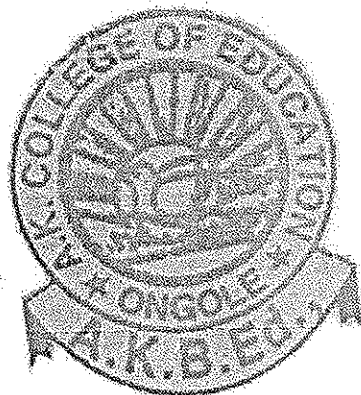


ANDHRAKESARI COLLEGE OF EDUCATION

(Approved by NCTE, Affiliated to ACHARYA NAGRJUNA UNIVERSITY, GUNTUR)
Cheruvukommu Palem Road, ONGOLE – 523 272, PRAKASAM Dist., (A.P)

B.Ed Course : SEMESTER – 4



S 4 P – PEDOGOGY

SCHOOL INTERNSHIP RECORD

SUBJECT : MATHEMATICS

PRACTICUM : ACTIVITIES / PROJECT / RECORD

Name of the student Teacher -----

Roll No: ----- Reg.No :-----

PEDAGOGIES: 1) ----- 2) -----

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Micro Teaching Lesson plan - I

Preliminary Information:

Name of the student teacher : Titu Subinathan
Roll no : 84
Class : 9th
Subject : Mathematics
Unit : Direct and inverse proportion
Topic : Compound proportion
Time : 45 min.
Date :

Name of the Supervisor :

Previous knowledge assumed.

The pupil has the previous knowledge of direct and indirect proportion.

Teaching learning material.

Common aids. : chalk piece, Duster, pointer, Rolling board.
Specific aids : chart board, chart, models.

Teaching method. : Inductive and deductive method.

Reference books :

- a) For content : AP Govt of mathematics text books.
- b) For methodology : Methods of teaching mathematics.

Teaching learning method to know compound proportion.



Objectives and Specifications.

Knowledge :- The pupil gets the knowledge of comparison between terms conditions, formula of direct and inverse proportions.

Recall :- The pupil recalls about terms, conditions, formula of direct and inverse proportions.

Recognise :- The pupil comes to know the terms, conditions, formula of direct proportions is ,

$$x_1/y_1 = x_2/y_2 \quad \text{and inverse proportion is } x_1/x_2 = y_1/y_2$$

Understand :- The pupil understands about direct and inverse proportions.

Compare :- The pupil compare directly, inversely and compound proportion.

Discriminates :- The pupil discriminates about direct, inverse and compound proportions.

Explain :- The pupil explains the definitions of direct, inverse and compound proportion

Give examples:- The pupil gives own examples for direct, inverse proportion and identifies the relationship:- The pupil identifies the relationship between direct and inverse proportion.

Classifier:- The pupil substitutes the given problem values in the formula

Application:- The pupil applies his knowledge and understands the compound proportion

Analysis:- The pupil analysis the compound proportion and inverse proportion

Generalization:- The pupil generalises the direct proportion and inverse proportion

Selects:- The pupil selects appropriate formula to learn the compound proportion

Judges:- The pupil judges the compound proportion with example.

Interest:- The people shows interest in mathematics by learning the compound proportion

Computation skill:- The pupil develops computation skill with knowing the formula of compound proportion

content analysis	o/s	Teachers activity	pupils activity	Black board work.	TLM	Evaluation
M O E P V a t i O n		<p>Teachers activity</p> <p>1) Sony uses 4 cups of water to cook 2 cups of rice everyday. One day pavani visited her house. she needed to cook 4 cups of rice. So how many cups of water will she need to cook 4 cups of rice?</p> <p>2) So, for one cup of rice how many cups of water is needed?</p> <p>3) If we deposit more money in a bank, what can you say about the interest earned.</p> <p>4) If we deposit less money in a bank, what can you say about the interest earned?</p> <p>5) what kind of a change we can observe in the above examples?</p>	<p>8 cups of water</p> <p>2 cups of water</p> <p>The interest earned also will be more</p> <p>The interest earned will be less.</p> <p>Both increase or decrease</p>	<p>4 cups of water = 2 cups of rice.</p> <p>1 cup of rice = 2 cups of water.</p> <p>Both increase or decrease</p>	Cup	5

- 6) How are they both related with each other?
- 7) Swetha brought a sweet box which contains of 80 pieces. If her friends are 10 members then how many pieces will each get?
- 8) If they are 20 members. Then how many pieces will each get?
- 9) By this what we can understand?
- 10) How are they both related with each other?
- 11) Will now we learned about a question, How we will learn about sweet things - how many quantity give and going to learn?

Directly proportion	Directly proportion	
2 pieces	10 friends	Sweet box
1 piece	20 friends	
If we quantity increase then other quantity decrease	Inversely proportion	
Inversely proportion		

12 pts - 18m -
3 days
8 pts - 200m
- 5 days...

If 12 points can paint a wall at I can along 9m
3 days. 8 points can paint in 200m long wall in
5 days

(12) How many points are required to paint a 200 m wall? 8 points

(13) How many days are required to paint wall for 12 points? 3 days

(14) How all these quantities are related to each other? Do not know.

Announcement - At the topic → So, today we all going to learn about
Compound proportion.

⑧

CH	o/s	TA	PA	BBW	Ten	TU	Evaluation
<p>consider the mass changes for 35 students for 24 days in 2,6300, how much will be the mass change for 25 students for 18 days so we have three questions i.e, mass changes no. of student- no. of days</p>	<p>v/s pupil recognise the condition of direct inverse proportion</p>	<p>① How much quantities are given in the problem? ② What are the mass change for the 35 students? ③ For how many days the mass changes are given? ④ For how many days the mass changes are given for 25 days? ⑤ what are the mass changes for 25 student ⑥ In which proportion the mass changes are related to no. of student</p>	<p>quantities 2,6300 24 days 17 days not given direct proportion</p>	<p>consider the mass changes for 35 students for 24 days in 2,6300 how much will be the mass change for 25 student for 18 days because we have three questions in mass changes no. of student & no. of days.</p>	<p>e h a y t</p>	<p>inverse e t i o n</p>	<p>what are the three questions given in the problem - they are mass changes related to no. of student</p>

mass change	no. of student	no. of days
6300	35	24
261	25	18
6300	35	24
261	25	18

mass change
no. of student
6300 - 261
and mass change are directly

number is 111

Proportion to the no. of students mass change \times no. of days $6300 : x \times 4 : 3$ Since mass change depends on both the value is no. of students of no. of days will be take a compound ratio of these two variable mass change \times compound relation of no. of students and ratio of no. of days $6300 : x : 7 : 5$ compound ratio of $7 : 5$ and $4 : 3$ $6300 : x : 7 \times 4 : 5 \times 3$ $6300 : x : 28 : 15$

U/s pupil can compare direct and inverse proportion

- 7) How are the mass change related to no. of days?
- 8) How are the mass change related to no. of students and no. of days?
- 9) How do we write the compound ratio?

Direct proportion $6300 : x$ = compound ratio of $7 : 5$ and $4 : 3$.

And also mass change are directly proportion to no. of days mass change \times no. of days. $6300 : x = 4 : 3$ Since mass changes depend upon both the values i.e. no. of students and no. of days so we will take a compound ratio of these two variables mass change \times compound ratio of no. of students and ratio of no. of days $6300 : x = 7 \times 4 : 5 \times 3$ and $7 : 5$ and $4 : 3$ $6300 : x = 28 : 15$

Chadryk

Direct inverse method

How are the mass changes related to no. of days? How are they values written in the ratio.

9)

product of extreme product of mean
 $28 \times 15 = 420$
 6300
 $\therefore x = \frac{15 \times 6300}{28}$
 $\therefore x = 3375$
 Hence the required mean changed by
 $\pounds 3375$

u/s pupil applied the given value in the formula

(b) Allow do use multiple the compound ratio?

(ii) After Solving the problem what is the mass change amount?

product of extreme = product of mean
 $\pounds 3375$

product of extreme = product of means
 $28 \times x = 15 \times 6300$
 $x = \frac{15 \times 6300}{28}$
 $\therefore x = 3375$
 Hence the required mean change is
 $\pounds 3375$

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(1c) write the examples for direct inverse proportion

Cumulative activity:- ✓

(11)

Summarisation:- Today we learnt about the compound proportion.

Recapitulation:-

- (i) Define the direct proportion.
- (ii) How are the mass changes related to the no. of days and no. of students.
- (iii) How do you multiple the compound ratio?
- (iv) After solving the problem what is the mass change amount?

Assignment:- Rice costing ₹ 480 is needed for 8 members for 20 days, what is the cost of rice required for 15 days

Micro Teaching Lesson plan - 2.

Preliminary Information.

Name of the Student Teacher : Anuradha.

Roll no : 814

Class : 9th

Subject : Maths

Topic : Total surface area of cylinder

Unit : Surface area and volume.

Time : 45 minutes

Date :

Name of the Supervisor :
Previous knowledge assumed.

The pupil has the previous knowledge of cylinder



Common aids :-

chalk piece, Duster, pointer, Rolling board.

Specific aids :-

chalk board, chart, models.

Teaching method :-

Inductive and deductive

Reference books :-

(i)

For content - AP Govt govt mathematics text book.

(ii)

For methodology - Methods of teaching mathematics

- Neel kamal.

Teaching learning method :-

To know surface area of cylinder

Objectives and Specifications

Knowledge:- The pupil has the knowledge of symbol, definition, formula of cylinder

Recalls:- The pupil reminds the symbol of radius, r , πr^2 and heights, definition, formula $2\pi r (r+h)$

Recognises:- The pupil recognise the symbol i.e, radius r πr^2 and his understand:- The pupil understand the total surface area of a cylinder

Example:- The pupil gives our example for the cylinder

Discrimination:- The pupil discriminates the nearest relations help of the area of a circle and curved surface area of a cylinder

Identifies the example:- The relationship of that is known to the pupils

Detect error:- The pupil detect errors is measuring the cylinder



Classifying! - The pupil classifies the total surface area of the n cylinder and total surface area of a cylinder (15)

Substitutes! - The pupil substitutes the given problem values in the formula.

Application! - The pupil applies his knowledge and understand the total surface area of a cylinder

Analysis! - The pupil analyses the total surface area of cylinder.

Draw inferences! - The pupil draw inferences from given examples with radius and height.

Generalises! - The people generalises the literal surface area and total surface area of a cylinder in new place.

Selects! - The people select appropriate formula to learn total surface area of cylinder.

Judge! - They judge the total surface area.

Predicts! - They comes to know that if rectangle is joined it becomes cylinder and the top and bottom part are cylinder.

Interest:- They show interest in mathematics by learning the total surface area of a cylinder.

Skill-drawing skill:- They draw a cylinder neatly, fast and correctly.

Compilation skill:- To pupil develops computation skill with knowing the formulae of total surface area of a cylinder.

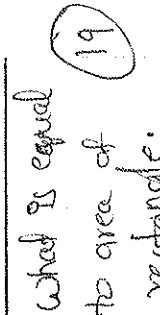
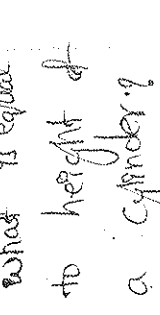
CA	O/S	TA	PA	BBW	TLM	EVA
M	1)	What is this?			powder bin	(17)
O	2)	What is the shape of the powder bin?			Candle	
e	3)	What is this?			Battery	
q	4)	What is the shape of a candle?			Thread roll	
V	5)	What is the shape of a check?			Iron pipe	
d	6)	What is this?			Toy	
e	7)	What is the shape of a battery?			Cylinder	
t	8)	What is this?				
o	9)	What is the shape of thread roll?				
i	10)	What is this?				
o	11)	What is the shape of an iron pipe?				
n	12)	What is this?				
	13)	How is the shape of a cylinder?				
	14)	How is the bottom shape of a cylinder?				

15) How is the top and base shape of the cylinder?	Same			
16) How is the side of a cylinder?	Curved shape.			
17) How are we going to find the total surface area of cylinders?	Do not know			

Announcement of the topic:-

Today we are going to learn about "total surface area of a cylinder".



<p>CA</p> <p>Take a right circular cylinder made up of cardboard. cut the curved face vertically and unroll it. after unrolling the cylinder it is in rectangular shape.</p> 	<p>o/s</p> <p>v/s pupil differentiate between area of the rectangle and curved surface area of cylinder.</p>	<p>TA</p> <p>① If we fold the rectangle what shape do we find? ② Area of rectangle is equal to? ③ Height of cylinder is equal to? ④ Circumference of the cylinder is equal to?</p>	<p>PA</p> <p>cylinder curved surface area of cylinder Breadth of the rectangle length of the rectangle</p>	<p>BBW</p> <p>Take a right circular made of chart board cut the curved face vertically and unroll it after unrolling the cylinder it is in the rectangular shape.</p> 	<p>TLM</p> <p>Rectangle</p>	<p>TH</p> <p>Deductive method</p>	<p>EVA</p> <p>what is equal to area of rectangle. what is equal to height of a cylinder?</p>
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what is equal to area of rectangle.

what is equal to height of a cylinder?

what is equal to height of a cylinder?

what is equal to height of a cylinder?

what is equal to height of a cylinder?

what is equal to height of a cylinder?

what is equal to height of a cylinder?

