy+y^2$ $x^2-2xy+y^2$ $(x+y)(x-y)$ No response	$(x+y)^2 = x^2+2xy+y^2$ $(x-y)^2 = x^2-2xy+y^2$ $x^2-y^2 = (x+y)(x-y)$
Polynomial in one variable	In algebraic expression where one variable has power which can be expressed as		When power of algebraic exp. is whole no. the exp. is called polynomial

whole no.

For example

i) $4x^3 + 3x + 7$

Here power of x are 3, 1, 0 which are whole no. so it is polynomial

ii) $t^2 + 3\sqrt{t} + 2$

What are the power of t in this expression?

Yes,

2, $\frac{1}{2}$, 0

But $\frac{1}{2}$ is not a whole no. So the above expression is not polynomial.

iii) What about $y^2 + 6 + \sqrt{3}y$? Power of y is 0, 1, 2, 3

So, the power are whole number, therefore the expression is a whole number

iv) $y^2 + \frac{2}{y}$ tell

① $4x^3 + 3x + 7$
Power of $x = 3, 1, 0$
which are whole no. So it is a polynomial.

about this?
 -1 is an integer,
 it is not a
 whole number
 So, the expres-
 sion is not a
 polynomial

Power of y
 is $-1, 2$
 -1 is a integer

Evaluation:-

- (1) Give one example of polynomial is one variable?
- (2) What is the degree of polynomial in $7x^5 + 8x^7 + 6x^6 + 5x^4 + 3x^2 + 12$?
- (3) What are the coefficient of equation $3x^5 + 2x^3 + 2x^2 + x + 12$?

Home work:-

- (1) Write the terms and coefficients of equation:-
 - (a) $2x^3 + x^2 + 3x + 1$
 - (b) $3x^2 + 2x + 1$

Date: 22.01.19

Duration of 4th period

(2) what is the degree of polynomial in $8x^5 + 6x^4 + 3x^3 + 2x^2 + 1$?

Instructional Objectives

Knowledge:-

Students will recall the formulae $(x+y)^2$, $(x-y)^2$, $x^2 - y^2$ and $(x+a)(x-a)$.

Understanding:-

The student will be able to explain the various algebraic identities.

The student will be able to explain the algebraic identities of squares and should be able to factorise.

Application:-

Development of numerical skills in the students.

Instructional Teaching Aids:-

Chalk board, water, duster, pointer etc.

Prerequisite Knowledge:-

The students should be familiar with the formulae of $(x+y)^2$ and $(x-y)^2$.

Lesson No : 4

36

Date: 22.01.13

Duration of the period: 40 mins

Pupil Teacher's Name:

Pupil Teacher's Roll No: 17

Class:

Average Age of the pupils:

Subject:

Topic: Algebraic Expression

Instructional Objectives

Knowledge:-

Students will recall the formula of $(x+y)^2$, $(x-y)^2$, x^2-y^2 and $(x+a)(x-a) = x^2 + (a+b)x + ab$

Understanding:-

The student will be able to explain the various algebraic identities.

The student will be able to explain the algebraic identities of square. How should it be factorise.

Application:-

Development of numeric solving skill in the students.

Instructional Teaching Aids:-

Chalk, blackboard, roller, duster, pointer etc.

Previous Knowledge:-

The students are familiar with formulas of $(x+y)^2$, $(x-y)^2$, x^2-y^2

Previous Knowledge Testing:-

- (1) What is $(x+y)^2$?
- (2) What is $(x-y)^2$?
- (3) What is x^2-y^2 ?

Announcement of Topic:-

Well Students today we will study about 'Algebraic Expression of Polynomials'.

Presentation

T.P.	P.T.A.	P.A.	B.B.W.
Algebraic Expression	1) Identity - I $(x+y)^2 = x^2 + 2xy + y^2$		Identity I $(x+y)^2 = x^2 + 2xy + y^2$
	2) Identity - II $(x-y)^2 = x^2 - 2xy + y^2$		Identity II $(x-y)^2 = x^2 - 2xy + y^2$
	3) Identity - III $x^2 - y^2 = (x+y)(x-y)$		Identity III $x^2 - y^2 = (x+y)(x-y)$
	4) Identity - IV $(x+a)(x+b) = x^2 + (a+b)x + ab$		
	5) Identity - V		

Solving the question using above formula

$$(x+y+z)^2 = x^2 + y^2 + z^2 + 2xy + 2yz + 2zx$$

(1) $(x+3)(x+3)$

Here we can use which identity

Identity is

$$(x+y)^2 = x^2 + y^2 + 2xy$$

$$\begin{aligned} (x+3)(x+3) &= (x+3)^2 \\ &= x^2 + 2 \times 3 \times x + (3)^2 \\ &= x^2 + 6x + 9 \end{aligned}$$

① $(x+3)(x+3)$
 $(x+3)^2$
 we can use
 Identity I
 $= x^2 + 2 \times x \times 3 + 3^2$
 $= x^2 + 6x + 9$

(2) $(x-5)(x-5)$

which identity is used?

Identity II

$$(x-y)^2 = x^2 - 2xy + y^2$$

$$\begin{aligned} (x-5)(x-5) &= (x-5)^2 \\ &= x^2 - 2 \times x \times 5 + (5)^2 \\ &= x^2 - 10x + 25 \end{aligned}$$

(3) $(x-3)(x+5)$

which identity is used?

Identity 3 is used

$$\begin{aligned} (x-3)(x+5) &= x^2 + (-3+5)x + (-3)(5) \\ &= x^2 + 2x - 15 \end{aligned}$$

If question is used in numerical form

Evaluate 105×106
 $(100+5)(100+6)$

which identity is used?

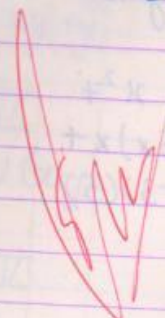
yes.

$$\begin{aligned} & (100+5)(100+6) \\ &= 100^2 + (5+6)100 + 5 \times 6 \\ &= 10,000 + 1100 + 30 \\ &= 11130 \end{aligned}$$

evaluate:-

- (i) Solve $(4a-2b-3c)^2$
 (ii) factorize $25x^2 + 60xy + 36y^2$

Home work:-

- (i) factorize $4x^2 + y^2 + z^2 - 4xy - 2yz + 4xz$
 (ii) expand $(x+2)(x+2)$
 (iii) expand $(x-2)(x+5)$
- 

Lesson No : 5

40

Date: 23.01.13

Duration of the period: 40 mins

Pupil Teacher's Name:

Pupil Teacher's Roll No: 17

Class:

Average Age of the pupils:

Subject:

Topic: Volume of Right Circular Cylinder

Instructional Objectives:-

Knowledge:-

The student will be recall the curved and total surface area of cylinder.

Understanding:-

The student will be able to explain the volume of right circular cylinder.

Application:-

The student will be able to understand the method for determining volume of right circular cylinder.

Skill:-

Development of problem solving skill in the student.

Instructional Teaching Aids:-

Chalk, duster, roller, black board, pointer.

Previous Knowledge:-

The Student are familiar

with area of circle, curved and total surface area of cylinder.

Previous Knowledge Testing:-

- (1) What is the area of circle?
- (2) What is curved surface area of cylinder?
- (3) What is the total surface area of cylinder?

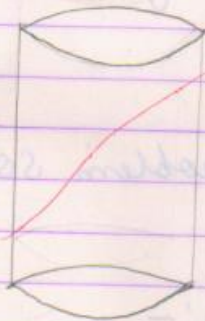
Announcement of Topic:-

Well Student,
today we will study about volume of
'Right circular cylinder'.

Presentation:-

P.A.
Introduction
to volume

P.T.A.



P.A.

B.B.W.



mud
Volume of
Cylinder
 $= \pi r^2 h$

If we put a lot
of mud in the
cylinder and
then how much
quantity of mud

is put in the cylinder
this situation is
known as volume.

What is the area of
circle?

$$2\pi r$$

The mud is
thrown from upward
to downward which
indicates height of
cylinder.

Formula of
Volume of
right
circular
cylinder

Volume of right
circular cylinder =
 $\pi r^2 h$

What is r and h here?

' r ' is radius
of box & top
& height of
cylinder

What is the value of π ?

$$\pi = \frac{22}{7}$$

Question
based on
right
circular
cylinder

Let's do some question
on it
(i) Find the volume
of cylinder whose
radius is 21 cm?

What is the formula of volume?

Yes

$$\pi r^2 h$$

What is 'r' and 'h' here?

$$r = 7 \text{ cm}$$

$$h = 21 \text{ cm}$$

$$\text{Volume} = \pi r^2 h$$

$$= \frac{22}{7} \times 7 \times 7 \times 21$$

Calculate it:-

$$= \frac{22}{7} \times 7 \times 7 \times 21$$

Volume of cylinder

$$= \frac{22}{7} \times 49 \times 21$$

$$= 3234 \text{ cm}^3$$

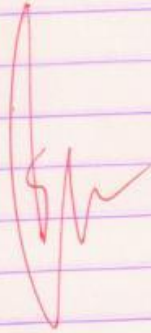
$$= 3234 \text{ cm}^3$$

Evaluation:-

- (1) Find the volume of right circular cylinder whose radius is 5 cm and height is 14 cm.
- (2) Find the volume of right circular cylinder whose circumference is 132 cm and height is 15 cm.

Home Work:-

- 1) Find the volume of cylinder whose radius is 9cm and height is 14cm?
- 2) Find the volume of right circular cylinder is whose radius is 7cm and height is 28cm?



Lesson No :1.....

45

45

Date.....24.01.13.....

Duration of the period.....40 mins.....

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Sum of the angle of Δ is 180°

Current Analysis:-

Defination of Triangli:-

Fractional proof of sum of the angle of a triangle is 180°

General Objectives:-

- 1) To develop pones of thinking ressoning and imagination.
- 2) To develop skill in mathematics and interest in mathematics.
- 3) To develop mathematical attitude among the student.
- 4) To enable them to make use of mathematics knowledge in their daily life.

Specific Objectives:-

- 1) Student will be able to recall the shape of triangle and the angles.
- 2) The student will be able to recognise the sum of

the angles of triangle is 180° .

Understanding:-

- 1) Student will be able to find out the relation b/w the angles of triangles.
- 2) Student will be able to find out the relation between the sum of angles of triangles.

Application:-

- 1) Student will be able to solve the problem related to triangle.
- 2) Student will be able to solve the use of relation in their day to day life.

Teaching Aids:-

General teacher Aids:-

Chalk, black board,
duster, roller, pointer etc.

Specific teaching Aids:-

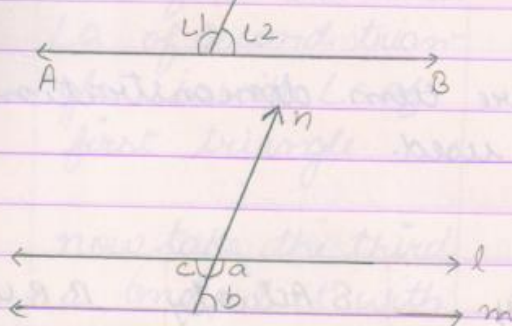
A chart related to

Sum of angles of triangle.

Previous Knowledge Testing

P.T. Activity

- 1.) What is the sum of $\angle 1$ & $\angle 2$



S. Activity

$$\text{Sum of } \angle 1 \text{ \& } \angle 2 = 180^\circ$$

- 2.) l and m are parallel lines $\angle a$ and $\angle b$ are corresponding angle.
and n is a transversal line

- 3.) Name of the pairs of corresponding angle and pair of alternative angle.
 $\angle b$ and $\angle c$ alternative angle.

- 4.) What is the sum of all $\angle$ of triangle? 180°

- 5.) Solve the problem No response

Announcement of the topic:-

Finding the students unable to give the answer for the last question pupil teacher will announce the topic with students. Today we will discuss about sum of the angle of the triangle is 180° .

Presentation:-

Lecture cum demonstration method will be used.

Pupil Point	P. T. Activity	S. Activity	B. B. W.
Triangle	Pupil teacher will show a chart (1) What is figure here represent?	It is a triangle	Triangle has 3 angle
	(2) How many angles have it?	It has 3 angles.	
	(3) What is the sum of three angles of triangle?	180°	The sum of three angles are called 180° .
	(4) Can you prove it?	No response	
Practical proof	Pupil teacher statement - first		

Take three triangle
having same length
of sides and angles

Take first and
second triangles
and put the second
with first such that
LA of second trian-
gle is with LC of
first triangle.

Pupil will
listen

Carefully

now take the third
 Δ and put it with
second triangle is
with LA of second
at point LC of first
 Δ .

Q. What is the sum
of L_1, L_2, L_3

$$L_1 + L_2 + L_3 = 180^\circ$$

$$LA + LB + LC = 180^\circ$$

Q Why it is of 180° ?

due to linear
pair of angle

pupil teacher state-
ment it is a
straight angle
produce BC to E
such that $\Delta BCE = 180^\circ$

Now draw $CD \perp$ to AB

Q. What is the sum of $\angle BCA + \angle ACD +$
 $\angle BCA, \angle ACD, \angle DCE$ $\angle DCE = 180^\circ$

$\angle BCA +$
 $\angle DCE$

Q. What is the sum of
each triangle?

180°

Q. Which two lines
are parallel?

$AB \parallel CD$

$AB \parallel C$

Q. Which two pairs of
angles are equal? $\angle ABC = \angle DCE$
 $\angle BAC = \angle ACD$

Q. Why is $\angle ABC = \angle DCE$ pair of
alternate
angle

Q. Why is $\angle ADC = \angle DCE$ Pair of
corresponding
angles.

Q. What do you do?

Put it is the
1st result.

Q. What do you get? $\angle ABC + \angle BCA +$
 $\angle BAC = 180^\circ$

Example

In a $\triangle ABC$, $\angle A = 70^\circ$
 $\angle B = 30^\circ$ find $\angle C$?

noted down

Q. What is given?

$$\angle A = 70^\circ \angle B = 30^\circ$$

Q. What do you have to find?

$$\angle C = ?$$

Q. What is the sum of all angles?

$$\angle A + \angle B + \angle C = 180^\circ$$

The sum of $\angle 1, \angle 2, \angle 3 = 180^\circ$

Value of $\angle C$

$$70^\circ + 30^\circ + \angle C = 180^\circ$$

$$100^\circ + \angle C = 180^\circ$$

$$\angle C = 80^\circ$$

Example In $\triangle PQR$ $LP = LQ = 2:3$ and $LR = 90^\circ$ find out LP and LQ

Q. What we have to do now let $LP = 2x$ and $LQ = 3x$

Put and solve it

$$LP + LQ + LR = 180^\circ$$

$$2x + 3x + 90^\circ = 180^\circ$$

$$5x = 180 - 90$$

$$5x = 90$$

$$x = 18^\circ$$

Value of LP

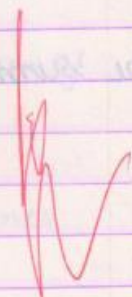
$$LP = 2 \times 18^\circ = 36^\circ$$

$LQ = P$

$$LQ = 3 \times 18^\circ = 54^\circ$$

Conclusion:-

We have conducted that the sum of 3 angles of a triangle is 180°



Lesson No :1.....