<p>Circumference of the base is equal to the length of the rectangle. height of cylinder = breadth of rectangle $ch > b$</p> <p>Circumference of base of cylinder with radius r? length of the rectangle (Circumference) curved surface area of cylinder = Area of the rectangle = length \times breadth = $2\pi r \times h = 2\pi r h$</p> <p>$\therefore$ curved surface area of a cylinder = $2\pi r h$</p> <p>Area of a circle = πr^2</p>	<p>V/S Pupil recognise what is the circumference of cylinder</p>	<p>⑤ Circumference of base of cylinder is equal to? ⑥ what is the area of the rectangle? ⑦ what is length? ⑧ what is the height? ⑨ what is the curved surface area of a cylinder? ⑩ what is the area of circle?</p>	<p>$2\pi r$ length \times breadth $2\pi r$</p>	<p>Circumference of base of cylinder with radius r = length of the rectangle (Circumference) Curved surface area of cylinder = height of rectangle \times breadth of rectangle $(h \times b)$ Circumference of base of cylinder with radius r = length of the rectangle (Circumference) $(2\pi r = l)$</p>	<p>C h a b r l m</p>	<p>D e d u c t h a</p>
<p>Area of a circle = πr^2</p>	<p>recalls pupil recalls the area of a circle.</p>	<p>⑤ Circumference of base of cylinder is equal to? ⑥ what is the area of the rectangle? ⑦ what is length? ⑧ what is the height? ⑨ what is the curved surface area of a cylinder? ⑩ what is the area of circle?</p>	<p>$2\pi r$ length \times breadth $2\pi r$</p>	<p>Circumference of base of cylinder with radius r = length of the rectangle (Circumference) Curved surface area of cylinder = height of rectangle \times breadth of rectangle $(h \times b)$ Circumference of base of cylinder with radius r = length of the rectangle (Circumference) $(2\pi r = l)$</p>	<p>C h a b r l m</p>	<p>D e d u c t h a</p>

what surface you have

what surface you have to add to get its total surface area? they are the curved surface area and area of two circular faces. So, the total surface area of a cylinder = curved surface area + area of top + area of base

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

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

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

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

∴ The total surface area of a cylinder = $2\pi r (r + h)$

∴ 'r' is the radius of cylinder and 'h' is the height



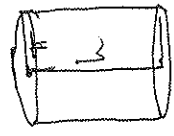
U/s pupil recalls the radius and height

U/s pupil comes to know that if rectangle is joined it becomes cylinder

- 1) How is the top shape of the cylinder? circle shape
- 2) How is the bottom shape of cylinder? circle shape
- 3) How is the top and base of the cylinder? same
- 4) How is the side of a cylinder? curved shape
- 5) What is the formula of curved surface area of cylinder? $2\pi rh$
- 6) What is the formula of area of a circle? πr^2
- 7) What is 'r' and 'h'?

Radius and height

what surface you have to add to get its total surface area? They are the curved surface area and area of two circular faces. So, the total surface area of a cylinder = curved surface area + area of top + area of bottom = $2\pi rh + \pi r^2 + \pi r^2$



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

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

= Total surface area of a cylinder = $2\pi r (r + h)$

'r' is the radius and 'h' is the height

what is radius and height in a cylinder? what is a formula of curved surface area and area of a circle?

Circle

Radius

Height

<p>Find out the total surface area of cylinder in which radius is 7cm and height 10cm</p> <p>So, given: radius $r = 7\text{cm}$, height = 10cm.</p> $\pi r = \frac{22}{7}$ <p>Total surface area of cylinder = $2\pi r (r+h)$</p> $= 2 \times \frac{22}{7} \times 7 \times (7+10)$ $= 44 \times 17$ $= 748 \text{ cm}^2$ <p>\therefore The total surface area of cylinder is 748 cm².</p>	<p>U/s pupil identifies the radius and height in a cylinder</p>	<p>① what is given in the formula?</p> <p>② what is the value of π?</p> <p>③ what is the formula for total surface area of a cylinder?</p> <p>④ substitute the given value in the following formula?</p> <p>⑤ calculate the problem</p> <p>⑥ what is the answer? $\neq 48 \text{ cm}^2$</p>	<p>Radius height and $\frac{22}{7}$</p> <p>$2\pi r (r+h)$</p>	<p>Find the total surface area of cylinder in which radius is 7cm and height 10cm</p> <p>So, given radius = 7cm height = 10cm</p> $\pi = \frac{22}{7}$ <p>Total surface area of a cylinder = $2\pi r (r+h)$</p> $= 2 \times \frac{22}{7} \times 7 \times (7+10)$ $= 44 \times 17$ $= 748 \text{ cm}^2$ <p>\therefore The total surface area of a cylinder is 748 cm².</p>	<p>In the problem what is given</p> <p>what is the formula for total surface area of a cylinder</p>
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Cumulative Activity.

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Summarisation! - Today we learn about the total area of a cylinder

Recapitulation! -

- ① what is the formula of curved surface area of a cylinder?
- ② what is the formula of area of a circle?
- ③ what is the formula of total surface area of a cylinder?

Assignment! -

Find the total surface area of cylinder in which radius is 11cm and height is

12 cm.

Micro teaching lesson plan -3.

Preliminary information:-

Name of the student :-

Roll No :- 84

Class :- 9th

Subject :- Mathematics.

Unit :- Rational number.

Topic :- Rotationalising the denominator

Time :- 45 minutes.

Date :-

Name of the supervisor :-



25
Previous knowledge assumed : The pupil has the previous knowledge.

Common aids : chalk piece, Duster, pointer, Rolling board.

Specific aids : chart board, chart, models.

Teaching method : Inductive and deductive methods.

Reference books :

a. For content : AP Govt 9th class mathematics text book.

b. For methodology : Methods of teaching mathematics Neel Kamal.

Teaching learning Methods :

To know about Rationalising the Denominator.

Objective and specification

Knowledge: - The pupil has the knowledge of real number, $1, \sqrt{3}, \frac{2}{a}, 0.007, \dots$

Recall: - The pupil has recalls about the real number.

Recognise: - The pupil recognise the natural no's, whole no's, rational no.

Understanding: - They understand to rationalise the real number.

Discrimination: - They discriminate the irrational number and rational number.

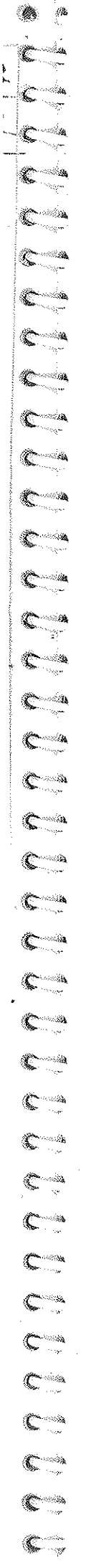
Identifies: - They identifies the irrational number in real number how to rationalise the

Applications: - The people applies his knowledge and understanding denominators of the real number.

Analyse: - The pupil analyse the rationalising the denominator.

Selects: - The pupil selects appropriate formula $(a+b)(a-b) = a^2 - b^2$ to learn rationalising the denominator.

Skill - Observation Skill: - The pupil observe the rationalising the denominator.



Q/A	TA	PA	BBWS	TLM	TM	EVA
M	① What are the rational number.	1, 2, 3, 4, ...	1, 2, 3, ...			
O	② By which symbol rational numbers are denoted?	N	$N = 1, 2, 3, \dots$	C	P	
E	③ From which number the whole numbers are began?	0, 1, 2, 3, ...	0, 1, 2, 3, ...	h	u	
Q	④ Whole numbers are denoted by which symbol?	$w = 0, 1, 2, 3, \dots$	$w = 0, 1, 2, 3, \dots$	a	c	
V	⑤ What all Integer number?	$\dots -2, -1, 0, 1, 2, \dots$	$\dots -2, -1, 0, 1, 2, \dots$	r	f	
d	⑥ Integral numbers are denoted by which symbol.	Z	$z = -2, -1, 0, 1, \dots$	t	p	
b	⑦ The members which are expressed in the form of $\frac{p}{q}$ are called?	Rational number $\frac{4}{5}, \frac{7}{10}, \dots$	$\frac{2}{3}, \frac{6}{7}, \frac{7}{15}$		v	
p	⑧ Give some examples for rational numbers?				e	
O					t	
N					h	
					o	
					d	
						27

9 Rational numbers are denoted by which symbol

10 Name the irrational number and write with which letter we denote it?

11 What are the number with what symbol we denote?

12 Give some example for real numbers?

13 $\frac{2}{\sqrt{3}}$ is which type of number?

14 What is the numerator and denominator?

Q.

S or $Q = \frac{p}{q}$
 $\sqrt{2}, \sqrt{3}, \dots$

$R =$ Natural nos

whole nos
 integral nos
 rational nos,
 irrational nos.

$\frac{19}{2001}, 7, -2, \sqrt{5}$

Real no.

$Q = \frac{2}{3}, \sqrt[4]{6}, \frac{\sqrt{2}}{4}$

S or $Q = \sqrt{2}, \sqrt{3}, \sqrt{5}, \sqrt{5}, \dots$

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15) How do we rationalise the denominator?

Recognise the numerator of Denominator

$$\frac{1}{4+\sqrt{5}}$$

$$= \frac{4-\sqrt{5}}{11}$$

1) In $\frac{1}{4+\sqrt{5}}$ what is numerator?

2) What is the denominator?

3) What is the rationalise factor of $4+\sqrt{5}$?

4) In what form $(4+\sqrt{5})(4-\sqrt{5})$ all there?

5) In which formula we can write the denominator?

$$\frac{1}{4+\sqrt{5}} + \frac{1}{4-\sqrt{5}}$$

$$= 2-\sqrt{5}$$

2 is numerator
3 is denominator

Do not know

$$4+\sqrt{5}$$

$$1$$

$$4-\sqrt{5}$$

$$(a+b)(a-b)$$

$$a^2-b^2$$

1) Rationalising the denominator of

$$\frac{1}{4+\sqrt{5}} + \frac{4-\sqrt{5}}{4-\sqrt{5}}$$

$$= \frac{4-\sqrt{5}}{4^2-(\sqrt{5})^2}$$

$$= \frac{4-\sqrt{5}}{16-5}$$

$$= \frac{4-\sqrt{5}}{11}$$

$$\therefore \frac{1}{4+\sqrt{5}} \times \frac{4-\sqrt{5}}{4-\sqrt{5}}$$

Product of m e f h o d

e h a r f

In what form the

$$\frac{1}{4+\sqrt{5}}$$

is?

In what form $(4+\sqrt{5})$

is written

<p>appropriate -rate method for Solving the problem</p>	<p>① In which formula we can write the denominator?</p>	<p>$a^2 - b^2$</p>	<p>In what form we can write the denominator?</p>
	<p>② What is the square of 7?</p>	<p>49</p>	<p>I P D V C E P V</p>
	<p>③ What is the square of $4\sqrt{3}$ and $\sqrt{5}$?</p>	<p>$48 + 5$</p>	<p>m e t h o d</p>

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Complimentary Activity

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Summarisation! -

Today we learnt about Rationalising denominator of real number.

Recapulation! -

- ① What is the rationalising factor of $7+4\sqrt{3}$ and $2+5\sqrt{2}$?
- ② In what form denominator can be written?
- ③ Name some real number?

Assignment! -

Rationalise the denominator of $\frac{1}{4+3\sqrt{2}}$

Micro Teaching lesson plan - A

(52)

Preliminary Information:-

Name of the student Teacher :

Roll no : 84.

Class : 8th

Subject : Mathematics.

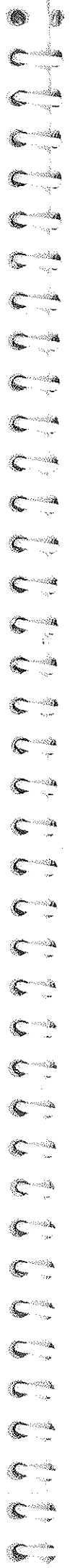
Unit : Frequency distribution Table
and graphs.

Topic : Bar graph.

Time : 45 minutes.

Date :

Name of the Supervisor :



Previous knowledge assumed:- The pupil has the previous knowledge about frequency distribution table and graphs

Common aids:- chalk, duster, pointer, Rolling board.

Specific aids:- chart board, chalk, models.

Teaching methods:- Inductive methods.

Reference books:-

- a) For reference (content): Ap Govt: 8th class mathematics text book.
- b) For Methodology: Methods of teaching mathematics. Neel Kamal.

Teaching learning methods:- to know graphical representation of data.

Objectives and Specification:

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Knowledge: - The pupil has the pre knowledge about frequency table and diagram.

Recalls: - The pupil recalls about arithmetic mean, median of mode.

Recognise: - The pupil recognise or organisation data with observation.

Understand: - They understand about the graphical representation of data.

Examples: - They explain about the bar graph with example.

Discriminate: - The pupil discriminates the organisation of grouped data and ungrouped data.

Relationship: - Identify the relationship between organisation of grouped data and graphical representation of data.

Error: - They discriminate error in the form of drawing.

Substitutes: - They substitutes the given values in graph

Application! - They apply his knowledge and understand the bar graph

Analysis! - They analyse x-axis and y-axis in the bar graph.

Draw inference! - The pupil draws inferences from the given data in the graph.

Generalises! - The pupil generalises the grouped data and ungrouped

Selects! - The pupil select vertical bars as width and horizontal bar as length.

Judges! - The pupil judge the bar graph with example.

Interest! - The pupil shows interest in mathematics by learning and drawing of the bargraph.

Skills! - Drawing skill: the pupil draws the bargraph neatly, correctly and fast.

Computation Skill! - The pupil develops computation skill with knowing the data and drawing a bar graph.

CA	q/s	TA	PA	BW	TLM	TM	BVA
M O E q v a b q o n		<p>① When information is collected and written in numerical or verbal form or graphical. Forms called?</p> <p>② By observing the information written in a table form are can know about?</p> <p>③ How many types of basic measure of central tendency and name them?</p> <p>④ What is median?</p> <p>⑤ What do mode means?</p>	<p>Data.</p> <p>Highest and lowest value or maximum and minimum</p> <p>A type: Arithmetic. mean standard deviation median, mode.</p> <p>The median is call the middle term of the distribution when pt's are arranged.</p> <p>The mode is the most frequency value.</p>		c h a r t		<p>58</p>

Character

<p>6) By using what we organising smaller data?</p> <p>7) If data is large quantity we divided into?</p> <p>8) The data is divided into small and convenient data is called?</p> <p>9) In a class interval 5-10, 5 is called?</p> <p>10) 10 is called?</p> <p>11) Difference between upper and lower limit is called?</p> <p>12) How many type of graph we can draw by using the given information?</p> <p>13) Do you know how to draw bar graph?</p>	<p>Tally mark</p> <p>grouped data.</p> <p>class interval.</p> <p>5-10</p> <p>lower limit</p> <p>upper limit</p> <p>length of the class</p> <p>4 type - pie graph, bar, pie to graph, double bar.</p> <p>Do not know.</p>
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CA	Q/S	TA	PA	BRM	TLM	TM	EVA
<p>A display of information using vertical or horizontal bases of uniform width and different length being proportional to the respective values is called a bar graph. Let us see what a bar graph can represent study. The following vertical bar graph.</p>	<p>Recognise about:</p> <p>X-axis & y-axis in the graph</p>	<p>① What is given in the bar graph?</p> <p>② What values are written on the X-axis?</p> <p>③ What values are marked in the y-axis?</p> <p>④ How many students scored A-grade?</p> <p>⑤ How many student secured B grade?</p>	<p>100 of student and achievement in exam.</p> <p>no. of student.</p> <p>achievement in exam.</p> <p>30</p> <p>55</p>	<p>A display of information using vertical or horizontal bases of uniform width and different length being proportion to the respective value is called a bar graph.</p> <p>Let us see what a bar graph can represent. Study the following vertical bar graph.</p>	<p>Q</p> <p>R</p> <p>Y</p> <p>a</p> <p>P</p> <p>k</p> <p>P</p> <p>a</p> <p>r</p>	<p>Q</p> <p>n</p> <p>d</p> <p>v</p> <p>e</p> <p>t</p> <p>i</p> <p>v</p> <p>e</p> <p>m</p> <p>e</p> <p>t</p> <p>h</p> <p>o</p> <p>d.</p>	<p>What are x-axis and y-axis in graphs?</p> <p>How do we mark values in the graphs?</p>

① What does this bar graph represents?

② How many students secured

A, B, C grade.

A grade = 30

B grade = 55

C grade = 40

③ Which grade is

secured by more members of the

Student?

Identify the relationship between no. of student and grade

④ How many in grade C?

⑤ Which grade is more student?

⑥ Which grade secured less number of student?

⑦ 40 student got which grade?

⑧ How many student in total?

40 student

B grade

A grade

C grade

125

① What does this bar represents

② How many student secured A, B, C grade?

A = 30

B = 55

C = 40

③ Which grade is secured by more number of the student?

55 student secured in

grade B.

Method

Method

How many student secured B grade

How many student are there in the class?

what is
and how
bars?

Interve

what is a bar
graph?

Ma
Pa
Per
Gra

(iv) How many students
there in the class.
 $\rightarrow 30 + 55 + 40 = 125$
Total 125 students are
there in the class.

(v) Observed the Second
bar graph it gives the
data about number of
vehicles in village Sangam
in Nellore district.

Sangam
village.

No. of
vehicles.

55
students

Nellore
district

(10) From the
bar graph how
many students
got average
marks?

(12) About school
village problems
- from in given?

Recalls about
the
bar graph

(14) In y-axis
what attribute
is marked?

(iv) How many
students are there
in the class?
 $30 + 55 + 40 = 125$
Total 125 students
in the class

(2) Observed the
Second bar. It
gives the data
about number
of vehicles in
village Sangam
in Nellore
district.



Deductive Method

Chart

① All the bars in a bar graph have same width, same length and same area.

② Does the length of each bar depends on the length of other bar in a graph -
- No. of the length of

bar does not depend on the other bar in the graph

No. of vehicles

⑮ In x-axis what data is marked?

⑯ which vehicle is sold more?
Bicycle

⑰ which vehicle is sold less?
Cars

⑱ which two vehicles sold same?
Auto + scooters

⑲ how many vehicles are sold by Bikes?
125 vehicles

understand the given information in the graph

Drawn graph neatly

① All the bars in the bar graph have
a) same length
b) same width
c) same area
d) equal volume

② Does the length of each bar depend on the

length of the bars in the graph?
- No. of length of bar

Does not depend on the other bars in the graph

Calculating Activity

Summarisation:- Today we learnt about bar graph.

Recapitulation:-

(i) What is bar graph?

(ii) How do we draw a graph?

Assignment:-

(i) Does the variation in the value of a bar effect the values of other bars in the same graph?

(ii) Where do we use vertical bar graph and horizontal bar graph?

Previous knowledge assumed:-

The pupil has the previous knowledge

Common aids:- Chalk piece, Duster, Pointer, Rolling board.

Specific aids:- Chart board, chart, models.

Teaching method:- Inductive and deductive methods.

Reference books:-

- a. For content: AP Govt 10th class mathematics text book
- b. For methodology: Methods of teaching mathematics Neel kamal

Teaching learning methods:-

To know about Rationalising the denominator

Micro teaching lesson plan-5

(1414)

Preliminary information:-

Name of the student :

Roll no : 84

Class : 10th class

Subject : Mathematics

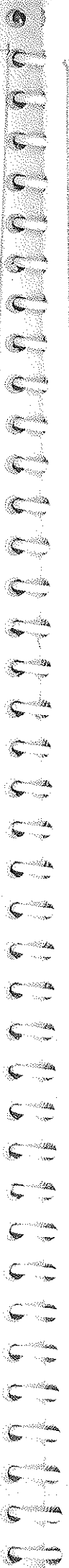
Unit : Geometry

Topic : Similar triangle and their properties.

Time : 4-5 minutes

Date :

Name of the supervisor :



Previous knowledge assumed:- The pupil has the previous knowledge.

45

Common aids:- Chalk pieces, Duster, pointer, Rolling board.

Specific aids:- Cart board, Chart models.

Teaching method:- Inductive and deductive methods.

Reference books:-

a. For Content: Ap Govt 10 class mathematics text book.

b. For Methodology: Methods of teaching mathematics Neel kamal.

Teaching learning methods:-

To know about Rationalising the denominator.

Knowledge:-

The pupil has the knowledge of Symbol and definition.

Recall:-

The pupil recall about parallel lines, similar triangle and figures.

Recognise:-

The pupil recognise the triangle and similar triangle.

Understanding:- The pupil understands about triangular region and similar polygon,

Explains:- The pupil explains about similar triangle on their own.

Compares:- The pupil compares the polygon region and triangle region.

Detect errors:- The pupil detect error in measurement of triangle.

Applications:- The pupil applied his knowledge and understanding the symbol and definition.

Analysis:- The pupil applies his knowledge and understand the symbol and definition.

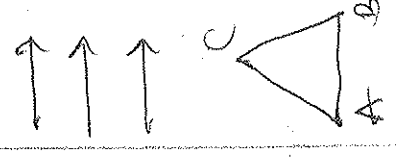
Draw inferences:- The people draws inferences with example.

Judge:- The people predicts some example for similar triangle.

Interest:- The people shows interest in maths matters by learning 'Hales Broom'.

Positive attitudes:- The people develops computation skill with knowing definition of similar polygon.

BBN (AF)



JLM

wooden
chart
board

PA

Dot

Ray

parallel lines

Triangle

similar figure

yes

similar triangle

equal to

TA

1) what do you say this?

2) from one point a line is started and goes on in direction.

3) Two different lines going without intersecting each other

4) A rectilinear figure bounded by three line segments

is called?

5) figures that have the same shape are called?

6) Does triangle have the same shape?

7) what we call that triangle?

8) ~~what~~ we call those triangles have same shape?

9) If two triangles are congruent then the two triangular regions are?

10) A triangular regions are

CA

M

O

L

g

v

a

b

g

o

h

CA	Q/C	TA	PA	BBU	LTM	TM	EVA
<p>Basic proportionality theorem (Thales) in a triangle a line drawn parallel to one side will divide the other side in the same ratio</p> <p>given: $\triangle ABC$ in which $DE \parallel BC$ and DE intersects AB in D and AC in E</p> <p>To prove</p> $\frac{AD}{DB} = \frac{AE}{EC}$ <p>Construction: Join BE, CD and BC draw $PF \parallel BC$ in $\triangle ABE$ and $\triangle ADC$</p> <p>Proof: $\triangle BDF \sim \triangle BCE$ $\triangle CDF \sim \triangle CDE$</p>	<p>Knowledge of symbol and definition of similar triangle.</p>	<p>① what theorem are we going to learn?</p> <p>② In a triangle how many side will be there?</p> <p>③ what are there?</p> <p>④ $DE \parallel BC$ to 2</p> <p>⑤ DE is intersect AB in</p> <p>⑥ DE is intersect AC in</p> <p>⑦ which two points are have to join?</p>	<p>Thales theorem</p> <p>3 sides</p> <p>$\triangle ABC$</p> <p>BC</p> <p>D</p> <p>E</p> <p>$BC \parallel DE$</p>	<p>Basic proportionality theorem (Thales)</p> <p>In a triangle a line drawn parallel to one side, will divide the other sides in the same ratio.</p> <p>$\triangle ABC$ in which $DE \parallel BC$ and DE intersects AB in D and AC in E</p> $\frac{AD}{DB} = \frac{AE}{EC}$ $\frac{\Delta ADC}{\Delta BDE} = \text{same share}$ <p>ΔADE means the area of ΔADB</p>	<p>C</p> <p>h</p> <p>a</p> <p>q</p> <p>q</p> <p>q</p> <p>q</p> <p>q</p>	<p>I</p> <p>N</p> <p>d</p> <p>u</p> <p>e</p> <p>f</p> <p>q</p> <p>q</p> <p>q</p> <p>q</p>	<p>① what is the definition of similar polygon?</p> <p>② In $\triangle ABC$</p> <p>$DE \parallel BC$ to 2</p> <p>parallel</p>

Area $\triangle ABC$, $\triangle ADE$

use of $\frac{AD}{BD} = \frac{AE}{EC}$

and $\frac{AD}{DB} = \frac{AE}{EC}$

$$= \frac{DB}{AD} = \frac{EC}{AE}$$

$$\therefore 1 + \frac{DB}{AD} = 1 + \frac{EC}{AE}$$

$$\therefore \frac{AD+DB}{AD} = \frac{AE+EC}{AE}$$

$$\therefore \frac{AB}{AD} = \frac{BC}{AC}$$

Defects Char'n

measurment of

triangle

(14) ΔBDE is equal to?

to?

(15) $\frac{AADE}{ACDF} = ?$

(16) ΔBDE is same as?

(17) $\frac{AD}{DB} = ?$

(18) $\frac{AD+DB}{AD} = ?$

AD

$$\frac{AE}{EC}$$

DCDE

$$\frac{AE}{EC}$$

$$\frac{AE+EC}{AE}$$

we get $\frac{AD}{BD} = \frac{AE}{EC}$

$$\frac{AD}{DB} = \frac{AE}{EC}$$

$$= \frac{BD}{AD} = \frac{BC}{AE}$$

$$\therefore 1 + \frac{BD}{AD} = 1 + \frac{BC}{AE}$$

$$= \frac{AD+BD}{AD} = \frac{EC+AE}{EC}$$

$$= \frac{AB}{AD} = \frac{EC}{AE}$$

(5) $\frac{AD}{BD}$ is equal to?

(6) how many sides are there in a triangle?

W O O d e n
 n d u c m e
 n d u c m e

Cumulative activity

Summarisation:- Today we learnt the basic proportionality theorem.

Recapulation:-

- ① Basic proportionality theorem is also known as?
- ② What we proved in the theorem?
- ③ ΔBDE is equal to?

Assignment:-

Using basic proportionality theorem, prove that the line drawn from the mid point of one side of a triangle parallel to another side, bisects the third side.

Micro Teaching Lesson plans

Preliminary Information

Name of the student Teacher:

Class roll :

Subject : Mathematics.

Unit : Real number.

Class : IX

Topic : Rational number

Time : 45 minute.

Date :

Name of the Supervisor



objects and specification

Knowledge:- The pupil has knowledge about natural number, whole number, integers and rational number

Recall:- The pupil recalls about natural number

Recognise:- The pupil recognise the number in the number chart

understanding:- The pupil understand the terms and symbols about natural, whole numbers,

Explains:- The pupil explains about natural no.

Application:- The pupil applies his knowledge of new place.

observation skill:- The pupil applies his knowledge of new place, how the rational numbers are marked are the number line

Drawing skill:- The pupil draws the number on the number line.

Content analysis.

Teachers activity

- ① What is your name?
- ② How many hands do you have?
- ③ In one hand, how many fingers do you have?
- ④ How do you count the fingers?
- ⑤ After 1, 2, 3, 4, 5 how many numbers are there?
- ⑥ What do you say 1, 2, 3, 4, ...
- ⑦ With which letter do we denote the natural numbers?
- ⑧ If we combined '0' to natural number what do we say that number?
- ⑨ With which letter we denote whole no?
- ⑩ If you add negative number to whole numbers then what number does we say?

Positive
-ve

Pupils activity

- Amurakha.
 10 hands
 Five fingers
 1, 2, 3, 4, 5
 In finite
 Natural number
 N
 whole numbers
 N
 Integers

Black Board work.

- 700
 five
 1, 2, 3, 4, 5
 Infinite = ∞
 N = 1, 2, 3, 4, ...
 0, 1, 2, 3, ...
 W = 0, 1, 2, ...
 -2, -1, 0, 1, 2, ...

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11) with which letter do we denote the

\mathbb{Z} or \mathbb{Z}

Motivation

Integers number?

-1, 0, 1, 2

12) By using some number on the black board. I shall ask students to fill what type are the number?

1, 2, 3, 4, 5, 6, 7, 8, 9

0, -1, -2, 3, 4, 5, ...

13) In given number what are natural numbers?

0, 1, 2, 3, ...

14) what are whole numbers?

-1, -2, 0, 1, 2

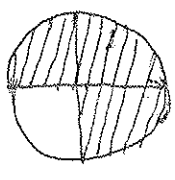
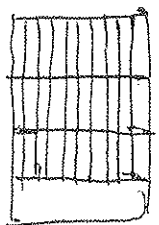
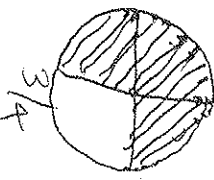
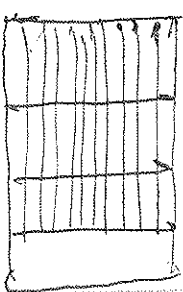
15) what are integer number?

Do not know

16) Given numbers are called?

17) Do you remember how to represent the rational number on the number line?

Do not know

Content analysis	Observer	Teacher activity	Pupils activity	BBW	T ₁ M	T ₂ M	EVA
<p>The rational number do not have a unique representation in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$, we say $\frac{p}{q}$ is a rational number</p> <p>ex: $\frac{3}{4}$</p> <p>3 is the num erator and 4 is denominator we know that 3 points taken out of 4 equal parts from a given unit</p>  	<p>Recognise the rational number</p>	<p>1) Tell some number you know?</p> <p>2) what do you mean by rational number?</p> <p>3) Example for rational number?</p> <p>4) on number line what number will be there</p> <p>5) $\frac{3}{4}$ what is numerator?</p> <p>6) $\frac{3}{4}$ what is denominator?</p>	<p>$\frac{3}{4}, \frac{5}{6}, 7, \dots$</p> <p>$\frac{p}{q}$ form and $q \neq 0$</p> <p>$\frac{1}{2}, \frac{3}{4}, \frac{1}{3}$</p> <p>different number</p> <p>3</p> <p>4</p>	<p>The rational number don't have a unique representation in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$ we say $\frac{p}{q}$ is a rational number - ex. $\frac{3}{4}$.</p> <p>3 is the numbers and 4 is the denominator, we know that, 3 points taken out of 4 equal parts from a given unit</p>  	<p>h</p> <p>c</p>	<p>h</p> <p>a</p> <p>r</p> <p>t</p>	<p>which are rational numbers?</p> <p>In $\frac{3}{4}$ what is denominator and numerator?</p>

Number line

Right side \Rightarrow
+ve number.

left side \Rightarrow
-ve number.