53

Date: 28.01.13

Duration of the period: 40 min

Pupil Teacher's Name:

Pupil Teacher's Roll No: 17

Class:

Average Age of the pupils:

Subject:

Topic: Similar Triangles

(I) Instructional Objectives in Behavioural terms

(i) Knowledge Objectives:-

Student will be able to recall & recognise triangle.

(ii) Understanding Objectives:-

Students will be able to differentiate between two type of triangles.

(iii) Application Objectives:-

Students will be able to apply & develop a good speed and neatness in figure.

(iv) Skill Objectives:-

Students will be able to construct diff. type of triangles.

(II) Teaching Aids:-

(i) General Aids:-

Chalk, Board, pointer, duster

(ii) Specific Aids:-

Chalk, chalk duster, Board, pointer,

flash card of diff. triangle.

(III) Previous Knowledge Assured:-

Students have the knowledge of congruence triangles.

(IV) Previous Knowledge Testing:-

P.T.A.

Q. Define triangle.

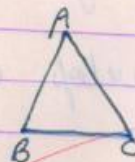
P.A.

A figure bounded by 3 line segments is called triangle.

Q. What is the sign of triangle?



Q. Draw a diagram of triangle.



$\triangle ABC$

$$\angle A + \angle B + \angle C = 180^\circ$$

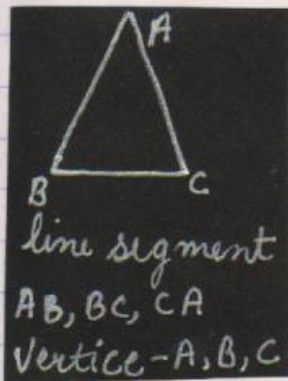
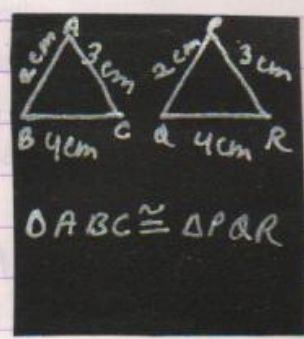
Q. What are similar triangle.

No response

(V) Announcement of the topic:-

Well students today we will discuss about similar triangles

(VI) Presentation:-

T.P.	P.T.A.	P.A.	B.B.W.
Triangle	A figure bounded by three line segment is called a triangle. Sides of triangle are called line segments and point of intersection are called vertices	Pupils write in their N.B. about triangle	 line segment AB, BC, CA Vertex - A, B, C
Congruence triangles	Two triangles are said to be Congruence if they same angle and same size. Congruence of triangle is develop denoted by $\cong$ $AB = PQ$ $AC = PR$ $BC = QR$ $\therefore \triangle ABC \cong \triangle PQR$	Pupil write about congruence D's Pupil write sign in N.B.	 $\triangle ABC \cong \triangle PQR$
Similar triangles	Two triangles are said to be similar triangle if they have same shape only (not necessarily the same size) Therefore we can say,		

that two Congruent triangle are similar but reverse is not true.

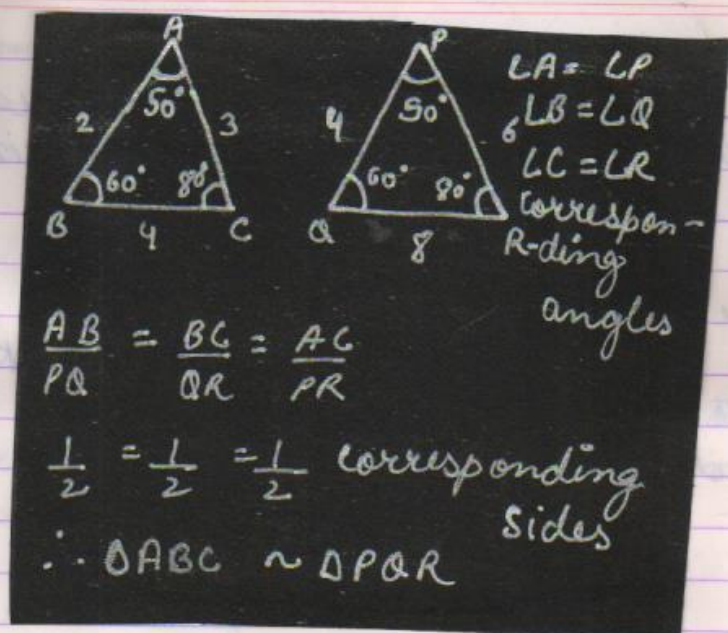
Similar triangles are denoted by $\sim$

Conditions for similarity

Two triangles are similar if:-

- i) Their corresponding sides are in same ratio.
 - ii) Their corresponding angles are equal.
- Pupils write the condition for two triangles to be similar

For ex:- In figure $\triangle ABC \sim \triangle PQR$



Recapitulation:-

P.T.A.

Q. Define Triangle?

P.A.

A figure bounded by 3 line segment is called triangle

Q. What is the sum of angles in Δ ?

180°

Q. What are congruence triangle?

Triangles having same shape and same size

Q. What are similar triangle?

Triangles having same shape are called similar triangle.

VIII Concluding Statement:-

well student
Today we have discussed about similar triangle.

IX Home Assignment:-

learn classwork and
write the conditions for triangles to be similar triangles.

Lesson No : 2

Date 29.01.13 Duration of the period 40 mins 59
 Pupil Teacher's Name Pupil Teacher's Roll No. 17
 Class Average Age of the pupils
 Subject Topic Trigonometry

(I) Instructional Objectives: -

(i) Knowledge Objectives: -

Student will be able to recall and recognise trigonometric functions like $\sin \theta$, $\cos \theta$, $\tan \theta$.

(ii) Understanding Objectives: -

Students will be able to see relationship between trigonometric functions and to prove them.

(iii) Application Objectives: -

Student will be able to choose and apply trigonometric functions.

(iv) Skill Objectives: -

Students will be able to evaluate trigonometric function and to solve them.

(II) Teaching Aids: -

(i) General Aids: -

Chalk, Chalk-board, duster, pointer etc.

(ii) Specific Aids:-

Show a chart of trigonometric functions

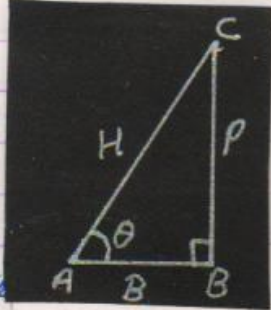
III. Previous Knowledge Assumed:-

Students have to have knowledge of trigonometric functions $\sin \theta$, $\cos \theta$, $\tan \theta$, $\sec \theta$, $\cot \theta$, $\csc \theta$.

IV. Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What is $\sin \theta$?	$\sin \theta = \frac{\text{Perpendicular}}{\text{Hypotenuse}}$
Q. What is $\cos \theta$?	$\cos \theta = \frac{\text{Base}}{\text{Hypotenuse}}$
Q. What is $\csc \theta$?	$\csc \theta = \frac{\text{Hypotenuse}}{\text{perpendicular}}$
Q. What is the relationship between $\sin \theta$ and $\csc \theta$?	No answer

Presentation:-

T.P.	P.T.A.	P.A.	B.B.W.
Trigonometry	Trigonometry is that branch of mathematics in which we study about trigonometry functions and their relation.	students listen to teacher carefully.	$\sin \theta$, $\cos \theta$, $\operatorname{cosec} \theta$, $\sec \theta$, $\tan \theta$, $\cot \theta$
Trigonometric functions	$\sin \theta$, $\cos \theta$, $\tan \theta$, $\sec \theta$, $\cot \theta$, $\operatorname{cosec} \theta$ are called trigonometric functions B - Base H - Hypotenuse P - Perpendicular		
Trigonometric Ratio	$\sin \theta = \frac{P}{H}$, $\cos \theta = \frac{B}{H}$ $\tan \theta = \frac{P}{B}$, $\operatorname{cosec} \theta = \frac{H}{P}$ $\sec \theta = \frac{H}{B}$, $\cot \theta = \frac{B}{P}$	Pupil note down values of all functions	
Relations b/w trigonometric ratio	$\operatorname{cosec} \theta = \frac{1}{\sin \theta}$ $\sec \theta = \frac{1}{\cos \theta}$ $\tan \theta = \frac{\sin \theta}{\cos \theta}$		$\operatorname{cosec} \theta = \frac{1}{\sin \theta}$ $\sec \theta = \frac{1}{\cos \theta}$ $\cot \theta = \frac{1}{\tan \theta}$ $\tan \theta = \frac{\sin \theta}{\cos \theta}$

$$\cot \theta = \frac{1}{\tan \theta}$$

$$\cot \theta = \frac{\cos \theta}{\sin \theta}$$

Identities
in trigono-
metry

$$1) \sin^2 \theta + \cos^2 \theta = 1$$

$$\Rightarrow \sin^2 \theta = 1 - \cos^2 \theta$$

$$\Rightarrow \cos^2 \theta = 1 - \sin^2 \theta$$

$$2) \sec^2 \theta - \tan^2 \theta = 1$$

$$\Rightarrow \sec^2 \theta = 1 + \tan^2 \theta$$

$$\Rightarrow \tan^2 \theta = \sec^2 \theta - 1$$

$$3) \operatorname{cosec}^2 \theta - \cot^2 \theta = 1$$

$$\Rightarrow \operatorname{cosec}^2 \theta = 1 + \cot^2 \theta$$

$$\Rightarrow \cot^2 \theta = \operatorname{cosec}^2 \theta - 1$$

Pupil

understand

and learn

these

identities

$$\sin^2 \theta + \cos^2 \theta = 1$$

$$\sec^2 \theta = 1 + \tan^2 \theta$$

$$\operatorname{cosec}^2 \theta = 1 + \cot^2 \theta$$

Trigonometric
ratio of
complement-
ary angles

In right angled $\triangle ABC$
if $0^\circ \leq \theta \leq 90^\circ$ then

$$i) \sin(90^\circ - \theta) = \frac{AB}{AC}$$

$$= \cos \theta$$

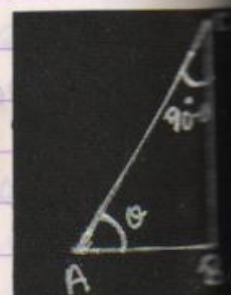
$$ii) \cos(90^\circ - \theta) = \frac{BC}{AC}$$

$$= \sin \theta$$

$$iii) \tan(90^\circ - \theta) = \frac{AB}{BC}$$

$$= \cot \theta$$

Pupil will
note the
formula
in their
notebook.



$$\sin(90^\circ - \theta) = \cos \theta$$

$$\cos(90^\circ - \theta) = \sin \theta$$

$$\tan(90^\circ - \theta) = \cot \theta$$

$$\cot(90^\circ - \theta) = \tan \theta$$

$$\operatorname{cosec}(90^\circ - \theta) = \sec \theta$$

$$\sec(90^\circ - \theta) = \operatorname{cosec} \theta$$

$$\text{iv) } \cot(90^\circ - \theta) = \frac{BC}{AB} \\ = \tan \theta$$

$$\text{v) } \operatorname{cosec}(90^\circ - \theta) = \frac{AC}{AB} \\ = \sec \theta$$

$$\text{vi) } \sec(90^\circ - \theta) = \frac{AC}{BC} \\ = \operatorname{cosec} \theta$$

III. Recapitulation:-

P.T.A.	P.A.
Q. What is the relationship b/w $\cos \theta$ and $\sec \theta$	$\cos \theta = \frac{1}{\sec \theta}$
Q. What are the identities in trigonometry?	i) $\sin^2 \theta + \cos^2 \theta = 1$ ii) $\sec^2 \theta = 1 + \tan^2 \theta$ iii) $\operatorname{cosec}^2 \theta = 1 + \cot^2 \theta$

VIII. Concluding Statement:-

OK students today we have discussed some trigonometric rules.

Home Assignment: - learn and write all these trigonometric rules in note book.

Learn and write all

these trigonometric rules in note book.

ii) $\cos(90^\circ - \alpha) = \sin \alpha$ - the other trig identity

Lesson No : 3

65

Date..... 30.01.13

Duration of the period..... 40 mins

Pupil Teacher's Name.....

Pupil Teacher's Roll No..... 17

Class.....

Average Age of the pupils.....

Subject.....

Topic..... Height and Distance

(I) Instructional Objectives in Behavioral terms

- (i) Knowledge Objectives:-
Students will be able to recall trigonometry functions.
- (ii) Understanding Objectives:-
Students will be able to interpret the use of trigonometric ratios.
- (iii) Application Objectives:-
Students will be able to find the application of trigonometry in finding height and distance.
- (iv) Skill Objectives:-
Students will be able to draw figure and evaluate height and distance of objects.

II Teaching Aids

(i) General Aids:-

Chalk, Chalk-board, duster, pointer.

(ii) Specific Aids:-

(i) A chart showing trigonometric functions and formulas.

(ii) A flash and card showing values of trigonometric functions.

IV Previous Knowledge Assumed:-

Students have knowledge of trigonometric functions.

V Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What are trigonometric functions?	$\sin \theta$, $\cos \theta$, $\tan \theta$ $\cot \theta$, $\sec \theta$, $\operatorname{cosec} \theta$
Q. What are the values of trigonometric functions?	$\sin \theta = \frac{P}{H}$ $\cos \theta = \frac{B}{H}$ $\tan \theta = \frac{P}{B}$ $B = \text{Base}$ $H = \text{Hypotenuse}$ $P = \text{Perpendicular}$
Q. What are the applications of trigonometry?	No answer

I Announcement of Topic:-

Well students today we will discuss about an application of trigonometry - height and distance.

II Presentation:-

T.P.	P.T.A.	P.A.	B.B. Work
Trigonometry and trigonometric functions	Trigonometry is that branch of maths in which we studied about trigonometric functions:- N.B.	Pupil write these functions in their	

$\sin \theta$, $\cos \theta$, $\cot \theta$, $\tan \theta$,
 $\operatorname{cosec} \theta$, $\sec \theta$

Trigonometric ratios in trigonometric functions	$\sin \theta = \frac{P}{H}$, $\cos \theta = \frac{B}{H}$ $\tan \theta = \frac{P}{B}$, $\operatorname{cosec} \theta = \frac{H}{P}$ $\cot \theta = \frac{B}{P}$, $\sec \theta = \frac{H}{B}$	Pupil write in their N.B about these ratios	
---	---	---	--

$\therefore P = \text{Perpendicular}$

$B = \text{Base}$

$H = \text{Hypotenuse}$

Angle of elevation

The angle of elevation is that angle formed by the line of sight

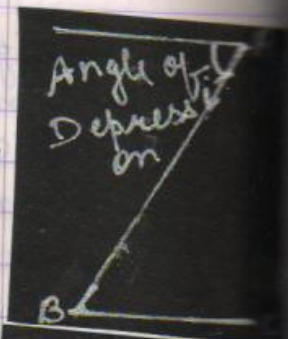
Trigonometry is that branch of maths
 $\sin \theta$, $\cos \theta$,
 $\tan \theta$, $\cot \theta$,
 $\operatorname{cosec} \theta$, $\sec \theta$

$\sin \theta = \frac{P}{H}$, $\cos \theta = \frac{B}{H}$,
 $\tan \theta = \frac{P}{B}$, $\cot \theta = \frac{B}{P}$,
 $\operatorname{cosec} \theta = \frac{H}{P}$, $\sec \theta = \frac{H}{B}$

with the horizontal when it is above the horizontal level i.e. the case when we rise our head to look at the object.

Angle of Depression

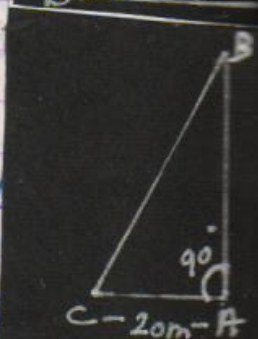
The angle of depression is that angle formed by the line of sight with the horizontal when it is below the horizontal level i.e. the case when we lower our head to look at the object.



Height and Distance

The height or length of an object or the distance between two object can be determined with the help of trigonometric ratio.

A. An observer is 20m away from a minar. The angle of elevation is the top of minar from her eye is 30°



lets height of minar = x m
 $\therefore$ from $\triangle ABC$

$$\frac{x}{20} = \tan 30^\circ$$

$$\frac{x}{20} = \frac{1}{\sqrt{3}}$$

$$\sqrt{3}x = 20$$

$$x = \frac{20}{\sqrt{3}} = 11.53$$

Find the height of the minar.

Sol:- Let AB is a minar and horizontal distance from minar to observe is 20m.

$\therefore$ Height of minar is = 11.53m

11 Recapitulation:-

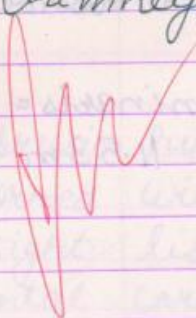
P. T. A.	P. A.
Q. What is the application of trigonometry?	It is used to measure height and distance.
Q. What is the angle of elevation?	It is the angle formed by the line of sight with the horizontal when it is below the horizontal level.

Concluding Statement:-

Well students today we studied about how can we measure height and distance from trigonometric functions.

Home Assignment:-

Do this question in your notebook.
An observer is 15 m tall is 28.5 cm away from a chimney. The angle of elevation is the top of the chimney from her eyes is 45° . What is the height of chimney?



Lesson No : 4
7/

Date..... 31.01.23

Duration of the period..... 40 mins 7/

Pupil Teacher's Name.....

Pupil Teacher's Roll No..... 17

Class.....

Average Age of the pupils.....

Subject.....

Topic..... Volume of cone and cylinder

(I) Instructional Objectives in Behavioral terms:

(i) Knowledge Objectives:-

Students will be able to recall and recognise cylinder and cone.

(ii) Understanding Objectives:-

Students will be able to cite example of cylinder and cone.

(iii) Application Objectives:-

Students will be able to find volume of cylinder and cone.

(iv) Skill Objectives:-

Students will be able to find and evaluate volume of cone and cylinder.

(II) Teaching Aids:-

(i) General Aids:-

Chalk, duster, chalk-board, pointer etc.

(ii) Specific Aids:-

A flash card showing volume of

cone and cylinder.

(III) Previous Knowledge Assured:-

Students have knowledge about surface area of cone and cylinder.

(IV) Previous Knowledge Testing:-

P.T.A.	P.A.
Q. Give example of cone?	Birthday cap, mehar cone, Ice-cream cone
Q. Give example of cylinder	Pencil, Bottle, straw
Q. What is the volume of cone and cylinder?	NO response

(V) Announcement of Topic:-

Well student, today we will discuss about volume of cone and cylinder.

(VI) Presentation:-

T.P.	P.T.A.	P.A.	B.B. work
Right circular cone	A right circular cone is a solid generated	Pupils note about	

by revolving a line segment which passes through a fixed point and which makes a constant angle with a fixed line. right circular cone.

Volume of a right circular cone. Take a conical cap of radius 'r' & height 'h', fill the cap with water to the brim and transfer the water to the jar. Pupil will write about volume of right circular cone.

Repeat this process two times more.

You will find that 3 cap full to brim will fill the jar completely. Thus we conclude that:

3 (Volume of cone of radius r and height h)

$$= (\text{Volume of cylinder})$$

$$= \pi r^2 h$$

= (Volume of cone of radius r and height h)

$$= \frac{1}{3} \pi r^2 h$$

$$\pi r^2 h$$

Right circular
cylinder

A solid generated by the revolution of a rectangle about one of its side is called right circular cylinder.

Pupil write about right circular cone.



Volume of
of radius r
and height

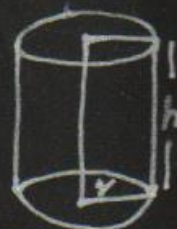
$$V = \frac{1}{3} \pi r^2 h$$

Volume of
cylinder

Let us take a circular sheet of radius ' r ' and stack them vertically to form a right circular cylinder of height ' h '. Then:-

Volume of cylinder = measure the space occupied by the cylinder.

$$\begin{aligned} &= \text{Area of each circular sheet} \times \text{height} \\ &= \pi r^2 h \end{aligned}$$



Volume of
cylinder = $\pi r^2 h$

VII

Concluding Statement:-

Well student, today we will discuss about volume of right circular cylinder and cone.

VIII Home Assignment :-

Q:- A solid cylinder has total surface area 462 sq. cm. Its curved surface area is one third of its total surface area. Find the volume of cylinder.

(take $\pi = \frac{22}{7}$)

Q:- Into a circular drum of radius 4.2 m and height 3.5 m. How many fill bags of what can be emptied if the space referred for what in each bag is 2.1 cubic m.

(take $\pi = \frac{22}{7}$)

SW

Lesson No : 5

76

Date: 01.02.13

Duration of the period: 40 mins

76

Pupil Teacher's Name:

Pupil Teacher's Roll No: 17

Class:

Average Age of the pupils:

Subject:

Topic: Surface area of cone and cylinder

(I) Instructional Objectives in Behavioural Terms

(i) Knowledge Objectives :-

Student will be able to recall and recognise cone and cylinder.

(ii) Understanding Objectives :-

Students will be able to cite example of cone and cylinder.

(iii) Application Objectives :-

Student will be able to find surface area of cone and cylinder.

(iv) Skill Objectives :-

Students will be able to recall and evaluate the surface area of cone and cylinder.

(II) Teaching Aids :-

(i) General Aids :-

Chalk, Chalk board, duster, pointer

(ii) Specific Aids:-

Some real objects related to cone and cylinder.

A flash card showing surface area of cone and cylinder.

III Previous Knowledge Assumed:-

Students have knowledge and objects about cone & cylinder.

IV Previous Knowledge Testing:-

P.T.A.	P.A.
Q. Give the example of cone.	Birthday cap, mehandi cone.
Q. Give example of cylinder.	Straw
Q. What is the area of circle?	πr^2 where r is the radius of circle.
Q. Write formula of area of rectangle.	$L \times B$
Q. Surface area of cone & cylinder	No answer

(V) Announcement of topic:-

Well students today we will discuss about surface area of cone

and cylinder.

II Presentation:-

T.A.	P.T.A.	P.A.	B.G.W.
Surface area of cylinder	Teacher shows some objects having shapes like cylinder for ex - pencil, straw, jar.	Pupil look at the objects	
	If we have a rectangular sheet of length 'L' and height 'h' and we fold it in circular shape then we get a shape of cylinder.	pupil note formula of finding surface area of cylinder	



Cuboid Surface Area of cone :-

= Sum of area of each Δ

$$= \frac{1}{2} b_1 L + \frac{1}{2} b_2 L + \frac{1}{2} b_3 L + \dots$$

$$= \frac{1}{2} L (b_1 + b_2 + b_3 + \dots)$$

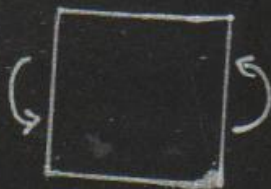
$$= \frac{1}{2} L (\text{length of entire curved boundary})$$

$$= \frac{1}{2} L \times 2\pi r = \pi r l$$

$\therefore$ Surface area of cone = Curved surface area + Area of circular piece

$$= \pi r^2 + \pi r l = \pi r (l + r)$$

Surface Area of Cylinder



Curved surface area of cylinder

= Area of rectangular sheet $h \times l$ but $l = \text{perimeter of base of cylinder} = 2\pi r$

$$\therefore h \times l = 2\pi r \times h = 2\pi rh$$

Total Surface area of cylinder



Area of curved surface + Area of 2 circle

$$= 2\pi rh + 2\pi r^2$$

$$= 2\pi r(h + r)$$

Curved Surface Area = Area
of rectangular sheet

$\Rightarrow$ length $\times$ breadth

$\Rightarrow$ Perimeter of base of cylinder $\times h$

$\Rightarrow 2\pi r h$

$\Rightarrow 2\pi r h + 2\pi r^2$

$= 2\pi r (h + r)$

Surface
Area of
cone

Teacher shows some objects
having shape like cone
for ex:- birthday cap,
ice cream cone.

Curved surface
area of cone = $\frac{1}{2} \times \text{base} \times \text{height}$

$$= \frac{1}{2} \times 2\pi r \times l$$

$$= \pi r l$$

Pupil note
ex. of object
having shape
like cone.

Total Surface area of cone

$$= \pi r l + \pi r^2$$

$$= \pi r (l + r)$$

pupil note
the formula
in N.B.

II. Recapitulation:-

81

P.T.A.	P.A.
Q1. The curved surface area of right circular cylinder of height 14cm is 88cm^2 . Find the diameter of base of cylinder?	2cm
Q2. Diameter of base of the cone is 10.5cm and its slant height is 10cm find its curved surface area	165cm^2

VIII Concluding Statement:-

Well student, today we have learn about how can we find the total surface areas of cone & cylinder.

IX Home Assignment:-

It is required to make a closed cylindrical tank of height 1m and base diameter 140cm from a metal sheet. How many Sq.m. of the sheet is required for this?

Lesson No : 6

82

Date..... 02.02.13 Duration of the period..... 40 mhs 82
Pupil Teacher's Name..... Pupil Teacher's Roll No..... V7
Class..... Average Age of the pupils.....
Subject..... Topic..... Parts of Circle

Instructional Objectives in Behavioural terms:-

(i) Knowledge Objectives:-

Student will be able to recall and recognise circle.

(ii) Understanding Objectives:-

Students will be able to differentiate between different parts of circle, understand them and classify them.

(iii) Application Objectives:-

Students will be able to apply and develop a good speed and neatness of drawing circle and its parts.

(iv) Skill Objectives:-

Students will be able to construct diff. parts of circle.

Teaching Aids:-

(i) General Aids:-

Chalk, Chalk-board, duster, pointer etc.

(ii) Specific Aids:-

A chart showing diff. parts of circle

Previous Knowledge Assured:-

Students have the

Knowledge about circle.

Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What is circle?	A circle is a round.
Q. What is its radius?	A line drawn from centre of circle of circumference of circle.
Q. What is the fixed point called in circle?	Centre of circle
Q. Name any parts of circle?	No answer

Announcement of Topic:-

Well Students today we will discuss about circle & its parts.

Presentation:-

T.A.

P.T.A.

P.A.

B.B.W.

The collection of all points in plane which all are in a constant distance from a fixed point.

pupil write the definition of circle.

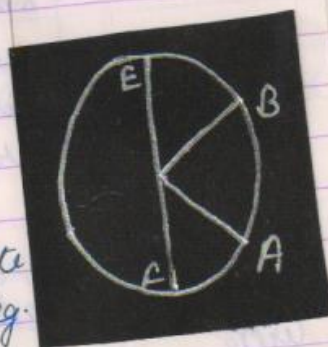


radius

The word radius is also used to mean the line segment of joining any point at the circle to its centre of circle.

Thus A, B, C, F are point that equal distance from the centre of the circle. $\therefore$ OA, OB, OC, OF are radius of circle.

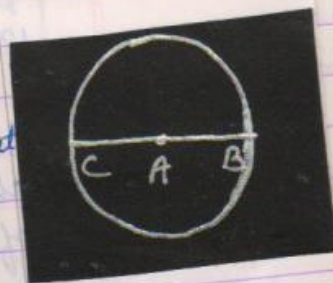
pupil note & draw eg. of radius of circle.



Diameter of a circle

A diameter is a line segment passing through the centre of the circle and having its end point on circle.

pupil write about



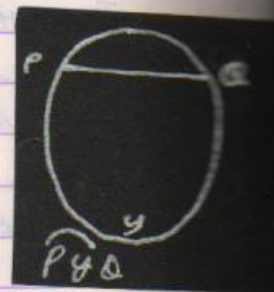
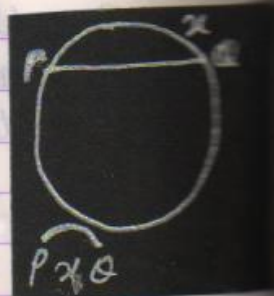
Chord of circle.

A line segment joins two points P & Q of a circle is called chord.