Application \Rightarrow In $\frac{3}{4}$ how many parts are there?

Reason By $\frac{3}{4}$ is positive or negative number

on left side \Rightarrow what is the numerator and denominator of $\frac{7}{a}$.

Left side \Rightarrow
-ve number

Right side \Rightarrow
+ve number

Character

Inductive method

on the number line where do positive no. of negative number

Number line -



Left side \Rightarrow

-ve number

Right side \Rightarrow
+ve number

Application
pupil gives reasons for

mistake
positive number on left side

Q) $\frac{7}{4}$
In $\frac{3}{4}$ how many parts are there?

8) $\frac{3}{4}$ is positive or negative number?

4 parts

positive

Number line \rightarrow

Left side \Rightarrow
-ve number

Right side \Rightarrow
+ve number

C
K
a
y
t

Find u e t i v e M e t h o d

on the number line where do positive no's negative numbers

Cumulative activity

Summarisation!— Today we learn about rational number and represents the rational number on the number line.

Recapitulation!—

- ① what are rational numbers.
- (ii) $\frac{5}{3}$ what is numerator and denominator?

Assignment!—

- ① Represent $\frac{5}{3}$ and $-\frac{5}{3}$ on the number line.
- ② Represent $-\frac{3}{4}$ on number line.

Micro Teaching Lesson Plan - I

Preferatory information

Name of the student Teacher:

Class : IX

Roll no : 4

Unit : Real number

Subject : Mathematics

Topic : Find relationship between two rational number

Time : 45 minutes

Name of the Supervisor :

(6)

Knowledge:- The pupil has the previous knowledge of rational numbers

Common aids:- chalk, dustex, chartboard.

Specific aids:- models, chart, cart board.

Teaching method:- Inductive and deductive method

Teaching learning method:- To know the rational numbers between two rational numbers

Recall:- The pupil gets the knowledge of two numbers between rational numbers

Recall:- The pupil recalls about different types of numbers.

Recognise:- The pupil recognise the different types of numbers.

Understanding:- The pupil understands about the rational numbers.

Content analysis

Teacher Activity

Pupils activity

BBM

① What are natural numbers?

1, 2, 3, 4, ...

② With which letter we denoted natural number?

$N = 1, 2, 3, 4, \dots$

$N = 1, 2, 3, \dots$

③ What are whole number with which letter we denote them?

$W = 0, 1, 2, 3, \dots$

$W = 0, 1, 2, 3, \dots$

④ Which are integer number?

Negative and whole number

$Z = -2, -1, 0, 1, 2, \dots$

⑤ With which letter we denote integer number?

$Z = -2, -1, 0, 1, 2, \dots$

Content analysis	Objectives	Teachers activity	Pupils activity	Black board work.	TLM	TM	Evaluation
<p>* Find two rational number between 3 and 4 by mean method.</p> <p>Method: 1</p> <p>We know that the rational number lie between two rational number a and b is $\frac{a+b}{2}$.</p> <p>Here $a=3$ $b=4$.</p> <p>$\therefore \frac{a+b}{2} = \frac{3+4}{2}$ unit.</p> <p>\therefore in between 3 and 4.</p> <p>$\therefore 3 < \frac{7}{2} < 4$</p>	<p>Recalls about the rational number.</p>	<p>1) Name some number you know.</p> <p>2) Give example for rational no.</p> <p>3) What are the number between 3 & 4.</p> <p>4) In which form rational no are.</p> <p>5) P/q are about type of number.</p> <p>6) Give example for p/q type.</p>	<p>1, 2, 3, 4</p> <p>1, 2, 3, 4</p> <p>Rational number play.</p> <p>Integer number</p> <p>$\frac{1}{2}, \frac{2}{3}, \frac{1}{4}$</p>	<p>Black board work.</p> <p>1, 2, 3, 4</p> <p>$\frac{1}{2}, \frac{3}{4} \dots = N$</p> <p>Find out the rational number.</p> <p>Method: 1 \rightarrow</p> <p>Rational number always lies between two numbers: $\frac{a+b}{2}$</p> <p>$a=3$ $b=4$</p> <p>$\therefore \frac{a+b}{2}$</p> <p>$= \frac{3+4}{2} = \frac{7}{2}$</p> <p>$\therefore 3 < \frac{7}{2} < 4$.</p>	<p>C</p> <p>K</p> <p>A</p> <p>X</p> <p>I</p>	<p>R</p> <p>N</p> <p>d</p> <p>u</p> <p>c</p> <p>t</p> <p>i</p> <p>v</p> <p>e</p> <p>m</p> <p>e</p> <p>h</p> <p>o</p> <p>d</p>	<p>What are the rational numbers</p> <p>Many numbers are there in between 3 & 4.</p>

Cumulative activity

Summarisation:- Today we learn about the finding rational number between two numbers

Recapulation:-

- (1) If you are two integers ab. then what is their mean?
- (2) What are rational numbers?
- (3) How many numbers of rational number lie between two numbers.

Assignment:-

- ① 2, 3 number find 3 rational number
- ② Find five rational numbers between 4 & 5

Micro Teaching Lesson Plan

(65)

Primary information:-

Name of the student:

Class No : 8A

Class : IX

Subject : Mathematics

Unit : Real number

Topic : Express P/Q in decimal form

Time : 45 minutes

Date :

Name of the Supervisor:

Previous knowledge : The pupil has the knowledge of rational number

(65)

Common aids : chalk, duster, pointer, board.

Specific aids : chart board, models.

Teaching method : Inductive and deductive

Teaching learning Method : To express $\frac{p}{q}$ form into decimal form

Recall : The pupil gets the knowledge how to connect $\frac{p}{q}$ into decimal form.

Recognise : The pupil recognise what is numbers, denominator, Quotient, Remainder, ~~side~~ side

Understanding : The pupil understanding how to connect $\frac{p}{q}$ form into decimal form

content analysis	Teachers Activity	Pupils activity	Black board work
1) What is your name?		vidya	(67)
2) How many number between brother and sister do you have?		Three.	
3) What is your favourite number?		5	
4) From 1 to 9 what do you mean them?		Digit	
5) How do you get number from digit?		By combining digit	

Mofa Va fon.

content analysis.

Teachers activity

- 6) Give some example.
- 7) From which number rational number begin?
- 8) What is meant by fraction?
- 9) How should be the denominator?
- 10) $\frac{p}{q}$ form where p and q are integers and $q \neq 0$?
- 11) How many numbers are from 1 to 2?
- 12) 1 and 2 what type of numbers?
- 13) Between 1 and 2 what type of number and there?
- 14) Do you know how to write decimal number?

Pupils activity

Alac beard work.

(1) 1/2, 1/3, ...	(1) 1/2, 1/3, ...
1.	1.
$\frac{p}{q}$.	$\frac{p}{q}$.
$q \neq 0$.	$q \neq 0$.
1	1
Rational number	
Fraction form	
0.1, 0.3, ...	0.1, 0.3, ...

<p>Content analysis</p> <p>Express $\frac{7}{16}$ in decimal form</p> <p>\Rightarrow 7 is numerator and 16 is denominator we should divide 7 with 16.</p> <p>\neq and the answer is.</p> <p>16) 7.00000000</p> <p>$\frac{7}{16} = 0.4375$ is a terminating decimal</p>	<p>objective</p> <p>Recalls about decimal number</p> <p>understand how to convert</p> <p>Play form into decimal form</p>	<p>Teachers activity</p> <p>Qn $\frac{7}{16}$ what is the numerator?</p> <p>2) what is denominator?</p> <p>3) so with which number we should divide?</p> <p>4) what are 7 of 16?</p> <p>5) what is the value when we divide 7 with 16?</p> <p>6) what type of decimal is 0.4375?</p>	<p>Pupils activity</p> <p>7</p> <p>16</p> <p>7 is divide with 16</p> <p>7 is numerator</p> <p>16 is denominator</p> <p>0.4375</p> <p>terminating decimal.</p>	<p>Black board work</p> <p>Express $\frac{7}{16}$ in decimal form</p> <p>7 is in the numerator and 16 is denominator</p> <p>307 must be divide with 16</p> <p>16) 7.000 (0.4375</p> <p>$\therefore \frac{7}{16} = 0.4375$</p> <p>$\frac{7}{16}$ is a terminating decimal.</p>	<p>Char</p>	<p>Productive Method</p>
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Cumulative activity

Summarisation:- Today we learnt how to express $\frac{p}{q}$ form into decimal form

Recapulation:-

① Give example for decimal number?

How can we convert $\frac{p}{q}$ form into decimal form?

Assignment:-

(1) $\frac{2}{3}$ convert into decimal form.

(2) Express $\frac{10}{7}$ into decimal form.

Micro Teaching Lesson plan - 9.

Preliminary information:-

Name of the student Teacher:

Class :- IX

Roll no : 84

Subject : Mathematics.

Unit : Real numbers.

Topic : finding $\sqrt{2}$ values by long division method.

Time : 45 minutes.

Date :

Name of the Supervisor :

Objectives and Specifications

(78)

Knowledge:- The pupil gets the knowledge of irrational number.

Recall:- The pupil recall the term of irrational number.

Recognise:- The pupil recognise what are rational number.

Understand:- They understand the long division process.

Explains:- The pupil explains the long division process.

Detect:- The pupil can able to detect error.

Application:- The pupil applies his knowledge and understand the long division method.

Analyse:- The pupil analyse the long division method.

Select:- They can able to select appropriate formula.

Skill:- The pupil absorbs the value of $\sqrt{2}$.

Content analysis	Teacher's activity	Pupils activity	BBW
<p>Motivation</p> <ol style="list-style-type: none"> ① What are natural numbers? ② What are whole numbers? ③ What are the integer numbers? ④ What are rational numbers? ⑤ Another form of rational number? ⑥ Can we represent all rational number on the number line? ⑦ Which are irrational numbers? ⑧ What is the value of $\sqrt{2}$. 	<p>Teacher's activity</p> <p>N = 1, 2, 3, 4, ...</p> <p>W = 0, 1, 2, 3, ...</p> <p>Z = -2, -1, 0, 1, 2, 3, ...</p> <p>Q = $\frac{15}{3}, \frac{4}{9}, \frac{1}{2}$</p> <p>$\frac{p}{q}$ is a rational no where p, q are integers and $q \neq 0$</p> <p>Decimal form yes</p> <p>Do not know.</p>	<p>N = 1, 2, 3, 4, ...</p> <p>W = 0, 1, 2, 3, ...</p> <p>Z = -2, -1, 0, 1, 2, 3, ...</p> <p>Q = $\frac{15}{3}, \frac{4}{9}, \frac{1}{2}$</p> <p>$\frac{p}{q}$ is a rational no where p, q are integers and $q \neq 0$</p> <p>Decimal form yes</p> <p>Do not know.</p>	<p>N = 1, 2, 3, 4, ...</p> <p>W = 0, 1, 2, 3, ...</p> <p>Z = -2, -1, 0, 1, 2, 3, ...</p> <p>Q = $\frac{15}{3}, \frac{4}{9}, \frac{1}{2}$</p> <p>$\frac{p}{q}$ form</p>

Content analysis	Specification	Teachers activity	Pupils activity	Black board work	TLM	gm	EVA
<p>consider this equation</p> <p>(i) $x^2 = 4$ (ii) $3x = 4$</p> <p>(iii) $x^2 = 2$.</p> <p>For equation (i) we know the value of x by first equation is 2 of -2, we can plot $2 + -2$ on the number line</p> <p>For equation (ii) $3x = 4$ on dividing both sides by 3 we get $\frac{3x}{3} = \frac{4}{3} = x = \frac{4}{3}$, we can plot first on the number line in (iii) Equation $x^2 = 2$ taking square by both the sides of the equation $\sqrt{x^2} = \sqrt{2} \Rightarrow x = \sqrt{2}$</p>	<p>The pupil has knowledge of rational number and irrational number</p>	<p>→ what is the first equation?</p> <p>→ The value of x is?</p> <p>→ can we plot $2 + -2$ on the number line</p> <p>→ what is the second equation?</p> <p>→ what is the value of x</p> <p>→ can we plot $x = \frac{4}{3}$ on the number line</p> <p>→ what is the three equation</p>	<p>$x^2 = 4$</p> <p>$2 = -2$</p> <p>Yes</p> <p>$3x = 4$</p> <p>$x = \frac{4}{3}$</p> <p>Yes</p>	<p>(i) $x^2 = 4$</p> <p>(ii) $3x = 4$</p> <p>(iii) $x^2 = 2$</p> <p>(i) x can plot on two lines 2 and -2</p> <p>(ii) $x = \frac{4}{3}$</p> <p>(iii) $x^2 = 2$</p> <p>$\sqrt{x^2} = \sqrt{2}$</p> <p>$\therefore x = \sqrt{2}$</p>	<p>c</p> <p>h</p> <p>a</p> <p>Y</p> <p>t</p>	<p>Q</p> <p>n</p> <p>d</p> <p>u</p> <p>e</p> <p>t</p> <p>?</p> <p>v</p> <p>e</p> <p>M</p> <p>e</p> <p>t</p> <p>h</p> <p>o</p> <p>d</p>	<p>what are rational numbers?</p> <p>what are irrational numbers?</p>

How many 0 we will point?

What is the value of $\sqrt{2}$?

I n d u c t i v e

M e t h o d

M o d e l

1. After 2 decimal point
 2. After decimal point 3 point
 3. plot bar
 4. Find the Square root
- $\sqrt{2} = 1.4142$

Find the value of $\sqrt{2}$ by long division process	Apply the knowledge and understand the longy division method and using PN new place.	What is the value of $\sqrt{2}$? → which method we use to find the value of $\sqrt{2}$?	Do not know long division method.	1. After 2 decimal point
1 → After 2, place decimal point.	division method	→ After decimal points which should we write?	0	2. After decimal point 3 point
2 → After decimal point write 0	using PN new place.	→ how many 0 we will point?	two zero	3. plot bar
3 → group 0 is point and put a bar over them.		→ $24 \times 4 = 96$		4. Find the Square root
4 → Follow the method of find the Square root of perfect square		→ $281 \times 1 = 281$		
$\therefore \sqrt{2} = 1.4142$		→ $2324 \times 4 = 9324$	11296	
		→ $23282 \times 2 = 46564$	86564	
		→ what is the value of $\sqrt{2}$?	1.4142	

Comulative activity

Summarisation:- We learn today - how to find the value of $\sqrt{2}$ by long distance division method?

Recapulation:-

- ① Give examples for irrational number?
- (ii) What is the value of $\sqrt{2}$.

Assignment:- Find out the value of $\sqrt{3}$ by long division method

Micro Teaching Lesson plan -10.

Preliminary information:-

Name of the student Teacher:

Roll NO: 84

Class: X

Subject: Mathematics

Unit: Real number

Topic: Representing π rational number on the number line.

Time: 45 minutes

Date:

Name of the Supervisor:

Previous knowledge: - The pupil has the previous knowledge of irrational no.

(78)

Primary aids: - Chalk, duster, chart, pointer

Specific aids: - Models, cart board.

Methods: - Inductive and deductive.

Teaching learning method: - Representing irrational number on the number line.

Knowledge: - The pupil has the knowledge of marking number on the number line

Recall: - The pupil recalls difference type of numbers

Recognise: - The pupil recognise numbers on the number line.

Understanding: - The pupil recognise number on the number line

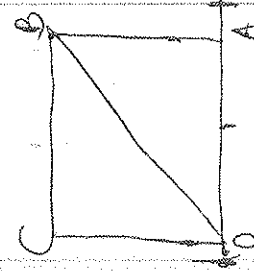
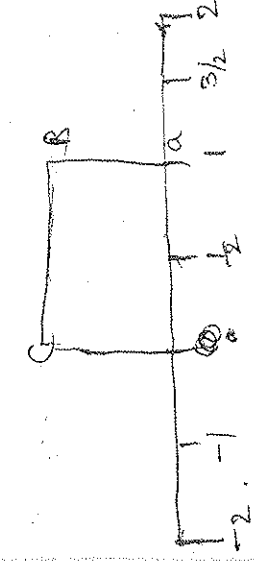
CA	TA	PA	BBW
1) From which number natural number begins?	1	1	1
2) Till which number natural number ends?	∞	∞	∞
3) with which symbol we denote?	N	N	N
4) In which form we can write 5×5	$(5)^2$	$(5)^2$	$(5)^2$
5) $(5)^2$ is in which form.	Square.	Square.	Square.

Melvaan

Motivation

- 6) The number which are non-terminating?
- 7) Give example for irrational no?
- 8) Irrational number are denoted by?
- 9) If you show numbers on the number line in the middle what is the number?
- 10) On left side which numbers are marked?
- 11) On the left side of point 0 is which number?
- 12) Can we denote can the number line?
- 13) $\sqrt{2}$ is which type of number?
- 14) Can we denote \mathbb{R} on the number line?

Irrational no.	$\sqrt{2}, \sqrt{3}, \sqrt{5}$	$\sqrt{2}, \sqrt{3}, \sqrt{5}$
S or Q.	S or Q.	S or Q.
0.	0.	0.
Negative no.	-1, -2, -3...	-1, -2, -3...
Positive no.	0, 1, 2, 3...	0, 1, 2, 3...
yes	yes	$\sqrt{2}$ positive
$\sqrt{2}$ is irrational number		

CA	O/S	TA	PA	BBW	TLM	TM	EVA. (S)
Locate $\sqrt{2}$ on number line at a drawn unit square. OABC on number line with each other side 1 unit in length by pythagoras theorem.	Pupil has the knowledge of irrational number	→ give example for rational number? → give example for irrational number → what is the difference between rational and irrational no? → on the number line what will be there? → what is the center point on the number line → who discover irrational no?	$\frac{1}{2}, \frac{2}{3}, \frac{3}{4}$	Locate $\sqrt{2}$ in number line At O denote a unit square OABC on number line with each side 1 unit length. $OB = \sqrt{1^2 + 1^2} = \sqrt{2}$.	M o d e l	I n d u c t i v e	give example for irrational number
$OB = \sqrt{1^2 + 1^2} = \sqrt{2}$ 	give reason by plotting numbers on the number line					M e t h o d.	ON number line what will be there?
$-1, 0, \frac{1}{2}, 1, 2$ $\therefore OB = \sqrt{2}$			Pythagoras.				

Cumulative activity:-

(82)

Summarisation:-

Today we learn about representing irrational number on the number line.

Recapulation:-

- ① which number on the number line can be marked?
- ② Give example for irrational number?

Assignment:-

- ① $\sqrt{8}$ locate on the number line.
- ② $\sqrt{7}$ locate on the number line.

Micro Teaching Lesson plan - 11

83

Preliminary information:-

Name of the student :

Roll no: 84

Class : IX

Subject : Mathematics

Topic : Real numbers

Unit : Real number

Time : 45 minutes

Date :

Name of the Supervisor :

Previous knowledge:- The pupil has the knowledge of real number

Common aids :- chalk, duster, pointer.

Specific aids:- chalk, chart, models.

Method:- Inductive and deductive method.

Teaching Learning method:- find an irrational number between two rational number.

Knowledge :- The pupil gets the knowledge how to find irrational number?

Recalls- The pupil recalls about digits number

Recognise :- The people recognise the number

understanding:- They understand the process of finding irrational number.

CA	TA	PA	RBW
	<p>How do you count something?</p> <p>What do you call 1, 2, 3, ... n</p>	<p>1, 2, 3, ... n</p> <p>Digit</p>	<p>1, 2, 3, ... n</p> <p>Digit</p>
	<p>If you combine digits what do you call them?</p>	<p>Numbers</p>	<p>Number</p>
	<p>What do you mean by fraction?</p>	<p>p/q form</p>	<p>p/q form</p>
<p>Multiplication</p>	<p>In p/q form what is numerator and denominator?</p>	<p>p is the numerator form</p> <p>q is the denominator</p>	
	<p>If $q \neq 0$ then what do you call them?</p>	<p>Rational number</p>	<p>Rational number</p>

Motivaban

<p>→ Give Example for natural number.</p> <p>→ $a \times a$ how can we write that?</p> <p>→ 8^2 is 9^n which form?</p> <p>→ The number which are not perfect square than pt is called?</p> <p>→ Give example for irrational number.</p> <p>→ Can you told the irrational number between two rational number?</p>	<p>1, 2, 3, 4, ...</p> <p>Perfect square</p> <p>Irrational number</p> <p>Do not know</p>	<p>1, 2, 3, 4, ...</p> <p>Perfect Square</p> <p>$\sqrt{2}, \sqrt{3}, \sqrt{7}, \dots$</p>
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CA	O/S	TA	PA	BBW	TLM	JM	EVA	(87)
Find out the irrational no between $\frac{1}{5}$ and $\frac{2}{7}$ \rightarrow AN irrational number between 3 and 4's	Recall about irrational number. Explains about irrational number	\rightarrow what are digit? \rightarrow what are number? \rightarrow give examples for irrational number. \rightarrow explain about irrational number	1, 2, 3... $\sqrt{2}, \sqrt{3}, \sqrt{5}, \sqrt{7}, \dots$ student explains A and B all positive rational number	Find the irrational number between $\frac{1}{5}$ and $\frac{2}{7}$ \therefore An irrational number between 3 and 4's			Give example for irrational number	
$\sqrt{3 \times 4}$ $= \sqrt{3} \times \sqrt{4}$ $= \sqrt{3} \times 2 = 2\sqrt{3}$		$\rightarrow \sqrt{3} \times \sqrt{4}$ is an irrational number if ----? $\rightarrow \sqrt{3} \times \sqrt{4} =$ $\rightarrow \sqrt{3} \times 2 =$	$\sqrt{3} \times 2$ $2 \times \sqrt{3}$ $\therefore 2\sqrt{3}$	$\sqrt{3 \times 4} = \sqrt{3} \times \sqrt{4}$ $= \sqrt{3} \times 2$ $\therefore 2\sqrt{3}$			$\sqrt{3} \times \sqrt{4}$ is what?	

Cumulative activity

Summarisation! - Today we learn about finding irrational number between two rational number

Recapulation! - ① give example for irrational number ?

② \sqrt{ab} is a irrational number lying between.

③ $2\sqrt{3}$ is which type of number?

Assignment!

① find irrational number between 3 and 6.

② find irrational number between 1 and 2.

③ find irrational number between 5 and 7.

89

Micro Teaching lesson plan -12

Preliminary information :-

Name of the student :

Roll No : 84

Class : R

Subject : Mathematics

Unit : Real number

Topic : Operation of real number

Time : 45 minutes

Date :

Name of the supervisor :

Previous knowledge:- The pupil has the knowledge about closure property.

Common aids:- chalk, duster, chart, pointer.

Specific aids:- Chart, cart board, models.

Teaching Method:- Inductive and deductive

Teaching learning method:- operation of real numbers

Knowledge:- The pupil has the knowledge of real number

Recall:- The pupil recalls about different types of real number

Recognise:- The pupil understand the operation on real number.

Understanding:- The pupil understand the operation on real number.

example:- The pupil gives examples of their own



CA

TA

PA

BBW

→ what are Natural number?

→ which are whole numbers ?

→ what are integers ?

→ which are rational numbers?

→ p and q are which numbers?

→ q should not be equal to ?

1, 2, 3, ...

0, 1, 2, 3, ...

-2, -1, 0, 1, 2, ...

which can be written
-n in P/q form
P, q are integers

$q \neq 0$

1, 2, 3, ...

0, 1, 2, 3, ...

-2, -1, 0, 1, 2, ...

P/q form

$q \neq 0$

MO to VA form

CA

→

TA

→ Another form of rational numbers are?

→ Give example for rational numbers?

→ Give example $\sqrt{2}$ value?

→ who develop $\sqrt{2}$ value?

→ Can you say rational numbers are closed under four fundamental operations

PA

Decimal form

$\frac{1}{2}, 0.007$

Non terminating
Non recurring

Decimal number
 $\sqrt{2}, \sqrt{3}, \sqrt{5}, \sqrt{7}, \dots$

Pythagoras

BBW

Decimal form

$\frac{1}{2}, 0.07, \dots$

$\sqrt{2}, \sqrt{3}, \sqrt{5}, \dots$

(92)

M
0
9
t
9
0
h

CA	o/s	TA	PA	BBW	TLM	TM	EVA
check where $5\sqrt{2}, \frac{5}{\sqrt{2}},$ $21+\sqrt{3},$ $\pi+\sqrt{3}$ are irrational number	Recognise about the irrational number	→ which are rational numbers? → which are irrational numbers?	Fraction and decimal form Non-terminal	Check the value of $5\sqrt{2},$ $\frac{5}{\sqrt{2}}, \pi+\sqrt{3},$ $21+\sqrt{3},$ $5\sqrt{2} = 7.070$	Ch a r a c t e r i s t i c	I n d u c t i v e	which are irrational numbers?
$\sqrt{2} = 1.414$ $\sqrt{3} = 1.732$ $\pi = 3.1415$ $\therefore 5\sqrt{2} = 5(1.414)$ $= 7.070$ $\frac{5}{\sqrt{2}} = \frac{5}{1.414} \times \frac{\sqrt{2}}{\sqrt{2}}$ $= \frac{5\sqrt{2}}{2} = \frac{7.070}{2}$ $= 3.535$ $21+\sqrt{3} = 21+1.732$ $= 22.732$ $\pi+\sqrt{3} = 3.1415+1.732$ $= 4.8735$ $21+\sqrt{3} = 22.732$	→ what is the value of $\sqrt{2}$ → $\sqrt{3}$ is → π value is → 5×1.414 → $\frac{5}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}$ → $\frac{7.070}{2}$ → $21 + 1.732$ → $3.1415 + 1.732$	→ $\sqrt{2}$ is → π value is → 5×1.414 → $\frac{5}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}$ → $\frac{7.070}{2}$ → $21 + 1.732$ → $3.1415 + 1.732$	1.414 1.732 3.1415 7.070 $\frac{5\sqrt{2}}{2}$ 3.535 22.732 6.1415	$5\sqrt{2} = 7.070$ $21+\sqrt{3} = 22.732$ $\pi+\sqrt{3} = 6.1415$			
	Gives reason in the operation of real number						what are the done during operations?

Cumulative activity

Summarisation:- Today we learn about operation on real number

Recapulation :-

1. Give example for irrational number.
2. What is the value of $\sqrt{2} + \sqrt{3} \dots - ?$
3. What is the value of π ?

Assignment:-

1. Subtract $5\sqrt{3} + 7\sqrt{5}$ from $3\sqrt{5} - 7\sqrt{3}$
2. Multiply $6\sqrt{3}$ with $13\sqrt{2}$

Micro Teaching lesson plan - 13.

95

Preliminary information:-

Name of the student Teacher:

Class : IX

Roll No : 84

Subject : Mathematics

Unit : Real number

Topic :

Properties relating to square roots

Time :

45 minutes

Date :

Name of the Supervisor :

Previous knowledge acquired :- The pupil has the knowledge about square root.

Common aids :- chalk, duster, rolling board.

Specific aids :- cart board, chart, models.

Teaching method :- Inductive and deductive method.

Teaching learning method :- properties relating to square root.

Recall :- The pupil recall about different types of real number.

Recognise :- The pupil recognise which are not perfect square.

understanding :- The pupil understand the properties relating the square roots

explains :- The pupil explains square in his own knowledge.

$\sqrt{2}, \sqrt{3}, \sqrt{5}, \dots$

$\sqrt{2}, \sqrt{3}, \sqrt{5}, \dots$

→ Name some irrational number?

M
O
b
9
V
9
t
9
0
n

→ why they are these irrational numbers?

non terminal of
no irrational numbers

→ what are the rational numbers?

Terminating (or)
 $\sqrt{4}, \sqrt{9}, \sqrt{16}, \sqrt{25}, \dots$

→ Name some perfect square?

→ then what about $\sqrt{\pi}$?

Perfect square

→ what is the value of $\sqrt{2}$?

$\sqrt{4}, \sqrt{9}, \sqrt{16}, \sqrt{25}$

→ Does irrational numbers are closed under four fundamental operation?