Area of Circle

It may be seen that any two points P and Q of a circle into two parts is called arcs of circle.

Generally the smaller part is called minor arc and bigger part is called major arc. Pupil write in their N.B. carefully.

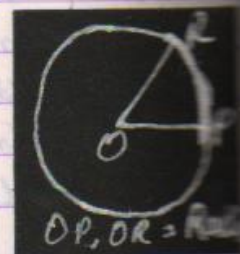


Interior and Exterior of Circle

(i) Part of plain containing all points such as P of the plain enclosed by the circle. This point is called interior of circle.

pupil note about interior & exterior of circle.

(ii) The collection of all points such as R of the plain lying on the circle itself. This point is called the radius of circle.



(iii) The collection of all points such are not enclosed by circle is called exterior of circle.



Recapitulation:-

P.T.A.	P.A.
Q. What are concentric circle?	Circles having same circle centre point are called concentric circle.
Q. What is chord of circle?	A line segment two points on circle is called chord of circle.
Q. What is diameter?	Any line on the circle which passes through centre of circle.

Concluding Statement:-

OK students today we have discussed about parts of circle.

Home Assignment:-

Draw and learn different parts of circle.

Draw and learn different parts of circle.



Lesson No : 1Date 04.02.13Duration of the period 40 mins

Pupil Teacher's Name.....

Pupil Teacher's Roll No. 17

Class.....

Average Age of the pupils.....

Subject.....

Topic Circular Trigonometry
functions

(I) Instructional Objectives in Behavioural Objects:-

(i) Knowledge Objectives:-

Students will be able to recall trigonometric function.

(ii) Understanding Objectives:-

Students will be able to find out Trigonometric function from a right angled triangle and values from angles.

(iii) Application Objectives:-

Students will be able to show a system of quadrants and how to find the value of trigonometric functions.

(iv) Skill Objectives:-

Students will be able to find and evaluate value of trigonometric function.

(II) Teaching Aids:-

(i) General Aids:-

Chalk, Chalk board, duster, pointer etc.

(ii) Specific Aids:-

A flash card showing system of quadrants.

III Previous Knowledge Assured:-

Students have the knowledge about trigonometric system.

IV Previous Knowledge Testing:-

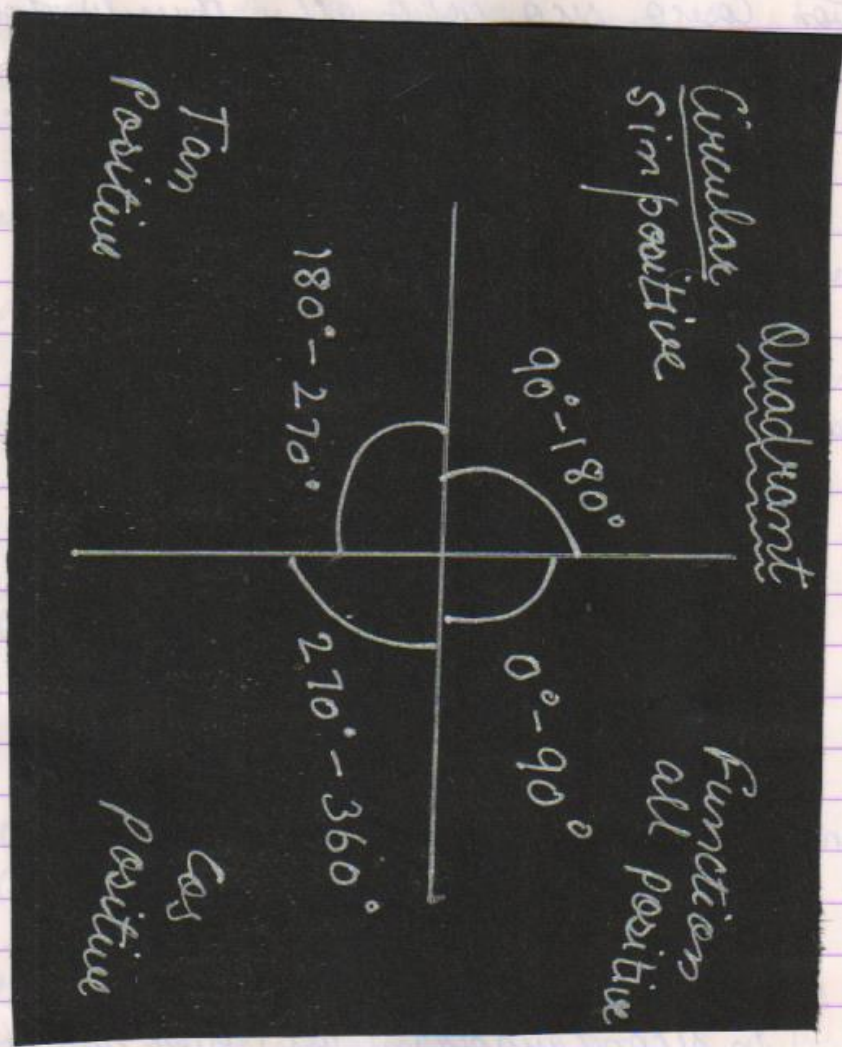
P.T.A.	P.A.
Q. What are trigonometric functions?	$\sin \theta, \cos \theta, \tan \theta, \cot \theta, \sec \theta, \csc \theta$
Q. How can you find $\sin \theta, \cos \theta, \tan \theta$ from a right angled triangle?	$\sin \theta = \frac{P}{H}$ $\cos \theta = \frac{B}{H}$ $\tan \theta = \frac{P}{B}$
Q. What is the value of $\sin(90^\circ - \theta)$	No answer
Q. What are circular triangular function?	No answer

(V) Announcement of Topic:-

Well Students, Today we will discuss about circular triangular function.

Presentation:-

T.P.	P.T.A.	P.A.	B.B.W.
Trigonometric function	$\sin \theta$, $\cos \theta$, $\tan \theta$, $\operatorname{cosec} \theta$, $\sec \theta$, $\cot \theta$ all are called trigonometric functions.	pupil write these functions	$\sin \theta$, $\cos \theta$, $\tan \theta$, $\cot \theta$, $\sec \theta$, $\operatorname{cosec} \theta$
Circular functions	Trigonometric functions in quadrant are called circular functions	pupil note in their note book.	Trigonometric function is in quadrants (+ve, -ve) are called circular function, geometric function
Quadrants	There are four quadrants. (i) First (ii) Second (iii) Third (iv) Fourth		
First quadrant	In first quadrant all the trigonometric functions are positive its value is from 0° to 90° .	pupil write about first quadrant in their N.B.	
Second quadrant	In second quadrant all sign functions are positive It has value from 90° to 180° .	Pupil note in their N.B.	



Third
quadrant

In third quadrant all pupil write
the tangent functions about third
are positive. It has quadrant.
value from 180° to
 270° .

Fourth
quadrant

In fourth quadrant
all the cosine func-
tions are positive. It
has value from 270° to
 360° .

II $90^\circ-180^\circ$	I $0-90^\circ$ all true
III $180^\circ-270^\circ$	IV $270^\circ-360^\circ$

VII Recapitulation:-

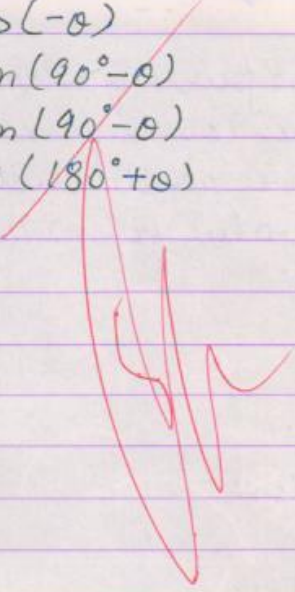
	P. T. A.	P. A.
Q. What is the value of angle in 1st quadrant?		$0-90^\circ$
Q. In which quadrant all the trigonometric function are constant?		first
Q. Write the value of 3rd quadrant.		180° to 270°

VIII Concluding Statement:-

OK Students, today we have discussed about circular trigonometric functions.

IX Home Assignment:-

Find the values of:-

- i) $\sin(-\theta)$
 - ii) $\cos(90^\circ + \theta)$
 - iii) $\cos(-\theta)$
 - iv) $\sin(90^\circ - \theta)$
 - v) $\tan(90^\circ - \theta)$
 - vi) $\cos(180^\circ + \theta)$
- 

Lesson No : 8

93

Date: 05.02.13

Duration of the period: 40 mins

93

Pupil Teacher's Name:

Pupil Teacher's Roll No: 17

Class:

Average Age of the pupils:

Subject:

Topic: Surface Area & Volume of Sphere

Instructional Objectives in behavioral terms:-

(i) Knowledge Objectives:-

Students will be able to recall sphere.

(ii) Understanding Objectives:-

Students will be able to identify sphere and cite example of it.

(iii) Application Objectives:-

Students will be able to find surface area and volume of sphere.

(iv) Skill Objectives:-

Students will be able to evaluate surface area and volume of sphere.

Teaching Aids:-

(i) General Aids:-

Chalk, Chalk board, duster, pointer etc.

(ii) Specific Aids:-

A flash card showing sphere.

Previous Knowledge Assured:-

Students have the knowledge about sphere and its example.

Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What is sphere?	A set of all points in space which are equidistance from a fixed point is called sphere.
Q. Give example of sphere?	Ball, our Earth
Q. What is the surface area and volume of sphere?	No response

Announcement of the Topic:-

Well students, today we will discuss about surface area and volume of sphere.

Presentation:-

T.P.	P.T.A.	P.A.	B.B.W.
Sphere	The set of all points in space which are		

equidistance from a fixed point is called a sphere.

pupil write about sphere.

Surface area of Sphere is = $4\pi r^2$

This fixed point is called centre of sphere and the constant distance is called radius.

Diameter of Sphere

A line segment through the centre of a sphere and with a end point of sphere is called diameter of sphere.

pupil note the diameter of sphere.

A plane through the centre of sphere divides into quad. part each of which is called hemisphere.

If 'd' is the diameter of the sphere and 'r' is the radius then diameter of sphere is = $d = 2r$

Surface area of Sphere

Surface area of Sphere given by $S = 4\pi r^2$

Hemisphere

A plain through the centre of sphere divides the sphere in to two parts equally, each part of which is

pupple note in their N.B.

	Called hemisphere	
Spherical Shell	The difference of two concentric circle is called Spherical Shell	pupil will listen carefully.
Surface area of Hemisphere	Curved surface area of hemisphere of radius 'r' is given as - $S = 2\pi r^2$ units.	pupil note in their n/b.
	Total Surface area of a Hemisphere of radius 'r' is given as - $2\pi r^2 + \pi r^2$ $3\pi r^2$ units	Pupil write this formula in their n/b.
	If R and r are inner and outer radius of a hemispherical shell of outer surface area = $S = 4\pi r^2$ units.	Pupil will listen carefully.
	Q. Find out the Surface area of	

If R and r are outer and inner radii of a spherical shell then outer surface area = $4\pi r^2$

Sphere of radius

$$r = 7 \text{ cm}$$

$$= 4 \pi r^2$$

$$= 4 \times \frac{22}{7} \times 7 \times 7$$

$$= 4 \times \frac{22}{7} \times 49$$

$$= 616 \text{ sq. unit}$$

Volume
of sphere

The volume of sphere
of radius r is
 $= \frac{4}{3} \pi r^3$ units

Pupil note
the formulae
of finding
volumes.

Volume of
Hemis-
phere

The volume of Hemis-
phere of radius r is
 $= \frac{2}{3} \pi r^3$ units

Volume
of hemis-
phere of
radius
 $V = \frac{2}{3} \pi r^3$

Spherical
shell

The volume of Spherical
shell whose outer
and inner radius
 R and r respectively
is given by

$$= \frac{4}{3} \pi (R^3 - r^3) \text{ units}$$

Volume of a
sphere of
radius r is
given by: -
 $V = \frac{4}{3} \pi r^3$

VII Recapitulation:-

P.T.A.	P.A.
Q. Find the volume of Sphere if $r = 7 \text{ cm}$	$V = \frac{4}{3} \pi r^3$ $= 1437.33 \text{ cm}^3$
Q. Find the volume of Hemisp- here of $r = 3.5 \text{ cm}$	$V = \frac{2}{3} \pi r^3$ $= 89.83 \text{ cm}^3$
Q. Find the surface area of Hemisphere of $r = 21 \text{ cm}$	$S = 3 \pi r^2$ $= 4158 \text{ cm}^2$

VIII Concluding Statement:-

OK Students, today we have discussed about surface areas and volume of Sphere.

IX Home Assignment:- Note the work done in class and solve the question related to Sphere.

Previous Knowledge Assured:-

Students have the knowledge about four sides figure such as rectangle and square.

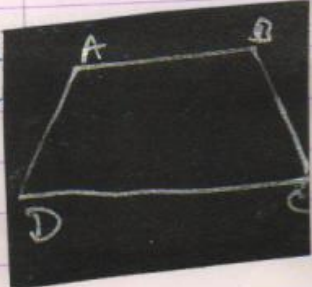
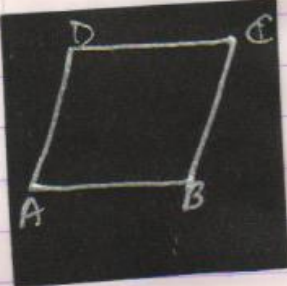
Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What is rectangle?	A figure bounded by four sides in which opposite sides are equal.
Q. What is square?	A figure bounded by four sides in which all sides are equal.
Q. What is Quadrilateral?	No response

Announcement of the Topic:-

OK well, Students today we will discuss about 'Quadrilateral' and its type.

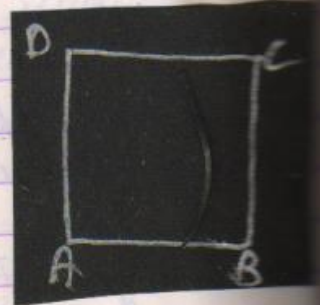
Presentation:-

	P. T. A.	P. A.	B. B. W.
Quadrilateral	A plane figure bounded by four sides of line segments AB, BC, CD, DA is called Quadrilateral.	pupil write about quadri-lateral	<u>Quadrilateral</u> A plane figure bounded by four line segment is called quadri-lateral
	It is denoted by $\square ABCD$ or $\square ABCD$		
Trapezium	A quadrilateral having exactly one pair of parallel sides is called trapezium.	Pupil note the definition in their N.B.	
Parallelogram	A quadrilateral in which both pair of opposite side are parallel is called Parallelogram	pupil write and listen carefully	
Rhombus	A parallelogram having all sides equal is called rhombus.	pupil write in their N.B.	

Rectangle

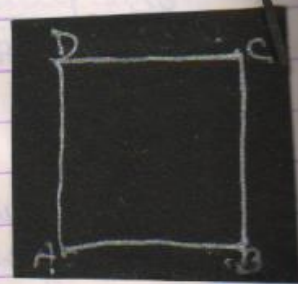
A parallelogram whose each angle is called rectangle.

Pupil will note all types of quadrilateral in their N.B.



Square

A square is a rectangle with all sides equal & each angle is right angle.



Recapitulation :-

Well students today we have discussed about quadrilateral and its type.

Home Assignment :-

Draw different type of quadrilateral in your note book.

SW

Lesson No : 104

07.02.13

Duration of the period 40 mins

Teacher's Name

Pupil Teacher's Roll No. 17

Class

Average Age of the pupils

Subject

Topic Areas related to circle

Instructional Objectives in Behavioral terms:-

Knowledge Objectives:-

Students will be able to recall and recognise circle.

Understanding objectives:-

Students will be able to cite example, see relationship between diameter and circumferences.

Application Objectives:-

Students will be able to find area of segment sector and arcs of circle.

(iv) Skill objectives:-

Students will be able to evaluate area related to circle.

Teaching Aids:-

(i) General Aids:-

Chalk, Chalk board, duster, roller, pointer etc.

(ii) Specific Aids:—

A flash card showing areas related to circle and formulas of finding circles.

Previous Knowledge Assured:—

Students have the knowledge about Circle & its parts.

Previous Knowledge Testing:—

P.T.A.	P.A.
Q. What is circle?	A collection of all points in a plane from a fixed point.
Q. What is sector?	The portion of circular region enclosed by two radius.
Q. What is segment?	The circular region enclosed b/w chord & the corresponding segment.
Q. What is the area of sector?	No answer.

Announcement of Topic:—

Well Students today we will discuss about areas related to circle.

Presentation:-

T.P.
cli

P.T.A.

Circle is the collection of points in a plane which are equidistant from a fixed point.
Ex - Bangla, Wheel

P.A.

pupil write the definition of circle.

B.B.W.

Circle

Area of
circle

Area of circle of radius r is given
 $= \pi r^2$

Pupil note about area and perimeter of circle.

Area of
circle =
 πr^2

Perimeter
area of
circle.

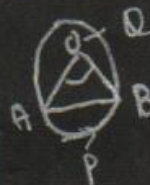
The distance covered by travelling once around a circle is its perimeter, usually called its π circumference.

Circumference of a circle have constant ratio with its diameter

Area of
Sector of
Circle

The portion of the circular region enclosed by two radii and corresponding arc is

pupil will listen carefully



Area of
segment
AOB = Area
of Sector
OABP

called sector.

Area of sector of angle θ is given by,

$$= \theta \times \pi r^2$$

$$= 360^\circ$$

Area of segment of circle

The portion of the circular region enclosed between a chord and a corresponding arc is called a segment of a circle.

Area of segment

$$APB = \text{Area of sector}$$

$$OAPB - \text{Area of } \triangle OAB$$

pupil
note down
formulas
in w.b.

Circumference

Diameter

Circumference

$$\pi r$$

$$= \pi \times 2r$$

$$= 2\pi r$$

where, r
a radius
of circle

Area of sector
OAB

Area of sector

$$OAB = \pi r^2 - \text{Area of}$$

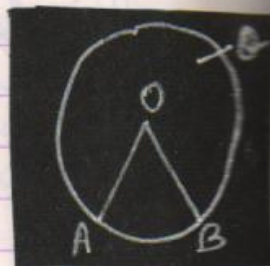
minor sector OAPB

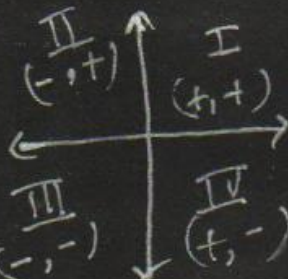
pupil
note about
area of
sector

Area of major
segment
AOB

$$\pi r^2 - \text{Area of minor}$$

segment APB



Quadrant

First Quadrant
 $x > 0, y > 0$ or $(+, +)$

Second Quadrant
 $x < 0, y > 0$ or $(-, +)$

Third Quadrant
 $x < 0, y < 0$ or $(-, -)$

Fourth Quadrant
 $x > 0, y < 0$ or $(+, -)$

Recapitulation:-

P.T.A.	P.A.
Q. - what is the formula of finding area of sector & length of arc of sector of angle θ ?	Area of sector of angle $\theta = \frac{\theta}{360^\circ} \times 2\pi r$
Q. Find the area of sector of a circle with radius 4cm & angle 30° . Find area of corresponding major circle?	46.10 cm ² (approx)

Concluding Statement:-

OK students today we have discussed of finding area of sector & seg segments of circle.

Home Assignment:-

Q. Find the area of sector of a circle with radius 8cm if angle of sector is 60°

Lesson No : 11

Duration of the period 40 mins

Pupil Teacher's Roll No. 17

Average Age of the pupils.....

Topic Co-ordinate Geometry

Instructional Objectives in Behavioral terms:-

i) Knowledge Objectives:-

Student will be able to recall & recognise coordinate system in geometry.

ii) Understanding:-

Students will be able to understand and coordinate system, coordinate points & convention of sign in Quadrant.

iii) Application:-

Students will be able to find distance between two points using distance formula.

iv) Skill objectives:-

Students will be able to evaluate distance b/w two points whose coordinate are given.

Teaching Aids:-

(i) General Aids:-

Chalk, Chalk board, duster, pointer etc.

(ii) Specific Aids:-

A flash card or chart showing

quadrant and formula.

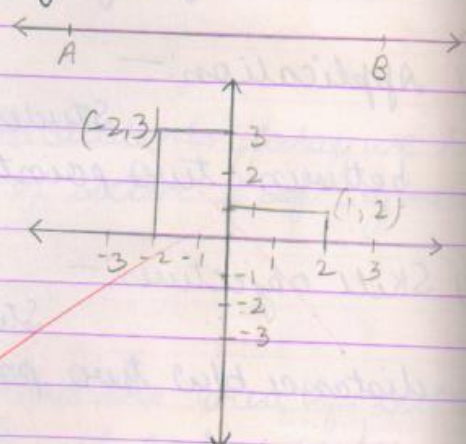
Previous Knowledge Assured:-

Students have knowledge about co-ordinate system and co-ordination in it.

Previous Knowledge Testing:-

P.T.A.
Q. What is segment?

P.A.
Let A & B two points on x Axis, the portion of the Axis b/w A & B is called a segment.



Q. Draw coordinate system and any coordinate in that?

Q. How can you find the distance b/w two points?

No answer.

Announcement Of Topic:-

well students, today we will discuss about distance formula in co-ord.

Definition:-

P.T.A.

Let $X'Ox$ & $Y'Oy$ be two mutually perpendicular lines through any point O . We call this point origin. $X'Ox$ is called x axis and $Y'Oy$ is called y axis.

These two taken together are called rectangular axis.

Let $x'Ox$ & $Y'Oy$ be the co-ordinate axis. Let P be any point in the plane, from P draw Pm and Pn perpendicular on x axis and y axis.

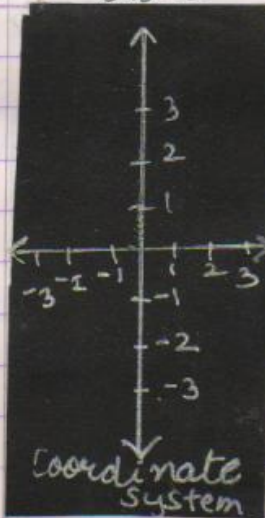
The length NP called x -co-ordinate or abscissa of the point P and the length Pm is called y -coordinate of point P .

Thus the point

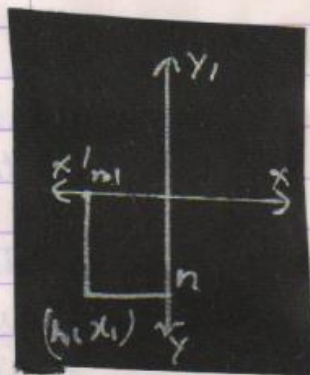
P.A.

pupil note about co-ordination system.

B.B. L.



Pupil will listen carefully.



'P' has Coordinate (x, y)
 In which x -Coordinate
 is written first and y -
 coordinate separated by
 (,) with parenthesis ()
 Pupil will listen carefully

(i) The x Coordinate
 (abscissa) of a point is
 +ve if it is measured
 to the right of 0 and -ve
 if it is measured to the
 left of 0. Pupil will listen carefully.

(ii) The y coordinate
 of a point is +ve if
 it is measured above
 the x -axis and -ve if
 it is measured below
 the x -axis

Formula is used
 to find distance b/w
 two points

The length of line
 segment PQ which
 joins $P(x_1, y_1)$ and $Q(x_2, y_2)$
 is $d = PQ = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
 Pupil will note the formula.

The abscissa
 of a point is +ve
 if it is measured
 to the right of
 0 and -ve if it is
 measured to
 the left of 0.

Recapitulation:-

Q. Find the distance between points $(5, -12)$ $(9, -9)$

P.T.A.

P.A.

$$|PO| = \sqrt{(9-5)^2 + (-9-(-12))^2}$$
$$= \sqrt{4^2 + 3^2} = \sqrt{16+9}$$
$$= \sqrt{25}$$
$$= 5 \text{ units}$$

Q. what point on x axis is equidistance from $(7, 6)$ and $(-3, 4)$

$x=3$, hence $(3, 0)$ is required points.

Q. Find the value of x if $|PO| = |QR|$ where P, Q, R are $(6, 1)$ $(1, 3)$ & $(x, 8)$

$$x = -1, 3$$

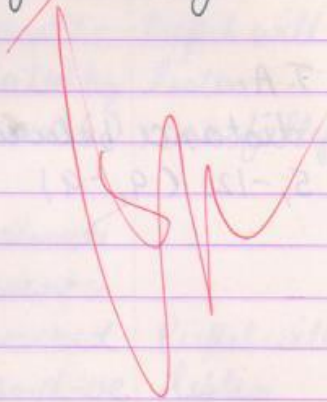
Concluding Statement:-

OK students today we have discussed about distance formula which is used to find distance b/w two points.

Home Assignment:-

Q. Show that $(8, 2)$, $(5, -3)$ & $(0, 0)$ are the vertices of an isosceles triangle.

Q. Show that the points $(4, 4)$, $(3, 5)$ & $(-6, -1)$ are the vertices of a right triangle.



Lesson No : 12

116

09.02.13

Duration of the period 40 mins

116

Teacher's Name

Pupil Teacher's Roll No. 17

Average Age of the pupils

Topic Co-ordinate geometry

Section formula

Instructional Objectives in Behavioral Terms:-

Knowledge Objectives:-

Students will be able to recall co-ordinate geometry.

Understanding Objectives:-

Students will be able to understand section formula.

Application Objectives:-

Students will be able to use section formula

Skill Objectives:-

Student will be able to analyse and able to evaluate section formula.

Teaching Aids:-

General Aids:-

Chalk, Chalk-board, duster, pointer etc.

(ii) Specific Aids:-

A flash card showing section formula.

Previous Knowledge Assumed:-

Students have the knowledge about co-ordinate geometry distance formula.

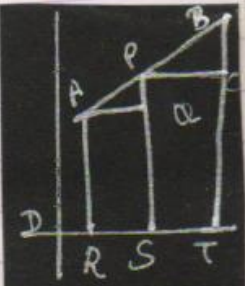
Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What are rectangular axis?	When two axis XOX' & YOY' are mutually perpendicular to each other called rectangular axis.
Q. What is the distance between two points?	$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Q. What is section formula	No answer.

Announcement of the Topic:-

Well students today we will discuss about co-ordinate geometry section formula.

Presentation:-

T.P.	P.T.A.	P.A.	B.B.W.
Co-ordinate system	let XOX and YOY two mutual perpendicular lines through any point O from co-ordinate system. Two axis $X'OX$ and $Y'OY$ are called rectangle axis.	Pupil write about co-ordinate system	Co-ordinate system
Distance formula	Suppose we have two points $A(x_1, y_1)$ and $B(x_2, y_2)$ and we have to find distance between them.	Pupil write about distance and section	 $\Delta PAO \sim \Delta BPC$ $x = \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}$ $y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}$ So co-ordinate of Pt. P is
Section formula	Consider two points $A(x_1, y_1)$ and $B(x_2, y_2)$ and assume that $P(x, y)$ divides AB internally into ratio m_1, m_2 i.e.	Pupil write formula in their notebook.	
	$\frac{PA}{PB} = \frac{m_1}{m_2}$		

Draw AR, PS and BT perpendicular to the x-axis. Draw AQ and PC parallel to the x-axis. Then by AA similarity criteria

$$\triangle PAQ \sim \triangle BPC$$

And

$$AQ = RS = OS - OR = x - x_1$$

$$PC = ST = OT - OS = x_2 - x_1$$

$$PQ = PS - QS = PS - AR =$$

$$BC = BT - CT = BT - PS = y_2 - y_1$$

Recapitulation:-

P.T.A.	P.A.
Q. Find the coordinate of the point which divides the line segment joining the points $(4, -3)$ and $(8, 5)$ in the ratio 3:1 internally	Let $P(x, y)$ be the point $P(x, y) = (7, 3)$ by using section formula.
Q. In what ratio does the point $(-4, 6)$ divide the line segment joining the point $A(-6, 10)$ and $B(3, -8)$	The ratio $m_1:m_2$ is 2:7

Lesson No : 13

121

Duration of the period 40 mins

121

Pupil Teacher's Roll No. 07

Average Age of the pupils

Topic Trigonometry transformation formula.

Instructional Objectives in Behavioral terms:-

Knowledge Objectives:-

Students will be able to recall

2 recognise Trigonometry

Understanding Objectives:-

Students will be able to

classify transformation formulas.

Application Objectives:-

Students will be able to

use transformation formula.

Skill Objectives:-

Students will be able to analyse

and use mathematical skills.

Teaching Aids:-

(i) General Aids:-

Chalk, Chalk board, duster, pointer

etc.

(ii) Specific Aids:-

A flash card showing transformation formula.

Previous Knowledge Assumed:-

Students have the knowledge about trigonometric function.

Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What are trigonometric ratios?	$\sin \theta = \frac{P}{H}$, $\cos \theta = \frac{B}{H}$, $\tan \theta = \frac{P}{B}$
Q. What are trigonometric identities?	$\sin^2 \theta + \cos^2 \theta = 1$ $1 + \tan^2 \theta = \sec^2 \theta$ $1 + \cot^2 \theta = \operatorname{cosec}^2 \theta$
Q. What are transformation formula?	

Announcement of the Topic:-

Well students today we will discuss about transformation formula in trigonometry.

Presentation:-

T.P	P.T.A	P.A.	B.B.W.

transformation formula

In trigonometry, mostly we use transformation formula. These are classified into two parts:-

Pupil note about transformation formula.

1. "A, B" formula
2. "C, D" formula

1. "A, B" formula
2. "C, D" formula

"A, B"

$$1. \quad 2 \sin A \cos B \\ \sin (A+B) + \sin (A-B)$$

$$2. \quad 2 \cos A \cos B \\ = \cos (A+B) + \cos (A-B)$$

$$3. \quad 2 \cos A \sin B \\ = \sin (A+B) - \sin (A-B)$$

$$4. \quad 2 \sin A \sin B \\ = \cos (A-B) - \cos (A+B)$$

Pupil write and listen carefully about formula

"C, D"

$$1. \quad \sin C + \sin D \\ = 2 \sin \frac{C+D}{2} \cos \frac{C-D}{2}$$

$$2. \quad \sin C - \sin D \\ = 2 \cos \frac{C+D}{2} \sin \frac{C-D}{2}$$

TRANSFORMATION FORMULA

$$1) \sin A \cos B = \frac{\sin(A+B) + \sin(A-B)}{2}$$

$$2) 2 \cos A \cos B = \cos(A+B) + \cos(A-B)$$

$$3) 2 \cos A \sin B = \sin(A+B) - \sin(A-B)$$

$$4) 2 \sin A \sin B = \cos(A-B) - \cos(A+B)$$

$$1) \sin C + \sin D = 2 \sin \frac{C+D}{2} \cos \frac{C-D}{2}$$

$$2) \sin C - \sin D = 2 \cos \frac{C+D}{2} \sin \frac{C-D}{2}$$

$$3) \cos C + \cos D = 2 \cos \frac{C+D}{2} \cos \frac{C-D}{2}$$

$$4) \cos C - \cos D = 2 \sin \frac{C+D}{2} \sin \frac{C-D}{2}$$

$$3. \cos C + \cos D \\ = 2 \cos \frac{C+D}{2} \cos \frac{C-D}{2}$$

Pupil
write
these
formula
in their
N.B.

$$4. \cos C - \cos D \\ = 2 \sin \frac{C+D}{2} \sin \frac{C-D}{2}$$

Recapitulation:-

P. T. A.

P. A.

$$Q. \cos 20^\circ = \frac{\cos 0^\circ - \cos 30^\circ \cos 90^\circ}{2}$$

$$\text{Using } 2 \cos A \cos B \\ = \cos(A+B) + \cos(A-B)$$

$$\text{Ans} = \sin 50^\circ - \frac{\sin 50^\circ}{2}$$

$$Q. \text{ Find the value of } \sin 10^\circ, \\ \sin 50^\circ, \sin 60^\circ, \sin 70^\circ$$

$$\text{Using } 2 \sin A \sin B = \\ \cos(A-B) - \cos(A+B)$$

$$\text{Ans} = \frac{\sqrt{3}}{16}$$

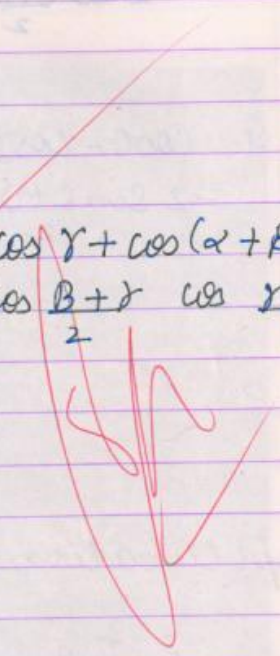
Concluding Statement:-

OK students today we

have discussed about transformation formulae in trigonometry.

• Home Assignment:-

Q. Prove that $\cos \alpha + \cos \beta + \cos \gamma + \cos(\alpha + \beta + \gamma) =$
 $4 \cos \frac{\alpha + \beta}{2} \cdot \cos \frac{\beta + \gamma}{2} \cos \frac{\gamma + \alpha}{2}$



Lesson No :14.....

127

Date.....12.02.13.....

Duration of the period.....40 mins.....127

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Statistics.....

Instructional Objectives in Behavioral terms

(i) Knowledge Objectives:-

Students will be able to recall about arithmetic mean.

(ii) Understanding Objectives:-

Students will be able to discriminate about mean value.

(iii) Application Objectives:-

Students will be able to infer the arithmetic mean value.

(iv) Skill Objectives:-

Students will be able to analyse the arithmetic mean value.

Teaching Aids:-

(i) General Aids:-

Chalk, Chalk board, duster, pointer etc.

(ii) Specific Aids:-

A chart showing statistics formula.

Previous Knowledge Assumed:-

Pupil has the knowledge about arithmetic mean value.

Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What is pie chart	Pie chart represents the pictorial representation of data.
Q. What is the value of central angle?	360°
Q. What is statistics?	No answer

Announcement of the Topic:-

Well students today we will discuss about 'Statistics'.

Presentation:-

P.A.	P.T.A.	P.A.	B.B.W.
Statistics	Statistics deal with study of collection, presentation and analysis of numeric data	pupil note about statistics	Statistics deals with study of collection presentation of numerical data.
Arithmetic mean	Arithmetic mean of the values $x_1, x_2, \dots, x_n$ of a variable x is denoted by $\bar{x}$. $\bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{n}$ $= \sum_{i=1}^n x_i / n$ $\bar{x} = \frac{f_1 x_1 + f_2 x_2 + \dots + f_n x_n}{f_1 + f_2 + \dots + f_n}$ $= \frac{\sum_{i=1}^n f_i x_i}{\sum_{i=1}^n f_i} = \frac{1}{h} \sum_{i=1}^n f_i x_i$	pupil note about formulas in their N.B.	$\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n}$ $= \sum_{i=1}^n x_i / n$ $\bar{x} = \frac{f_1 x_1 + f_2 x_2 + \dots + f_n x_n}{f_1 + f_2 + \dots + f_n}$ $= \sum_{i=1}^n \frac{f_i x_i}{f_i}$ $= \sum_{i=1}^n f_i x_i$ where f_i

where $4 = \sum_{i=1}^n f_i$

If the student have daily pocket money is 26, 27, 20, 29, 21, 23, 25, 30, 28, 21

Pupil will find the value of money.

Then find the mean value of pocket money:-

$$\begin{aligned} & \frac{1}{10} [26 + 27 + 20 + 29 + 21 + \\ & \quad 23 + 25 + 30 + 28 + \\ & \quad 21] \\ & = \frac{1}{10} [250] \\ & = 25 \end{aligned}$$

Recapitulation:-

P.T.A.	P.A.
Q. What is arithmetic mean?	$\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n}$ $= \frac{1}{n} \sum_{i=1}^n x_i$
Q. What is Statistics?	Statistics deals with study, collection, presentation and

analysis of numerical data.

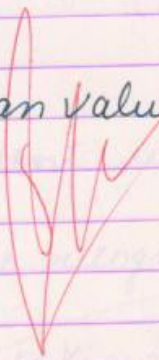
Concluding Statement:-

OK students, Today we have discussed about statistics.

Home Assignment:-

Q. What is pie chart?

Q. Find out arithmetic mean value of 20, 30, 40, 50, 60



Lesson No : 15

Date 13.09.13

Duration of the period 10 mins 132

Pupil Teacher's Name

Pupil Teacher's Roll No 17

Class

Average Age of the pupils

Subject

Topic Proportion

General Objectives:-

- (i) Student will develop power of observation in student.
- (ii) To develop problem solving capacity in students.
- (iii) To provide advanced information to the students

Specific Objectives:-

Knowledge:-

- (i) The student will be able to recall about ratio.
- (ii) Student will be able to recognise operation of proportion.
- (iii) Student will be able to know about the relation between ratio and proportion

Understanding:-

Student will be able to understand and different operation in proportions.

Application:-

Student will be able to apply knowledge of ratio and proportion in day to day life.

Skill:-

Student will be develop the skill of

solving problem easily and independently

Teaching Aids:-

Blackboard, Chalk, duster, pointer etc.

Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What does this sign (:) indicate (pointing towards black board)	Ratio
Q. What is the right another way to write $P:q$	$\frac{P}{q}$
Q. What does sign P indicate in fraction?	Numerator
Q. What does sign Q indicate in fraction?	Denominator
Q. What do you mean by proportion?	Possible answers.

Announcement of the Topic:-

study about 'Proportion'.

So, today we will

Presentation:—

TP.

Definition

P. T. A.

Proportion is a statement of equality between two ratios such as $a:b = c:d$

Thus, four quantities are related as,

$$\frac{a}{b} = \frac{c}{d}$$

⇒ First and fourth terms are called extremes where as second and third terms are called means

⇒ If four quantities are in proportion then product of extreme is equal to product of mean

How do you express this relation?

P. A.

pupil will listen carefully.

B. B. W.

Proportion
 $a:b = c:d$

I & IV are called extremes

$$ab = bc$$

Question

Let us take a problem
If an aeroplane can travel 750 km in three hours then

Questioning related terms

how far it can travel
in 7 hours?

→ what you have to
find?

Distance

→ what would be the
relation?

$$\frac{150}{3} = \frac{x}{7}$$

$$x = \frac{1 \times 750}{3}$$

So what is the solution?

$$= 1750 \text{ Km}$$

How many operations possible
are there in proportion? answer

There are 4 operations.

Invertendo Represented as; if
 $a:b = c:d$ then $b:a = d:c$
For ex if $\frac{2}{3} = \frac{4}{6}$ then

$$\frac{3}{2} = \frac{6}{4} \text{ i.e. solution}$$

will be same.

Invertendo
 $a:b = c:d$

Alternado if $a:b = c:d$ then $a:c =$
 $b:d$ for ex $\frac{2}{3} = \frac{4}{6}$

$$\text{then } \frac{2}{4} = \frac{3}{6}$$

which is equal to $\frac{1}{2}$.

Compendo $a:b = c:d$ then $\frac{a+b}{b} = \frac{c+d}{d}$

let us take a problem if
 $\frac{2}{3} = \frac{4}{6}$ then apply

$$\frac{2+3}{3} = \frac{4+6}{6}$$

$$\frac{5}{3} = \frac{10}{6}$$

Compendo & find ratios
 said they are equal?

Yes

Compendo
 $\frac{a+b}{b} = \frac{c+d}{d}$

Dividendo $a:b = c:d$ then $\frac{a-b}{b} = \frac{c-d}{d}$

Question let us take some problem
 and find out whether
 ratios are equal or not.

$$\frac{2}{3} = \frac{4}{6}$$

$$\frac{2-3}{3} = \frac{4-6}{6}$$

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

Ratios are
 equal

Dividendo
 $\frac{a-b}{b} = \frac{c-d}{d}$

Questions
 related to
 equations

Compendo and Dividendo
 can also be applied
 together, then if
 $a:b = c:d$ then
 $\frac{a+b}{a-b} = \frac{c+d}{c-d}$

Evaluation -

Q. Mention the operation applied in each, when
 $a:b = c:d$ then if

i) $b:a = d:c$

ii) $a:c = b:d$

$$\text{iii) } (a+b):b = (c+d):d$$

$$\text{iv) } (a-b):b = (c-d):d$$

$$\text{v) } (a+b):(a-b) = (c+d):(c-d)$$

• Home Work:-

Q1. Solve 4 question related to compendo & dividendo in your textbook.

Q2. Solve 4 question related to alternado of your textbook.

Lesson No :16.....

Date.....15.02.13.....

Duration of the period.....40 mins.....138

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Trigonometric Ratio of
 $45^\circ, 0^\circ \& 90^\circ$

Content Analysis:-

Trigonometric Ratio of 45°
 trigonometric ratio of $0^\circ \& 90^\circ$

General Objectives :-

- i) To create interest in mathematics.
- ii) To develop scientific thinking and mathematics attitude.
- iii) To develop knowledge of facts, concepts and process.

Instructional Objectives :-

Knowledge:-

Pupil will be able to calculate the trigonometric ratio for $45^\circ, 0^\circ$ and 90°

Pupil will be able to recall about value of $\sin 45^\circ, \sin 0^\circ \& \sin 90^\circ$ etc.

Understanding:-

Pupil will be able to understand how to calculate the value of $\sin 45^\circ, \cos 0^\circ$ etc.

Pupil will be able to calculate the value of trigonometric ratio by which they can solve problems.

Skills:-

Pupil will be able to explain the value of trigonometric ratio very clearly.

Teaching Aids:-

General Aids:-

Chalk, Chalk board, Pointer etc.

Specific Aids:-

A chart showing trigonometric ratios

Previous Knowledge Assumed:-

Students have basic knowledge of trigonometric.

Previous Knowledge Testing:-

P.T.A.	P.A.
Q. Define an angle?	It is the measure of two rays whose initial point or vertex is same.
Q. If we have given a right angle triangle ABC, then what is the value of $\tan \theta$?	$\tan \theta = \frac{AB}{BC}$
Q. What is the value of $\tan 45^\circ$?	No response.

Announcement of the topic:-

So, today we will study about trigonometric ratios of $45^\circ, 0^\circ, 90^\circ$.

Presentation:-

T.P.

Trigonometry of 45°

P.T.A.

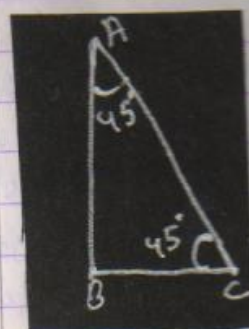
Let ABC be a triangle right angle at B in which $\angle A = \angle C = 45^\circ$ as shown in figure

Therefore, $AB = BC$ (Side opposite to equal angles are equal)

~~$\tan 30^\circ = \frac{\text{Side opposite to angle } 30^\circ}{\text{Side adjacent to angle } 30^\circ}$~~

P.A.