$\sqrt{2} = 1.4142$

→ Do you know the properties relating to square roots?

yes-

$\sqrt{2} = 1.4142$

QA	Q/S	TA	PA	BBW	TM	TM	EVA
Let a and b be positive real number, then;	Knowledge about square root	• Name some real no? • what is the value of π ? • $\sqrt{ab} =$ • $\sqrt{\frac{a}{b}} =$ • b should not be equal to?	$\frac{2}{3}$ 7, 0, π $\pi = 3.1415$	$\sqrt{ab} = \sqrt{a}\sqrt{b}$ $\frac{\sqrt{a}}{b} = \frac{\sqrt{a}}{\sqrt{b}}$ $(\sqrt{a}\sqrt{b})(\sqrt{a}-\sqrt{b}) = a-b$ $(a+\sqrt{b})(a-\sqrt{b}) = a^2-b$	C h a r e	2 n d y c t i v e	Name some perfect square
(i) $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$; $b \neq 0$			$a\sqrt{b}$ \sqrt{b} .	$(a+\sqrt{b})(a-\sqrt{b}) = a^2-b$			
(ii) $(\sqrt{a}+\sqrt{b})(\sqrt{a}-\sqrt{b}) = a-b$		• $(\sqrt{a}+\sqrt{b})(\sqrt{a}-\sqrt{b}) =$	$a-b$.	$(\sqrt{a}+\sqrt{b})(\sqrt{a}-\sqrt{b}) = a^2-b$			
(iii) $(\sqrt{a}+\sqrt{b})(\sqrt{c}+\sqrt{d}) = \sqrt{ac} + \sqrt{ad} + \sqrt{bc} + \sqrt{bd}$	give example	$(a+b)(c+d) =$	$\sqrt{ac} + \sqrt{ad} + \sqrt{bc} + \sqrt{bd}$	$= \sqrt{ac} + \sqrt{ad} + \sqrt{bc} + \sqrt{bd}$			give example for real number
(iv) $(\sqrt{a}+\sqrt{b})^2 = a + 2\sqrt{ab} + b$	give example			$(\sqrt{a}+\sqrt{b})^2 = a + 2\sqrt{ab} + b$			

<p>simplify the following:-</p> <ol style="list-style-type: none"> $(\sqrt{3} + \sqrt{3})(2 + \sqrt{2})$ $(\sqrt{2} + \sqrt{3})(2 - \sqrt{3})$ $(5 + \sqrt{2})^2$ $(\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2})$ <p>ans \rightarrow</p>	<p>understand the proportional relating to square root</p>	<p>$(\sqrt{a + \sqrt{b}})^2 = a + \sqrt{b}$ $(a + \sqrt{b})(a - \sqrt{b})$ $(2 + \sqrt{3})(2 + \sqrt{3})$ $(2 + \sqrt{3})(2 - \sqrt{3})$ $(\sqrt{3})^2 = 3$ $(\sqrt{5} + \sqrt{2})^2 =$</p>	<p>$a + 2\sqrt{a}b + b$ $a^2 - b$ $6 + 3\sqrt{2} + 2\sqrt{3} + 6$ $2^2 - (\sqrt{3})^2$ 3 $(\sqrt{5})^2 + 2\sqrt{5}\sqrt{2} + (\sqrt{2})^2$ $7 + 2\sqrt{10}$ $\sqrt{10}$</p>	<p>$(\sqrt{3} + \sqrt{3})(2 + \sqrt{2})$ $= 6 + 3\sqrt{2} + 2\sqrt{3} + 6$ $(2 + \sqrt{3})(2 - \sqrt{3})$ $= 2^2 - (\sqrt{3})^2$ $= 4 - 3 = 1$ $(\sqrt{5} + \sqrt{2})^2$ $= (\sqrt{5})^2 + 2\sqrt{5}\sqrt{2} + (\sqrt{2})^2$ $= 5 + 2\sqrt{10} + 2$ $= 7 + 2\sqrt{10}$ $(\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2})$ $= (\sqrt{5})^2 - (\sqrt{2})^2$ $= 5 - 2$ $= 3$</p>	<p>Applies the own knowledge of pupil</p>	<p>$(\sqrt{3} + \sqrt{3})(2 + \sqrt{2})$ $= 6 + 3\sqrt{2} + 2\sqrt{3} + 6$ $(2 + \sqrt{3})(2 - \sqrt{3})$ $= 2^2 - (\sqrt{3})^2$ $= 4 - 3 = 1$ $(\sqrt{5} + \sqrt{2})^2$ $= (\sqrt{5})^2 + 2\sqrt{5}\sqrt{2} + (\sqrt{2})^2$ $= 5 + 2\sqrt{10} + 2$ $= 7 + 2\sqrt{10}$ $(\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2})$ $= (\sqrt{5})^2 - (\sqrt{2})^2$ $= 5 - 2$ $= 3$</p>
<p>Inductive method</p>						
<p>Character</p>						
<p>$(a + \sqrt{b})^2 = ?$</p>						
<p>$(\sqrt{3} + 3)(2 + \sqrt{2}) = ?$</p>						

Comulative activity

Summarisation:-

Today we learn about properties of Square root.

Recapulation:-

1. $(\sqrt{a} + \sqrt{b}) (\sqrt{a} - \sqrt{b}) =$

2. $(\sqrt{a} + \sqrt{b}) (\sqrt{c} + \sqrt{a}) =$

Assignment:-

1. $(\sqrt{3} + \sqrt{4}) (\sqrt{3} + \sqrt{4})$ simplify

2. Simplify $(\sqrt{5} + \sqrt{2}) (\sqrt{3} + \sqrt{6})$

Preliminary information!

Micro Teaching lesson plan-4

101

Name of the Student teacher :

Roll No : 84

Class : IX

Subject : Mathematics.

Unit : Real number.

Topic : Rationalising the denominator.

Time : 45 minutes

Date :

Name of the supervisor : 6

Previous knowledge assumed:- The pupil has the previous knowledge of the real number

Common aids:- Chalk, duster, pointer, board.

Specific aids:- Cart board, chart, models.

Teaching method:- Inductive and deductive

Teaching learning method:- To know about naturalising the denominator

Knowledge:- The pupil has the knowledge of real number

Recall:- The pupil recalls about the real number.

Recognise:- The pupil recognise the natural no, whole no

Understanding:- The pupil understand to rationalise the real number

Example:- The pupil give example against the Support of real number

CA	TA	PA	BBW
<ul style="list-style-type: none"> • which are natural numbers? 	<ul style="list-style-type: none"> • with which letter we denote natural numbers? 	\mathbb{N} $\{1, 2, 3, 4, \dots\}$	$\mathbb{N} = 1, 2, 3, 4, \dots$
<ul style="list-style-type: none"> • from which numbers the whole numbers begin? 	<ul style="list-style-type: none"> • which are integer numbers? 	\mathbb{W} $\{0, 1, 2, 3, \dots\}$	$\mathbb{W} = 2, -1, 0, 1, 2, \dots$
<ul style="list-style-type: none"> • Integer numbers are denoted by which symbol? 		\mathbb{Z}	$\mathbb{Z} = -1, -2, 0, 1, 2, \dots$

CA

TA

PA

BBW

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M O T I V A T I O N

PA

TA

PA

BBW

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6) The numbers which are expressed in the form of $\frac{p}{q}$ is called?

Rational nos
 $\frac{2}{3}, \frac{4}{5}, \frac{7}{9}, \dots$

$\frac{2}{3}, \frac{4}{5}, \frac{7}{9}, \dots$

7) Give some examples?

Q.

Q.

8) Rational no are denoted by which symbol?

S or $\mathbb{Q} = \mathbb{R}, \mathbb{N}$

S or $\mathbb{Q} = \mathbb{R}, \mathbb{N}$

9) Name the irrational numbers with what symbol we denote?

The collection of all rational nos and irrational no are denoted by \mathbb{R} .
Real numbers

10) what are real numbers with what symbol we denote?

11) $\frac{2}{\sqrt{3}}$ is which type of number?

12) what is the numerator and denominator?

13) how do we rationalise the denominator?

2 is numerator
3 is denominator
Do not know

2 is numerator
3 is denominator

M
O
t
q
v
q
t
q
n

CA	O/S	TA	PA	BBW	TLM	TM	EVA
Rationalise the denominator - top of $\frac{1}{4+\sqrt{5}}$ the rationalising factor $4-\sqrt{5}$ $= \frac{1}{4+\sqrt{5}} \times \frac{4-\sqrt{5}}{4-\sqrt{5}}$ $= \frac{4-\sqrt{5}}{4^2-(\sqrt{5})^2}$ $= \frac{4-\sqrt{5}}{16-5}$ $= \frac{4-\sqrt{5}}{11}$	Recognise the denominator of real number	<ul style="list-style-type: none"> In $\frac{1}{4+\sqrt{5}}$ what is the denominator? what is the numerator? what is the rationalising factor of $4+\sqrt{5}$? In what form $(4+\sqrt{5})(4-\sqrt{5})$ is there? In which formula we can write the denominator? Lastly what is the value of $\frac{1}{4+\sqrt{5}}$? 	$4+\sqrt{5}$	Rationalise the denominator of $\frac{1}{4+\sqrt{5}}$ $\frac{1}{4+\sqrt{5}} \times \frac{4-\sqrt{5}}{4-\sqrt{5}}$ $= \frac{4-\sqrt{5}}{4^2-(\sqrt{5})^2}$ $= \frac{4-\sqrt{5}}{16-5}$ $= \frac{4-\sqrt{5}}{11}$ $\therefore \frac{1}{4+\sqrt{5}} = \frac{4-\sqrt{5}}{11}$	(k) (q) (r) (f)	In d u c t o r e m e t h o d.	In what form the $\frac{1}{4+\sqrt{5}}$ is written? In what form $(4+\sqrt{5})$ is written?

Summarisation - Today we learn about rationalising the denominator of real number

Recapulation:-

1. what is the rationalising factor of $7+4\sqrt{3}$ and $24\sqrt{5}$?
2. In what form denominator can be written?
3. Name some real number?

Assignment:-

1. Rationalise the denominator of $\frac{1}{\sqrt{7}}$ and $\frac{1}{\sqrt{5}}$
2. Rationalise the denominator of $\frac{1}{4+3\sqrt{2}}$

Micro Teaching lesson plan-15

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Preliminary information

Name of the Student Teacher :

Class : IX

Roll no : 8 A

Subject : Mathematics

Unit : Real number

Topic : Law of exponents for real number

Time : 45 minutes

Date :

Name of the Supervisor :

Previous knowledge

Previous knowledge assumed: - The pupil has the knowledge of law of exponents for real numbers.

Common aids: - Chalk, duster, pointer.

Specific aids: - Chart board, model, chart

Teaching method: - Inductive and deductive method.

Teaching learning method: - To learn law of exponents for real number.

Knowledge: - The pupil has the knowledge of law of exponents.

Recall: - The pupil recalls about integers, base, exponents.

Recognise: - The pupil recognise integers, base and exponents.

CA	TA	PA	BBW
<p>M 0 b 9 v a t 9 0 n</p>	<p>• what are natural numbers?</p> <p>• what are whole numbers?</p> <p>• what are integers?</p> <p>• what are rational numbers?</p>	<p>1, 2, 3, ...</p> <p>0, 1, 2, ...</p> <p>-2, -1, 0, 1, 2, ...</p>	<p>1, 2, 3, ...</p> <p>0, 1, 2, 3, ...</p> <p>-2, -1, 0, 1, 2, ...</p> <p>which number can be relation P/q form $q \neq 0$</p>

Previous knowledge

Previous knowledge assumed:- The pupil has the knowledge of law of exponents for real numbers.

Common aids:- Chalk, duster, pointer.

Specific aids:- Chart board, model, chart.

Teaching method:- Inductive and deductive method.

Teaching learning method:- To learn law of exponents for real number.

Knowledge:- The pupil has the knowledge of law of exponents.

Recall:- The pupil recalls about integers, base, exponents.

Recognise:- The pupil recognise integers, base and exponents.

CA	TA	PA	BBW
<p>\mathbb{N}</p> <ul style="list-style-type: none"> • what are natural numbers? 	<p>1, 2, 3, ...</p>	<p>1, 2, 3, ...</p>	<p>1, 2, 3, ...</p>
<p>\mathbb{Z}</p> <ul style="list-style-type: none"> • what are whole numbers? 	<p>0, 1, 2, ...</p>	<p>0, 1, 2, ...</p>	<p>0, 1, 2, 3, ...</p>
<p>\mathbb{I}</p> <ul style="list-style-type: none"> • what are integers? 	<p>-2, -1, 0, 1, 2, ...</p>	<p>-2, -1, 0, 1, 2, ...</p>	<p>-2, -1, 0, 1, 2, ...</p>
<p>\mathbb{R}</p> <ul style="list-style-type: none"> • what are rational numbers? 	<p>which number can be relation</p>	<p>which number can be relation</p>	<p>$\frac{p}{q}$ form $q \neq 0$</p>

CA

TA

PA

BBW

\mathbb{N} \mathbb{Z} \mathbb{I} \mathbb{R}

M	<ul style="list-style-type: none"> • what are 'rational number'? 	$\sqrt{2}, \sqrt{3}, \sqrt{5}, \dots$	$\sqrt{2}, \sqrt{3}, \sqrt{5}, \dots$
O	<ul style="list-style-type: none"> • which are real numbers? 	The collection of rational and irrational no	
T	<ul style="list-style-type: none"> • Examples for real numbers? 	$-2, \frac{7}{2}, 0.01, \sqrt{8}, \dots, -2, \frac{7}{2}, 0.01$	a^{m+n}
V	<ul style="list-style-type: none"> • a^m, a^n 	$a^m + n$	
Q	<ul style="list-style-type: none"> • a, m and n are 	integers	integers.
t	<ul style="list-style-type: none"> • where a should not be equal to? 	zero	zero
!	<ul style="list-style-type: none"> • a or called? 	base	base
o	<ul style="list-style-type: none"> • m, n are called. 	exponents	
n	<ul style="list-style-type: none"> • Do you know what is n^{th} root of real number 	not known	exponents

CA

o/s

TA

PA

BBW

TLM

TM

EVALUATION

(111)

BVALUATION.

what is called L, m, n?

what is the base and exponent?