B.B.W.



two
sides

Trigono-
metric
ratios of 0°
and 90°

We have define $\sin \theta$, $\cos \theta$ etc for an acute angle i.e. for θ such as $0^\circ < \theta < 90^\circ$ if $\theta = 0^\circ$ or if $\theta = 90^\circ$ we have given separate definition as follows
(a) $\sin 0^\circ = 0$ $\cos 0^\circ = 1$
 $\tan 0^\circ = 0$ $\sec 0^\circ = 1$
and $\operatorname{cosec} 0^\circ$ and

$$\begin{aligned}\sin 0^\circ &= 0 \\ \cos 0^\circ &= 1 \\ \sin 90^\circ &= 1 \\ \cos 90^\circ &= 0\end{aligned}$$

$\cot 0^\circ$ are not defined.

Trigonometric ratios of 0° & 90°

(b) $\sin 90^\circ = 1$ $\cos 90^\circ = 0$ Student listen carefully.
 $\operatorname{cosec} 90^\circ = 1$ $\cot 90^\circ = 0$
 $\sec 90^\circ$ and $\tan 90^\circ$ are not defined.

Thus we have seen that value of $\sin \theta$ increase as θ increase and the smallest value of $\sin \theta$ is 0 and greatest value of $\sin \theta$ is 1.

Similarly $\cos \theta$ decrease as θ increase that the smallest value of $\cos \theta$ is 0 and greatest value of $\cos \theta$ is 1. Students listen carefully.

Suppose $AB = BC = a$
 Then by using Pythagoras theorem

$$AC^2 = AB^2 + BC^2$$

$$= a^2 + a^2$$

$$= 2a^2$$

$$AC = \sqrt{2} a$$

Remembering that in

$$AC^2 = AB^2 + BC^2$$

$$= a^2 + a^2$$

$$= 2a^2$$

$$AC = a\sqrt{2}$$

ΔABC $C = 45^\circ$ we get
 $\sin 45^\circ = \frac{\text{Side opp. of angle } 45^\circ}{\text{hypotenuse}}$

$$= \frac{AB}{AC} = \frac{a}{a\sqrt{2}} = \frac{1}{\sqrt{2}}$$

$\tan 45^\circ = \frac{\text{side opp. to angle } 45^\circ}{\text{side opp. to angle } 45^\circ}$

$$= \frac{AB}{BC} = \frac{a}{a} = 1$$

$$\operatorname{cosec} 45^\circ = \frac{1}{\sin 45^\circ} = \sqrt{2}$$

$$\sec 45^\circ = \frac{1}{\cos 45^\circ} = \sqrt{2}$$

$$\cot 45^\circ = \frac{1}{\tan 45^\circ} = 1$$

These are the trigonometric ratios of 45° .

$$\sin 45^\circ = \frac{1}{\sqrt{2}}$$

$$\cos 45^\circ = \frac{1}{\sqrt{2}}$$

$$\tan 45^\circ = 1$$

$$\operatorname{cosec} 45^\circ = \sqrt{2}$$

$$\cot 45^\circ = 1$$

$$\sec 45^\circ = \sqrt{2}$$

Evaluation:—

- What is the value of $\sin 0$ and $\cos 0$?
- What is the greatest and smallest

value of $\sin 0^\circ$?

Home Assignment:—

→ $\sin 45^\circ = \underline{\hspace{2cm}}$

→ $\sec 0^\circ = \underline{\hspace{2cm}}$

→ $\tan 0^\circ = \underline{\hspace{2cm}}$

→ Calculate the value of $\tan$ ~~sec~~

→ Calculate the value of
trigonometric ratio of 0° .



Lesson No : ...17...

Date... 18.02.13

Duration of the period... 40 mins

Pupil Teacher's Name.....

Pupil Teacher's Roll No... 17

Class.....

Average Age of the pupils.....

Subject.....

Topic... Pie Chart

Content Analysis

- Definition of Pie Chart
- Step of its construction
- An example to clear concept

General Objectives

- To create interest in maths.
- To develop mathematical attitude
- To develop power of independent thinking reasoning and explaining.

Instructional Objectives

Knowledge:-

Pupil will be able to define pie chart & recall the step involves in construction of pie chart.

Understanding:-

Pupil will be able to understand the meaning of Pie chart and step to make this.

Skills:-

Student will be able to solve problem related to pie chart and its making.

Teaching Aids:-

General Aids:-

Chalk, board, duster, pointer etc.

Specific Aids:-

A chart showing Pie chart.

Previous Knowledge Assumed:-

Student have the basic knowledge about what is Pie Chart.

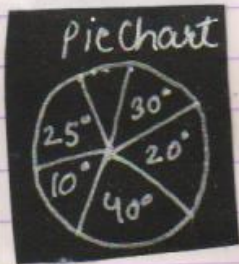
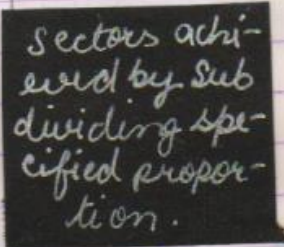
Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What do you understand by statistics?	It is that branch of mathematics which deals in group or collection of data.
Q. How many terms are used to presenting data?	Two terms mainly used (i) Tabular form (ii) Graph diagram form
Q. What do you know about graph/diagram.	A graph is a pictorial representation of data.
Q. Do you know how a Pie chart formed?	NO response.

Announcement of Topic:-

Well student today we will study about 'Pie chart' and its construction.

Presentation:-

T.P.	P.T.A.	P.A.	B.B.W.
Definition	A pie chart is a pictorial representation of statistical data that is circular in shape it is used when comparison is made.		
Knowledge	When comparison of a component part is require with other and the total, the relative value of components are represented by sector of a circle, here, shaded portion is a sector Since the sector resemble the slice of a pie, it is called 'Pie chart' it is also name as Pie diagram.	Student should listen carefully.	

Construction

To construct a pie chart we use facts that the total of all given value corresponds the total number of degree in circle i.e. 360° .

Therefore we make a circle and divide it into number of sectors to represent the relative size (i.e. value) of the component of data. Students are looking at the Centre.

This is achieved by subdividing the total angle at the centre in specified proportion.

Convenient
radius

Example of making Pie Chart

Let's take an ex:- look at chart.

Here you have seen a table for which we have to draw pie chart.

First of all no. of hours spent on different activities in a day of 24 hour

Total no.
of degree
in a circle
is 360°

are convert into
component part of 360°
Since the duration of
sleep is 8 hours $\therefore$ it
should represent $\frac{8 \times 360^\circ}{24}$

$$= 120^\circ$$

Therefore the
sector of a circle
represent sleep hours
should have a central
angle 120° .

In same way
we will calculate
central angle of pie.

Now we
draw a circle of con.
radius and the
sector of diff. activities
having different
measure of circle angles
are fixed at Pie
chart is formed as
shown in the chart.

$$\frac{8}{24} \times 360^\circ = 120^\circ$$

Evaluation:-

Why total of all given values correspond
to 360° ? How will we get the measurement
of a central angle.

are convert into
component part of 360°
Since the duration of
sleep is 8 hours $\therefore$ it
should represent $\frac{8 \times 360^\circ}{24}$

$$= 120^\circ$$

Therefore the
sector of a circle
represent sleep hours
should have a central
angle 120° .

$$\frac{8}{24} \times 360^\circ = 120^\circ$$

In same way
we will calculate
central angle of pie.

Now we
draw a circle of con.
radius and the
sector of diff. activities
having different
measure of circle angles
are fixed at Pie
chart is formed as
shown in the chart

Evaluation:-

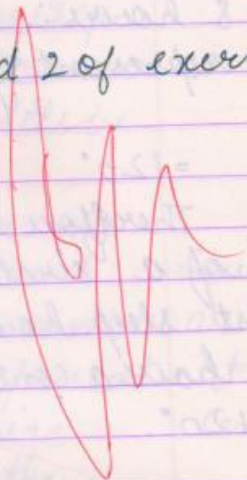
Why total of all given values corresponds
to 360° ? How will we get the measurement
of a central angle.

Why this diagram is called 'Pie Chart'?

Home Assignment

Q. Do Question NO. 1 and 2 of exercise 15.1 in your note book.

Q. Define 'Pie Chart'.



Lesson No :18.....

150

Date19.02.13.....

Duration of the period40 mins.....150

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....17.....

Class.....

Average Age of the pupils.....

Subject.....

Topic.....Theorem.....

Contents

- Given ΔABC where $\angle C = 90^\circ$
- M being mid point of hypotenuse AB
- $AM = MB$

General Objectives:-

- i) To create Interest in mathematics.
- ii) To develop mathematical attitude.
- iii) To develop power of independent thinking reasoning and explaining.

Instructional Objectives:-

Knowledge:-

Student will be able to recall the statement of Theorem and recall the proof of 'Theorem'.

Understanding:-

Pupil will be able to understand and the statement of Theorem. They will be able to understand the proof of Theorem.

Application:-

Pupil will be able to apply the theorem in solving no. of problems related to geometry.

Skills :-

Pupil will be able to explain the statement of Theorem.

Teaching AidsGeneral Aids:-

Chalk, board, pointer, duster etc

Specific Aids:-

A chart showing statement and proof of theorems.

Previous Knowledge Assumed:-

It is assumed that pupil have the basic knowledge about

Previous Knowledge Testing:-

P.T.A.	P.A.
Δ which type of figure it is?	It is a triangle.
Classify the triangle on the basis of their angles.	Three types $\rightarrow$ Acute angle, right angle, obtuse angle.



which type of triangle
it is

It is right triangle

What is relation between
all angle of triangle.

No response

Previous Knowledge Testing:—

So, today we will study about if line segment jointing the mid point of hypotenuse of right triangle to the vertex of right angle it is equal to half of hypotenuse.

Presentation:—

T.P.	P.T.A.	P.A.	B.B.W.
Given	What is given here? What about m?	in $\triangle ABC$ $\angle C = 90^\circ$ & 'm' is midpoint of hypotenuse.	M is mid-point of hypotenuse so $AM = BM$
	it means $AM = BM$		
To prove	Now what we have to prove there i.e. line segment join the mid point of hypotenuse of right triangle to the v. of	$CM = \frac{1}{2} AB$	

right angle is equal to half of AB (h).

Now we have
produce these CM to point
 D such that $CM = DM$
then join B and d

Now see in $\triangle AMC$ &

$\triangle BMD$

$$AM = BM \text{ (Given)}$$

$$CM = DM \text{ (Constructed)}$$

Do you have any knowledge about 3rd factor that cause the 2 triangle congruent look here.

$$\angle AMC = \angle BMD$$

Why?

Yes, Therefore $\triangle AMC \cong \triangle BMD$
now:-

$$AC = BD \text{ (CPCT)} \text{ --- (i)}$$

What is the full form of CPCT?

Corresponding parts of pair of congruent Δ .

2. $\angle CAM = \angle DBM$ (CPCT) --- (ii)
adding $\angle MBC$ to both side of (ii) we get

NO
response

vertically
opp. angles.

$$\begin{aligned} \angle AMC &= \angle BMD \\ \angle ABC &= \angle BMC \\ AC &= BD \text{ (CPCT)} \end{aligned}$$

$$\angle CDM + \angle MDC = \angle DBM + \angle MDC$$

$$\text{i.e. } \angle CAM + \angle MDC = \angle DBC \text{ (iii)}$$

What can you say about
 $\angle CAM + \angle MDC = ?$
 Why?

90°
 Sum of
 angle of
 Δ is 180°
 $\therefore \angle C = 90^\circ$

$$\begin{aligned} \angle CAM + \angle MDC &= \angle DMB + \angle MDC \\ \angle CAM + \angle MDC &= \angle DBC \end{aligned}$$

$$\angle DCB = 90^\circ$$

Now in ΔDBC & ΔACB

$$BD = AC \text{ why}$$

&

$$BC = CB \text{ why}$$

By (i)

Both are
 90°
 common
 side

Very good

$$\text{So, } \Delta DBC \cong \Delta ACB \text{ (why)}$$

$$= DC = AB \text{ why}$$

$$2CM = AM$$

$$CM = \frac{1}{2} AB$$

By SAS
 CPCT

Hence Proved.

Sum of
 all angles
 of triangle
 is 180°

Evaluation:-

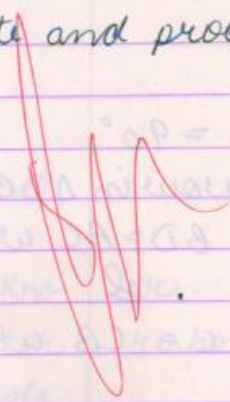
Q. State the theorem that you have just proved?

Q. How can you say that $\triangle AMC \cong \triangle BMD$?

Q. What do you understand by SAS congruency theorem?

Home Assignment:-

State and prove the theorem



Lesson No : 19

Date: 20.02.13

Duration of the period

40 mins

156

Pupil Teacher's Name

Pupil Teacher's Roll No

17

Average Age of the pupils

Class

Topic

Properties of Angle in Circle

Subject

Content Analysis:-

- Angles in semicircle and segment.
- Properties regarding the angle in circle.
- Explanation through examples.

General Objectives:

Knowledge:-

- To create interest in mathematics.
- To develop mathematical attitude.
- To develop power of independent thinking, reasoning and explaining.

Understanding:-

Pupil will be able to understand the angle in semicircle and segment.

Pupil will be able to understand the properties of angle in circle.

Application:-

Student will be able to apply the properties of angles in circle.

Skill:-

Pupil will be able to explain the angles

in a semicircle and segment.

General teaching Aids:-

Chalk, board, duster, pointer

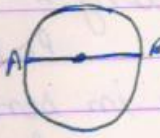
Specific Aids:-

Chart showing properties of angle in circle.

Previous Knowledge Assumed:-

Pupil should have basic knowledge about circle.

Previous Knowledge Testing:-

P.T.A.	P.A.
Q. What is circle?	Circle is a round closed figure.
Q. If we have given a circle show the diameter.	 $AB = \text{diameter}$
Q. What do you understand by segment of circle?	The region bounded by an arc of circle and the chord of arc is called segment of circle.
Q. What are the properties of angle of a circle?	No response

Announcement of the Topic:-

So today we will study about the properties of angle in a circle.

Presentation:-

T.P.	P.T.A.	P.A.	B.B.W.
les in micircle d ment.	We must know about the properties, we must know that what is the angle in semicircle.	No response	

OK look at the board here we draw a circle centered at 'O'. Now PQ is diameter. So tell me what is diameter?

Chord passing through centre.

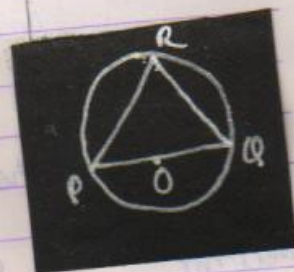
Now make a point R in any semicircle.

There are how many semicircle in a circle?

Two

Good. Join PR and RQ. $\angle PRQ$ so formed is an angle in a semicircle.

Again draw a circle



lets consider a chord RT
look at the board

AS RST is a
segment of the circle
take two point P and Q
as shown on the board

lets join P to R and T
both $\angle RPT$ and $\angle RQT$
are the angle in same
segment.

Student
listen
carefully.

Now we will
come to the properties
of angles in a circle.

First
Property

1st property says
that angle in a
semicircle is right
angle that it is equal
to 90° .

look at the board,
here AD is diameter
and $\angle ACD$ is equal angle
in semicircle.

what will be its measure 90°

Second
property

2nd property says
that angle in the same
segment are always
equal (look at the chart)



here you are seeing the angle in the segment $\angle ACB$ and $\angle ADB$.

Student listen

So according to the property.

$$\angle ACB = \angle ADB$$

Example

For ex:- look at the board.

Here a circle is given and $\angle ADB$ & $\angle ACB$ are the angles in same segment.

$$\angle ACB = 60^\circ \text{ (Given)}$$

What will be the measure of $\angle ADB$?

$$60^\circ$$

Why?

In another figure $AB = AC$ and $\angle ABC = 55^\circ$ & we have find $\angle BDC$.

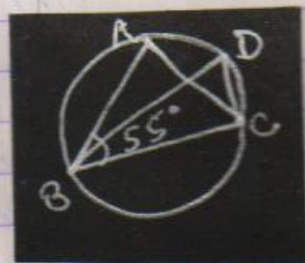
We are having $AB = AC \therefore \angle ABC = \angle ACB$

(angle opp. to equal side)

$$\angle ACB = 55^\circ \therefore \angle B = \angle C = 55^\circ \text{ what will be}$$

value of $\angle A$

So by second property we know $\angle BAC = \angle BDC = 70^\circ$

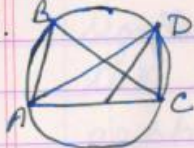


$$180^\circ - 110^\circ = 70^\circ$$

Evaluation:-

Q. What is statement of second property?

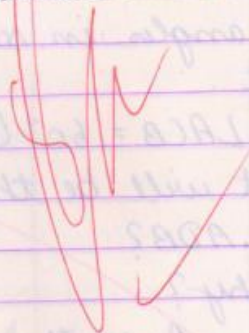
Q.



$\angle BAC = 60^\circ$ where AC is diameter
find $\angle BCA$ and $\angle ADC$?

Home Assignment:-

Draw a circle with centre point O and any radius. Draw the diameter AB and shade in one semicircle region.



Lesson No : 20

Date: 21.02.13

Duration of the period: 40 min

Pupil Teacher's Name:

Pupil Teacher's Roll No: 17

Class:

Average Age of the pupils:

Subject:

Topic: Three dimensional shapes

Instructional Objectives:-

Knowledge:-

Student will be able to recall and recognise different shapes in geometry.

Understanding:-

Student will be able to understand different shape of geometry which are used in daily life.

Application:-

Student will be able to show diff. and identity between different shapes in geometry.

Skill:-

Student will be able to draw different type of shape in geometry.

Teaching Aids:-

General Aids:-

Chalk, board, duster, pointer etc.

Specific Aids:-

Real ex: of three dimensional shape

Previous Knowledge Testing:-

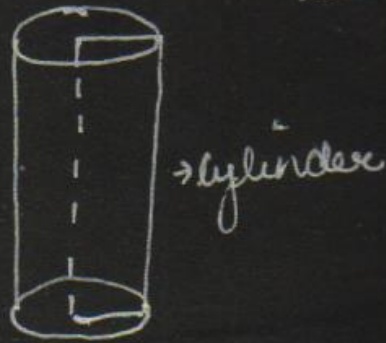
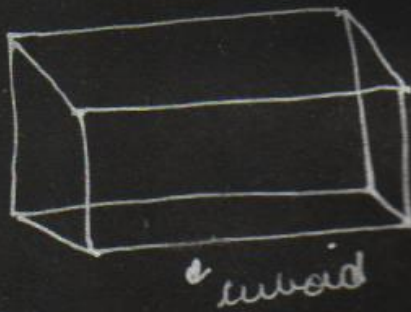
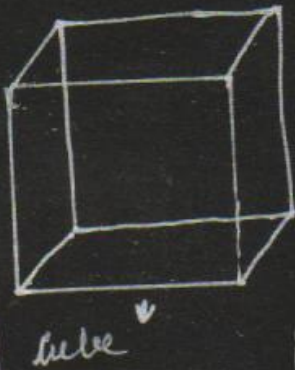
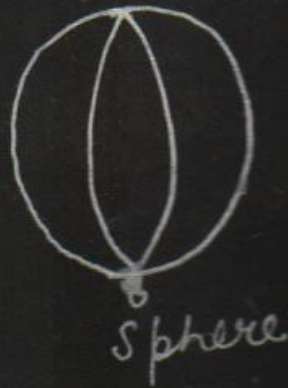
P.T.A.	P.A.
Q. What are diff. shapes in geometry?	Rectangle, circle, square, cube, cone, sphere.
Q. Give ex. of these shapes.	Rectangle - Blackboard Circle - Bangle Sphere - Ball Cube - Dice Cone - B'day cap
Q. What are 3 dimensional objects?	No response.

Announcement of Topic:-

Well students today we will discuss about three dimensional shape.

Presentation:-

3 Dimensional Shapes



T. P.	P. T. A.	P. A.	B. E. S.
Two dimensional objects	Objects having two dimension and that can be draw on black board or on paper. eg:- Rectangle, square etc.	pupil listen to teacher carefully	
Three dimensional objects	Objects having three dimension like length, breadth & height and that can be drawn on paper. eg:- Cube, cuboid, sphere, cone, cylinder etc.		
1) Cube & cuboid.	Cube and cuboid are almost same in shape. The major different is that cube has its all sides equal but cuboid has three dimension diff. i.e. diff. length, breadth & height. Both have 6 sides & vertex, 12 edges and have plane surface.	Students note in their n/b about cube and cuboid	
2) Sphere	A sphere has a shape like		

ball. There are many ex. of sphere like our earth, moon, paper weight.

A sphere has no vertex, No edges it has only one surface side that is called curved surface.

pupil listen to teacher carefully.

3) Cone

A cone may be defined as two slant line drawn from a fixed point to boundary of circle.

pupil note down about conical shape in

There are many ex of cone we use in our daily

their h/b

• life ex:-

Cone of mehndi, B'day Cap it has 1 vertex, 1 edge, 1 curved surface and 1 plane surface.

4) Cylinder

A bottle, Gas cylinder etc. has cylindrical shape it has 1 vertex, 1 edge and 1 curved surface.

Recapitulation:-

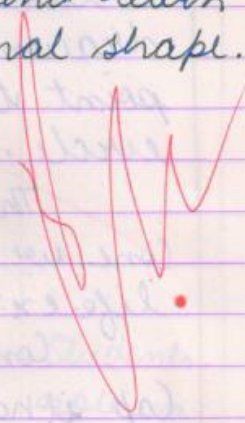
How many vertex a sphere has
What is shape of ice cream cone

Concluding Statement:-

Well students today we
have discussed about 3D shape in geometry

Home Assignment:-

Write and learn about
two and three dimensional shape in
geometry.



Lesson No : 2

168

Date.....

Duration of the period..... 162

Pupil Teacher's Name.....

Pupil Teacher's Roll No.....

Class.....

Average Age of the pupils.....

Subject.....

Topic..... Surface area of cube and cuboid

Instructional Objectives in Behavioral terms:-

(i) Knowledge:-

Students will be able to recall and recognise cube and cuboid.

(ii) Understanding:-

Students will be able to set examples of cube and cuboid.

(iii) Application:-

student will be able to find area of each face of cube and cuboid.

(iv) Skill:-

Student will be able to evaluate the surface area of cube and cuboid.

Teaching Aids:-

i) General Aids:-

Chalk, board, duster, pointer

ii) Specific Aids:-

A chart of surface area of cube and cuboid. Some real objects related to cube & cuboid.

Previous Knowledge Assumed:-

Students have the knowledge of cube and cuboid.

Previous Knowledge Testing:-

P. T. A.	P. A.
Q. What is the area of rectangle?	Length $\times$ Breadth
Q. What is the area of square?	(Side) ² - Side $\times$ Side
Q. What is the shape of each face of cuboid.	Rectangle
Q. What is the shape of each face of cube?	Square
Q. What is the surface area of cube and cuboid?	No answer

Announcement of Topic:-

Well students today we will discuss about the surface area of cube and cuboid.

Presentation:-

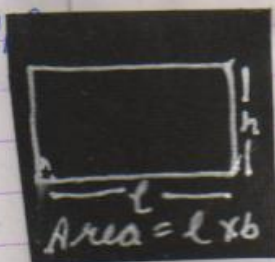
T.P.
Area of
Rectangle

P.T.A.

A rectangle is a figure bounded by four sides in which opposite sides are equal.

Suppose length of a rectangle is 'L' and breadth is 'b' then area of rectangle is $L \times b$

P.A.
Pupil write
the definition
in n/b

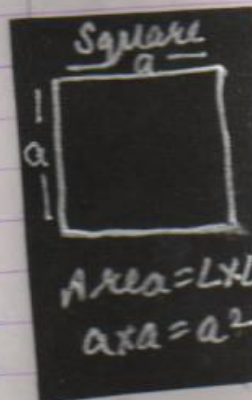


Area of
Square

Square -

A square is a figure bounded by four sides in which all sides are equal.

Suppose: - length of square is 'a' then area of square = $a \times a$
 $= a^2$



Area of
cuboid

If we take the length of cuboid as L and breadth as b and height as h then sum of area of six rectangle - Surface area of cuboid.

$\therefore$ Surface area of cuboid
 $= 2(Lb + bh + bl)$

Pupil note
This ex. in
their n/b

Q. If we have a cuboid whose length, breadth and height are 15cm, 10cm and 20cm respectively then its surface area.

$$= 2(15 \times 10 + 15 \times 20 + 10 \times 20) \text{ cm}^2$$

$$= 2(650) \text{ cm}^2$$

$$= 1350 \text{ cm}^2$$

Area of cube

A cuboid whose length, breadth, height all are equal is called cube. For ex -

If each edge of cube is 'a' then surface area of cube

$$= 2[a \times a + a \times a + a \times a]$$

$$= 2[3a^2]$$

$$= 6a^2$$

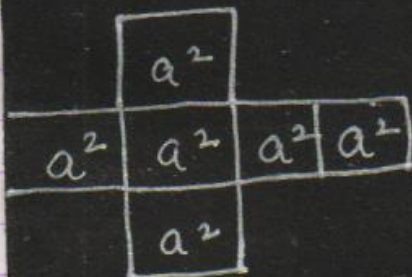
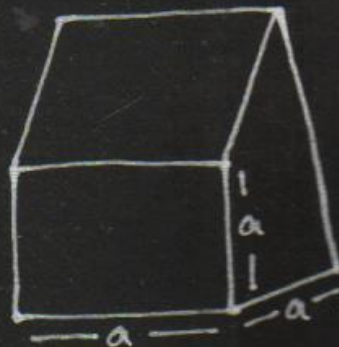
Surface area of cube = $6a^2$

Pupil write about the cube.

pupil note this ex in their n/b.

Cube
Surface Area of cube
 $l=b=h=a$
 $\therefore$ Surface area of cube
 $2(a^2 + a^2 + a^2)$
 $= 2(3a^2)$
 $6a^2$

Surface Area of Cube



In cube = length = breadth = height
if each edge of cube is 'a' then
surface area of this cube would
be $2(a \times a + a \times a + a \times a)$
 $= 6a^2$

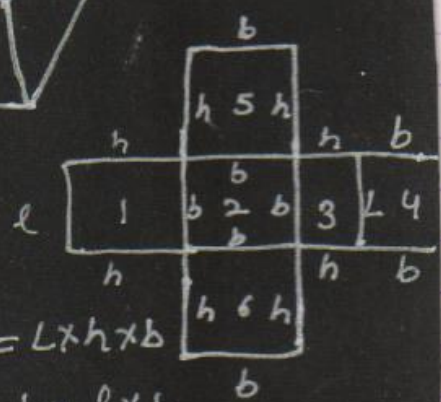
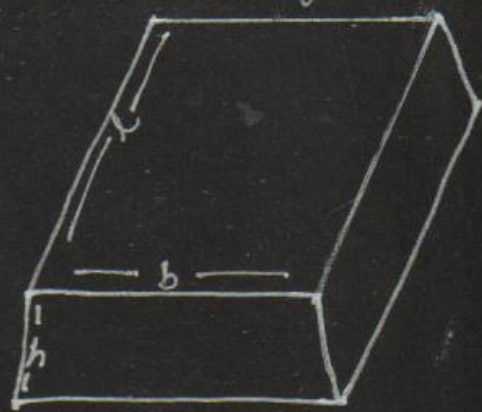
Recapitulation:-

P.T.A.	P.A.
Q. What is the formula of finding surface area of cuboid.	Surface area of cuboid $= 2(L \times b + b \times H + L \times H)$
Q. What is the surface area of cuboid if $L=2$ $b=3$ $h=4$	$= 2(2 \times 3 + 3 \times 4 + 2 \times 4)$ $= 2(6 + 12 + 8)$ $= 2(26)$ $= 52$
Q. What is the surface area of cube if length = 2cm	$= 2(2 \times 2 + 2 \times 2 + 2 \times 2)$ $= 2(4 + 4 + 4)$ $= 2(12)$ $= 24 \text{ cm}^2$

Conclusion:-

Well students we have discussed about surface area of cube and cuboid.

Surface Area of Cuboid: -



Area of rectangle = $l \times h \times b$

- 1) Area of rectangle 1 = $l \times h$
 - 2) " " " 2 = $l \times b$
 - 3) " " " 3 = $b \times h$
 - 4) " " " 4 = $l \times b$
 - 5) " " " 5 = $b \times h$
 - 6) " " " 6 = $l \times b$
- $\therefore$ Surface Area of cuboid = $2(lb + bh + lh)$

175

169

Home Assignment:-

Solve this question
in your note book.

Q:- A cubical box has each edges 10cm and
another cuboidal box is 12.5 cm long,
10cm wide and 8cm high. Which box is
smaller surface area and how much?