Inductive method

C N a r f

CA	O/S	TA	PA	BBW
Let a to be real no and p, q be rational number	Recall about Real numbers	give example for real no	$-5\sqrt{10}$	let a, b be real no and a, b and a, b take $a^p \cdot a^q = a^{p+q}$
$a^p \cdot a^q = a^{p+q}$		what is the a's base?		$(a^p)^q = a^{p \cdot q}$
$\frac{a^p}{a^q} = a^{p-q}$		what is the p, q are exponent?		$a^p \cdot b^q = (ab)^{p+q}$
$a^p \cdot b^q = (ab)^{p+q}$				$\sqrt{a} = a^{\frac{1}{2}}$
$\sqrt{a} = a^{\frac{1}{2}}$				$3^{\frac{1}{2}} = \sqrt{3}$
$2^{\frac{1}{3}} \cdot 2^{\frac{1}{3}}$	understand	$\sqrt{a} = a^{\frac{1}{2}}$	$a^p \cdot a^q = a^{p+q}$	$2^{\frac{1}{3}} = \sqrt[3]{2}$
$(5^{\frac{1}{4}})^2$	The law of exponents	$(5^{\frac{1}{4}})^4 = 5$	$(a^p)^q = a^{p \cdot q}$	$2^{\frac{1}{2}} = \sqrt{2}$
$\frac{8^{\frac{1}{5}}}{3^{\frac{1}{3}}}$				$2^{\frac{1}{2}} \cdot 2^{\frac{1}{2}} = 2$
$= 7^{\frac{1}{17}}$				$2^{\frac{1}{2}} \cdot 2^{\frac{1}{2}} = 2$
				$5^{\frac{1}{4}} = \sqrt[4]{5}$
				$2^{\frac{1}{2}} = \sqrt{2}$
				$5^{\frac{1}{4}} = \sqrt[4]{5}$

CA	TA	PA	BBW
<ul style="list-style-type: none"> • which are irrational numbers. • which are real numbers? • Example for real number 	<ul style="list-style-type: none"> → $a^m \cdot a^n =$ → $a \cdot m$, and n are → where a should not be equal to 0? → a is called. → m, n are called. → Do you know what is n^{th} root of real number 	<p>The collection of rational and irrational numbers $-2, \frac{7}{8}, 1001, \sqrt{2}, \dots$</p> <p>$a^{\text{nth}}$</p> <p>integers</p> <p>zero</p> <p>base</p> <p>exponent</p> <p>—</p>	<p>$-7, \frac{7}{8}, 1001, \sqrt{2}, \dots$</p> <p>$a^{\text{nth}}$</p> <p>integers</p> <p>zero</p> <p>base</p> <p>exponent</p> <p>—</p>

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Computing activity

Summarisation:- Today we learn about n th root of real number

Recapulation:-

1. what is the base and exponent in $a^{m/n}$?
2. what are a, m, n numbers?
3. what is $n\sqrt{a}$?

Assignment:-

1. find $64^{\frac{2}{3}}$
2. $(46656)^{\frac{1}{6}}$.

Micro Teaching lesson plan - 16

Preliminary information -

Name of the student Teacher :

Class : D

Rollno : 84

Subject : maths

Unit : Real numbers

Topic : word

Time : 45 minutes

Date :

Name of the Supervisor :

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Previous knowledge assumed:- The pupil will have the knowledge of real number.

Common aids:- Chalk, duster, board, pointer

Specific aids:- Models, chart, cart board.

Teaching method:- Inductive and deductive method.

Teaching learning method:- To know which number are surd and not surd

Knowledge:- The pupil has knowledge about real number

Recognise:- The pupil recognise about rational number.

Understanding:- The pupil explains about his own words.

Compares:- The pupil compares surd and root surd.

Example:- The surd gave example about surd.

Application:- The pupil applies his knowledge and understanding to know the surd.

Analysis:- The pupil analyse about the value of surd.

Skills:- The pupil observed the surd or radical in finding

CA

N
0
b
i
v
a
b
i
0
n

TA

- what are integers?
- If integers are positive we value them?
- with which symbol we denote them?
- In what am what is called a?
- In a^m what is 'm' denote?
- In $a^n b^m$ what is ab denote?
- what is denoted by 'n'?
- If we multiple n only then...
- In n^2 what n called?

PA

1, 0, 2, ...

Positive

\mathbb{Z}

base

exponent

a, b are base

exponents

n^y

multiply factor

BBW

1, 2, 3, ...

$\mathbb{Z} = 1, 2, 3, \dots$

a = base

m = exponent

a, b = base

n = exponent

$n^y = n^x y$

• give example for exponents?

• In x^r what is called?

• what is r called?

• In x^r what is the degree of x ?

a^n is called exponent

Base

a^n is called exponent

Base

exponent

exponent

700

700

Prd
o
f
i
n
V
a
r
i
o
n

Announcement of topic \rightarrow
Students today are
about said on radical
are going to learn

CA	Q/L	TA	PA	BBW	T/M	T/M	EVA
<p>If n is a positive integer greater than 1 and a is a positive rational number but not nth power of any rational number the nth root of a is called a surd of nth order. In greater we say the positive nth root of a is called radical surd.</p>	<p>Recall about real number</p>	<ul style="list-style-type: none"> -1, 0, 1 what type of number? 0, 1, 2, 3, all called type of integers? what is mean by surd find of? $a^{\frac{1}{n}}$ is called $\sqrt[n]{a}$ is called $\sqrt[n]{a}$ is what is 'a'? 	<p>Negative integers</p> <p>positive integers</p> <p>positive integers</p> <p>Pupil explains $\sqrt[n]{a}$ is called radical sign</p> <p>surd of nth order</p> <p>Surd</p>	<p>If n is a positive integer greater than 1 and a is a positive rational number but not nth power of any rational number then $\sqrt[n]{a}$ is called radical sign</p>	<p>C</p> <p>K</p> <p>D</p> <p>Y</p> <p>F</p>	<p>A</p> <p>D</p> <p>U</p> <p>C</p> <p>F</p> <p>I</p> <p>V</p> <p>E</p> <p>M</p> <p>E</p> <p>F</p> <p>H</p> <p>O</p> <p>D</p>	<p>What are real numbers?</p> <p>Explain what is surd on radicals.</p>

Cumulative activity

Summarization - Today we learn about surd on radical number

Recapulation -

1. 'a' qs called by?
2. 'n' qs either how be greater than?
3. surd qs also known as?

Assignment -

1. 3fa find the surd's exponential form

2. 6103 find

3. ~~2~~ 3 find.

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Micro Teaching Lesson Plan - I

Preliminary information:-

Name of the student Teacher :

Class : IX

Roll no : 84.

Subject : Mathematics

Unit : Degree of term

Topic : Polynomials and Factorisation

Time : 45 minutes

Date :

Name of the Supervisor :

Previous knowledge covered:- The pupil has the knowledge of polynomial.

Common aids:- Chalk, duster, selling board.

Specific aids:- chart, models, board.

Teaching methods:- Inductive and deductive

Teaching learning method:- p know about degree of term

Knowledge:- The pupil has the knowledge about constant variables

Recall:- The pupil recalls about polynomial, constant and algebra

Recognize:- The pupil recognize the constant, variables.

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Explain:- The pupil explains about coefficients and degree of polynomial

Example:- The pupil give example on their own

Application:- The pupil applies his knowledge to apply polynomial

Analysis:- The pupil analyse the coefficient and degree of polynomial.

Skill:- The pupil observes how to find the degree of polynomial

CA	TA	PA	BM
M	1. $x+y+z$ what are x, y, z called? 2. $x+y+z$ is written in which expression?	Variable	x, y, z variable
0	3. $3x^2+y+z$ what are $3x$ called?	Algebraic expression	$3, 1$ are called constants
F	4. we can take x, y, z values as?	Constants	$3, 1$ are called constants
9	5. $4x^2+5x-2$ expression is a polynomial or not?	real value	$4x^2+5x-2$
V	6. why is it a polynomial.	A finite polynomial	
a	7. why is it a polynomial.	Variables have only non-negative integer power	
f	8. Example of polynomial.	Arbitrary constant	Zero, $a, b, c \neq 0$
i	9. a, b, c should not be equal to	Zero	
n			



V a r i a b l e

<ul style="list-style-type: none"> $x^2 + 2x + 3$, x^2 called On the expression $x^2 + 2x + 3$, x^2, $2x$, 3 are called. Here which symbol is used? $3xy - x^2 + 2x$, $x^3 - x^2 + 4x + 3$ are called $x^3 - x^2 + 4x + 3$ how many variables are there? $x^3 - x^2 + 4x + 3$ are called write two polynomial with variables. Do you know how to find degree of the polynomial? 	<p>$x >$ variable terms</p> <p>positive(+)</p> <p>Algebraic expression</p> <p>polynomial</p> <p>$3xy + 2x^2 + 3$</p>	<p>$x =$ variable (125)</p> <p>$x^2, 2x, 3 =$ terms.</p> <p>none variable</p> <p>polynomial</p> <p>$3xy^2 + 2x^2 + 3$</p>
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Micro Teaching Lesson Plan-18

preliminary information:-

Name of the student Teacher:

Name of the school:

Roll no : 84

Subject : Mathematics

Class : IX

Unit : polynomials and factorisation

Topic : zero of a polynomial

Time : 30-45 min

Rule :

Name of the Supervisor :

Cumulative activity

Summarisation! Student today we learn about "Degree of a term"

- Recapulation!
- ① what is a polynomial.
 - ② Define the degree of a term!
 - ③ what is the co-efficient of $3x^2$

Assignment! ① find the Terms, the co-efficient and degree of polynomials

- (a) $3x^5 + 7x + 5$
- (b) $x^4 + 2x + 3$
- (c) $2x^3 + 3x + 2$

Prerious Knowledge assumed: The pupil has the knowledge of polynomial

Teaching learning method:-

Common aids:- chalk piece, duster, roller board, pointer

Specific aids:- charts, models, chart board

Teaching method:- Inductive and deductive method.

Reference book:- (a) For content: AP Govt VIII, IX mathematics text books

(b) For methodology: Method of Teaching mathematics Need based

Teaching learning method:- To learn about zero of the polynomial

objects and specifications:

Knowledge:- The pupil has the knowledge about degree of the polynomial and zeros of a polynomial

Recall:- The pupil recalls about variables, constants

Recognise:- The pupil recognises the polynomials.

Understand:- The pupil understands about the zeros of polynomial

Explains:- The pupil explains about the polynomials in the zero value.

Substitutes:- The pupil substitutes the zero value in the polynomial and find the value

Application:- The pupil applies his knowledge and understands to zeros of a polynomial

Analysis:- The pupil analysis the zero value in the polynomial

Interest:- The pupil shows interest in the learning mathematics,

Skill: observation skill:- The observes the process of doing the zeros of a polynomial

CA

TA

PA

BBW

M
O
t
q
v
a
t
o
n

- 1) in the algebraic expression $x^3 + 3y + 2$ what are x, y, z ?
- 2) what is the coefficient of x^3 ?
- 3) what is the degree of $x^3 + 3y + 2$?
- 4) $3, 2$ are called
- 5) how many variables are there?
- 6) a, b, c, t, c ; a, b, c are called.
- 7) In the algebraic expression $x^2 + 1$, what is x ?
- 8) what is the degree?
- 9) In the algebraic expression $2x^3 + 3x^2 + 3x + 5$ how many terms are there?

variables.

x, y - variable

1.

1

constant

3.

2.

constant

arbitrary constant

variables

$x, y, -2$

a, b, c - arbitrary constant

2

variables

4

4

M o f i v a b i o h

10) what is the first term?

$2x^3$

$2x^3$

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11) what is the co-efficient of

$$2x^3 + 2x^2 + 3x + 5$$

2, 2, 3, 5

2, 2, 3, 5

12) what is the degree of a polynomial.

3.

3

13) $x^2 + 5x + 4$ what are co-efficients?

1, 5, 4.

1, 5, 4

14) what is the value of $x=0$ in the $x^2 + 5x + 4$?

—

—

CA	OLS	TA	PA	BBW	TLM	TM	Evaluation
<p>zeros of a polynomial</p> <p>considers the polynomial $P(x)$</p> <p>$= x^4 + 5x + 4$</p> <p>start is the value of $P(x)$</p> <p>for $x=1$ replace x by 1 every where in $P(x)$</p> <p>$P(1) = (1)^4 + 5(1) + 4$</p> <p>$= 1 + 5 + 4 = 10$</p> <p>value of $P(x)$ at $x=1$ is 10</p> <p>find $P(x)$ for $x=0$</p> <p>$P(0) = (0)^4 + 5(0) + 4$</p> <p>$= 0 + 0 + 4$</p> <p>$= 4$</p>	<p>recalls about polynomial</p> <p>1) explain what is a polynomial?</p> <p>2) give examples for polynomial?</p> <p>3) what is the co-efficient for x^2?</p> <p>4) what is the co-efficient for x?</p> <p>5) what is the co-efficient for x^0?</p> <p>6) what is the degree?</p> <p>7) what is the value of $P(x)$?</p>	<p>explain</p> <p>1</p> <p>5</p> <p>4</p> <p>2</p> <p>10</p>	<p><u>zero of polynomial</u></p> <p>(consider the polynomial $P(x) = x^4 + 5x + 4$)</p> <p>what is the value of $P(x)$ for $x=1$</p> <p>Replace x by 1 every where in $P(x)$</p> <p>$P(1) = (1)^4 + 5(1) + 4$</p> <p>$= 1 + 5 + 4 = 10$</p> <p>The value of $P(x)$ at $x=1$ is 10</p> <p>find $P(x)$ for $x=0$</p> <p>$P(0) = (0)^4 + 5(0) + 4$</p> <p>$= 0 + 0 + 4$</p> <p>$= 4$</p>	<p>q</p> <p>q</p> <p>q</p> <p>y</p> <p>c</p> <p>t</p> <p>i</p> <p>r</p> <p>e</p>	<p>C</p> <p>h</p> <p>a</p> <p>r</p> <p>t</p> <p>s</p>	<p>Degree polynomial</p> <p>what is the value of $P(x)$ for the polynomial $x^4 + 5x + 4$</p>	

cumulative activity

Summarisation - student today we learn about zeros of a polynomial.

Recapulation :-

- ① Define polynomials?
- ② what is the degree of $x^2 + 5x + 4$.
- ③ what is the zeros of a polynomial?

Assignment :- find the value of each of the following polynomials for the

indicated values of variables

- ① $P(x) = 4x^2 - 3x + 7$ at $x=0$
- ② $S(x) = x^2 - 1$ at $x=0$
- ③ $P(x) = 3x^2 + 5x - 7$ at $x=0$

Micro teaching lesson plan-19

Preliminary Information:-

Name of the student Teacher;

Name of the school ;

Roll no : 84

Subject : English / mathematics

Class : X

Unit : polynomials and factorization.

Topic : Dividing polynomials.

Time : 45 minutes

Date:

Name of the Supervisor :

Previous knowledge assumed:- The pupil has the knowledge about polynomials

Teaching Learning material:-

Common aids:- Chalk piece, duster, Roller board

Specific aids:- charts, models, chart board.

Teaching method:- Inductive and deductive method.

Reference book:- (a) For content: AP Govd VIII mathematics text book,

(b) For methodology: Method of teaching mathematics - Verharnad

Teaching learning method:-

Objectives and specification

Knowledge- The pupil will have the knowledge of dividing a polynomial

Recall:- The pupil recalls about polynomial, degree coefficient any many more

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Recognise :- The pupil recognise the divided, divisor, quotient and remainder.

Understanding :- The pupil understand the process of dividing a polynomial.

Explains :- The pupil explains how to divide the polynomial

Compares :- The pupil compares divided = (divisor \times quotient) + remainder.

Distinguishes :- The pupil distinguishes the dividend and divisor

Application :- The pupil applies her knowledge and understand the process of dividing a polynomial

Analysis :- The pupil analysis the two polynomials to divide learning mathematics

Skill :- observation skill The pupil observes the dividing the polynomial and gets the skill to do it

CA

TA

PA

BBW

1) Name of some integers?

0, -1, -2, 1, 2, 3, ...

1, 2, 3, 4, ...

2) Name of the positive integers?

1, 2, 3, 4, ...

3) Define polynomials?

As algebraic expression in which the variable have non-negative integer power $3x^2 + 1$

4) Give example for polynomials?

5) If we add $3x+1$, $2x+1$ then what is the value?

$3x + 1 + 2x + 1 = 5x + 2$

6) If we subtract $3x+1$, $2x+1$ what is the value?

$3x + 1 - 2x - 1 = x$

$3x + 1 - 2x + 1 = x + 2$

7) Can we multiply polynomials?

Yes.

$3x + 1 \times 2x + 1 = 6x^2 + 5x + 1$

8) If $3x+1$ is multiplied with $2x+1$ what is the value?

$6x^2 + 5x + 1$

$= 3x$

the value?

y

9) How many terms are there in $3x^2 + 5x + 1$?

3 terms

$3x^2 + 5x + 1 = 3 \text{ terms}$

10) What is the coefficient of x^2 ?

3

$3x^2 + 5x + 1$

11) What is the coefficient of x ?

5

$3x^2 + 5x + 1$

12) what is the coefficient of x?

1

1

13) what is the degree of the polynomial

$$6x^2 + 5x + 19$$

2

2

14) why?

Because it is greater than the other term

15) Can you divide $6x^2 + 5x + 1$ by $(3x + 1)$

—

—

CA	o/s
The quotient is $2x^3 - 2x^2 - 2x + 5$ of the remainder $x^2 - 6$ The zero of the polynomial $(x-1)$ is put $x=1$, in find $P(x) = 2x^4 - 4x^3 - 3x - 1$ $= 2(1)^4 - 4(1)^3 - 3(1) - 1$ $= 2 - 4 - 3 - 1$ $= -6$ \therefore the remainder Same as the value of the polynomial. $P(x) / (x-1)$	o/s pupil ready divided division Quotient Remainder

TA	o/s
7) Explain how we divided the polynomial	8) what we should form making polynomial equal
9) what is the value of dividing?	10) Remainder -6 is a positive or negative integer?
11) compare divided (Divisor \times Quotient) + Remainder	

PA	BBW
pupil explains	The given $2x^3 - 2x^2 - 2x + 5$ A the remainder 9 is 6
subtraction	the zero of the polynomial $(x-1)$ is put $x=1$ in find $P(x) = 2x^4 - 4x^3 - 3x - 1$ $= 2(1)^4 - 4(1)^3 - 3(1) - 1$ $= 2 - 4 - 3 - 1 = -6$
Quotient $2x^3 + x^2 - 2x + 5$ Remainder -1	\therefore the remainder is same as the value of the polynomial find out at $x=1$

TM	TM	FWA
D e d u c t i v e	M o d e l	S
m e t h o d.		

CA o/s TA PA BBW TM TM FWA

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CA	OA	JA	PA	BBW	TLM	JM	EVA
Divide the polynomial $2x^2 - 4x^3 - 3x + 1$ by $(x-1)$ and verify the remainder with zero of the divisor $f(x) = 2x^2 - 4x^3 - 3x + 1$ How many does $2x^2$ go of x $\frac{2x^2}{x} = 2x$ $\begin{array}{r} 2x^2 - 2x^2 - 4x^3 - 3x + 1 \\ \underline{2x^2 - 2x^2} \\ -4x^3 - 3x + 1 \\ \underline{-4x^3 + 4x^2} \\ 4x^2 - 3x + 1 \\ \underline{4x^2 - 4x} \\ x + 1 \\ \underline{x + 1} \\ 0 \end{array}$	$2/x$ Pupil recall integer	1) $2x^2 - 4x^3 - 3x + 1$ what? 2) In this how many terms are there? 3) In the polynomials $(x-1)$ how many terms are there 4) observe how we divide the polynomial 5) what are the Co-efficient of x^2, x^3, x^4 6) what is the degree of polynomial	polynomial 4. 2. pupils observe $x^1 \rightarrow 2$ $x^3 \rightarrow -4$ $x \rightarrow 3$	Divide the polynomial $2x^2 - 4x^3 - 3x + 1$ by $(x-1)$ Verify the remainder with law of union union $1x^2 = 2x^2 - 4x^3 - 3x + 1$ How many times $2/125$ $\frac{2x^2}{x} = 2x$ $\begin{array}{r} (x-1) \frac{2x^2 - 2x^2 - 4x^3 - 3x + 1}{2x^2 - 4x^3 - 3x + 1} \\ \underline{-2x^3 - 3x + 1} \\ -2x^3 + 2x^2 \\ \underline{-2x^3 + 2x^2} \\ -3x + 1 \\ \underline{-3x + 3} \\ -2 \end{array}$	2A M d u c t i v e	C h a r t e r	In the polynomial $2x^2 - 4x^3 - 3x + 1$ how many terms are there? Explain how the polynomial is

$$\begin{array}{r} -5x - 1 \\ \underline{+ 5x + 3} \\ 2 \end{array}$$

Curative activity

Summarisation!

Today we learnt how to give the polynomial of verify the remainder with the of the divisor

Recognition!

- ① what is the degree of $2x^3 - 2x^m - 2x + 5$?
- ② Divided = ?
- ③ Define polynomial?

Assignment!

- ① Divide $3x^m + x - 1$ by $x+1$
- ② $x^3 - 2x^m + 5x + 4$ polynomial divide by $x-2$

Micro Teaching lesson plan - 20

Preliminary information!

Name of the student Teacher:

Name of the school:

Roll no: 84

Subject: Mathematics

Class: IX

Unit: polynomial and factorisation.

Topic: Factoring a polynomial

Time: 30-45 min

Date:

Name of the Supervisor:

CA

TA

→ Define real number?

→ give examples for real number?

→ define polynomial?

→ give examples for polynomial?

→ what is the coefficient of x^n ?

→ what is the degree of $3x^3 - 2x^2 + 7$

→ 720 numbers 25 & 3 divide 15 by

3 what is the quotient

→ what is the remainder

PA

irrational number

A rational number

$3/2, -7, \pi, 0.06, \dots$

an algebraic expression in which the variables have only non negative integral power

$x^2 + 9y + 7$

1

3

8

1

BBW

$-3/2, -1, \pi, 0.06, \dots$

$x^2 + 9y + 7$

1

3

$25/3 = 8$

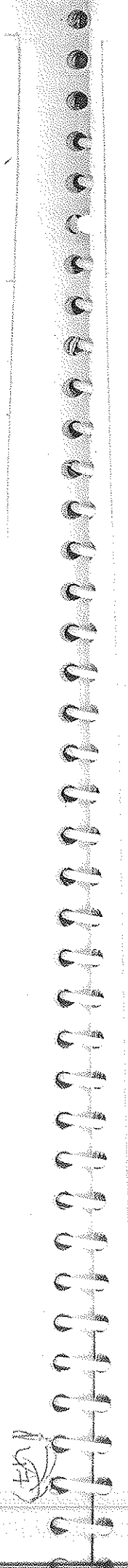
1

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dividend = (divisor \times quotient) + remainder	Co-division quotient + remainder	
0	0	<p>→ dividend =</p> <p>→ divide 20 by 5, remainder is?</p>
20	20	<p>→ 5 is a factor of</p> <p>→ do you know how to divide 20</p> <p>polynomial exactly?</p>
—	—	

M 0 6 9 ✓ 9 7 0 W

CA	D/S	TA	PA	BBW	GLM	TM	BA
<p>Find the value of x if $2x-3x$ is a factor of $2x^3 - 9x^2 + x + 9$</p> <p>\therefore The zero of $(2x-3)$ is $3/2$</p> <p>Factors of $P(x)$ are $2x^3 - 9x^2 + x + 9$</p> <p>Then $P(3/2) = 0$</p> <p>$P(x) = 2x^3 - 9x^2 + x + 9$</p> <p>$\Rightarrow P(3/2) = 2(3/2)^3 - 9(3/2)^2 + 3/2 + 9$</p> <p>$= 9(3/2)^2 + 3/2 + 9 = 0$</p>	<p>$2x^3 - 9x^2 + x + 9$ is a polynomial</p>	<p>$\rightarrow 2x-3$ is a factor</p> <p>\rightarrow what is the coefficient of x^3, x^2, x^1?</p> <p>\rightarrow what value we have to find out?</p> <p>\rightarrow what is the degree of the polynomial?</p> <p>\rightarrow if $(2x-3)$ is a factor of $P(x)$ then $2x^3 - 9x^2 + x + 9 = 0$</p> <p>\rightarrow substitute $x = 3/2$</p>	<p>$2x^3 - 9x^2 + x + 9$</p> <p>$x^3 \rightarrow 2$</p> <p>$x^2 \rightarrow -9$</p> <p>$x \rightarrow 1$</p> <p>$x=1$</p> <p>K</p> <p>3</p> <p>$P(3/2) = 0$</p> <p>(x)</p>	<p>Find the value of K if $2x-3$ is a factor of $2x^3 - 9x^2 + x + K$</p> <p>$2x^3 - 9x^2 + x + K$ is a factor of $P(x)$</p> <p>$\therefore (2x-3) \mid 2x^3 - 9x^2 + x + K$</p> <p>$x = 3/2$</p> <p>$\therefore$ The zero of $(2x-3)$ is $3/2$</p> <p>if $(2x-3)$ is a factor of $P(x)$ then $P(3/2) = 0$</p> <p>$P(x) = 2x^3 - 9x^2 + x + K$</p> <p>$\Rightarrow P(3/2) = 2(3/2)^3 - 9(3/2)^2 + 3/2 + K = 0$</p> <p>$9(3/2)^2 + 3/2 + K = 0$</p>	<p>2</p> <p>9</p> <p>1</p> <p>K</p> <p>3</p> <p>2</p> <p>9</p> <p>1</p> <p>K</p>	<p>$3/2$</p> <p>3</p> <p>2</p> <p>9</p> <p>1</p> <p>K</p>	<p>Define polynomial</p> <p>What is the zero of $(2x-3)$?</p>



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$= 2\left(\frac{27}{8}\right) - 9\left(\frac{3}{2}\right) + \frac{3}{2}$ $\frac{3}{2} + k = 0$ $= \left\{ \frac{27}{4} - \frac{81}{4} + \frac{3}{2} \right\} \times 4$ $= 0$ $\times 4$	<p>pupil compared the factor of $p(x)$</p>	<p>→ what is the equation after mul- tiplying both sides of A?</p> <p>→ what is the value of k?</p>	$27 + 6 + 4k = 0$	$= 2\left(\frac{27}{8}\right) - 9\left(\frac{3}{2}\right) + \frac{3}{2}$ $+ k = 0$ $\left\{ \frac{27}{4} - \frac{81}{4} + \frac{3}{2} + k \right\} \times 4$ $27 - 81 + 6 + 4k = 0$ $-48 + 4k = 0$ $4k = 48$ $k = 12$
$= 2\left(\frac{27}{8}\right) - 9\left(\frac{3}{2}\right) + \frac{3}{2}$ $+ k = 0$ $\left\{ \frac{27}{4} - \frac{81}{4} + \frac{3}{2} + k \right\} \times 4$ $27 - 81 + 6 + 4k = 0$ $-48 + 4k = 0$ $4k = 48$ $k = 12$	<p>Method</p>	<p>Model</p>	<p>what is the value of k?</p>	

Previous knowledge assumed:- The pupil has the knowledge of dividing a polynomial

Teaching learning material:-

Common aids:- Chalk piece, duster, Rolling board, pointer

Specific aids:- Chart, model, chart board.

Teaching method:- Inductive and deductive method.

Reference books:-
 ① For content: AP Govt WIN, R class mathematics text books
 ② For methodology: Methods of teaching mathematics - Verkranal

Teaching learning method:-

Objectives and specification

Knowledge:- The pupil has the knowledge of dividing a polynomial with another polynomial

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Recognise:- the pupil recognise the dividend, divisor, quotient and remainder -

understanding:- The pupil understands the factoring a polynomial

example:- The pupil gives examples for the polynomial.

explains:- The pupil explains the factoring a polynomial.

Compares:- The pupil compares the polynomial factors with remainder

Application:- The pupil applies his knowledge & understand the process of factoring a polynomial

Analysis:- The pupil analysis the factors of a given polynomial.

Interest:- The pupil shows interest in learning mathematics after factoring a polynomial

Skill-observation skill:- The pupil observes the process of remainder and work on it

Cumulative activity

Summation! Student: today we learnt about factoring a polynomial.

Recapulation:-

- (a) $q(x)$ is a factor of $p(x)$ if remainder is equal to 0
- (b) Define polynomial?
- (c) What is the zero of $(x-3)$?

Assignment:-

- (1) Examine whether $x+2$ is a factor of $n^3 + 2x^2 + 3n + 6$.
- (2) Show that $(x-1)$ is a factor of $x^{20} - 1$ and also of x^2 .
- (3) Factorise $3x^2 + 2x - 4$