
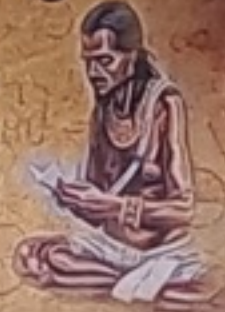





D OF EDUCATION IS CHARAC

Sri Sathya Sai Institute of Higher Learning
(Deemed to be University)

NATIONAL MATHEMATICS DAY
Celebrating Ancient Indian Mathematics

December 22, 2023
by
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE (DMACS)



 **GPS Map Camera**



Puttaparthi, Andhra Pradesh, India
Vidyagiri, 5R77+32M Prasanthi Nilayam, Puttaparthi, Andhra Pradesh 515134,
India
Lat 14.162067°
Long 77.813026°
22/12/23 08:27 AM GMT +05:30



EXPOSITION AND CONSTRUCTION DETAILS OF YAGNYAM

- యజ్ఞం అంటే అగ్ని ప్రకృతికి వ్యక్తిగా వేరే అంటారు.
- Exalt of god from above tree (Jata)
- అగ్ని అంటే వ్యక్తి ; వ్యక్తి అంటే ...
- Part of a god of a nation from ...
- అగ్ని అంటే అగ్ని ప్రకృతికి వ్యక్తిగా వేరే అంటారు.
- Five kinds of mud make
- అగ్ని అంటే అగ్ని ప్రకృతికి వ్యక్తిగా వేరే అంటారు.
- The stone pieces of construction is a picture of a ...



YAGNYAM


CHITRE	YAGNYAM	YAGNYAM
...

Chiti: Fire

- చితి: Platform of ...
- యజ్ఞం అంటే అగ్ని ప్రకృతికి వ్యక్తిగా వేరే అంటారు.
- యి (సంస్కారం) - assembling
- Five kinds of mud make
- యి (సంస్కారం) - assembling
- Five kinds of mud make
- యి (సంస్కారం) - assembling


...



 **GPS Map Camera**

Puttaparthi, Andhra Pradesh, India
 3/113, Puttaparthi Main Rd, Puttaparthi, Andhra Pradesh 515134, India
 Lat 14.162323°
 Long 77.812838°
 22/12/23 11:06 AM GMT +05:30



 **GPS Map Camera**

Puttaparthi, Andhra Pradesh, India

Vidyagiri, 5R77+32M Prasanthi Nilayam, Puttaparthi, Andhra Pradesh 515134, India

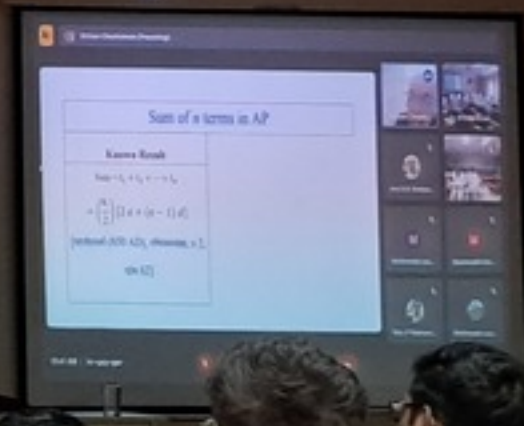
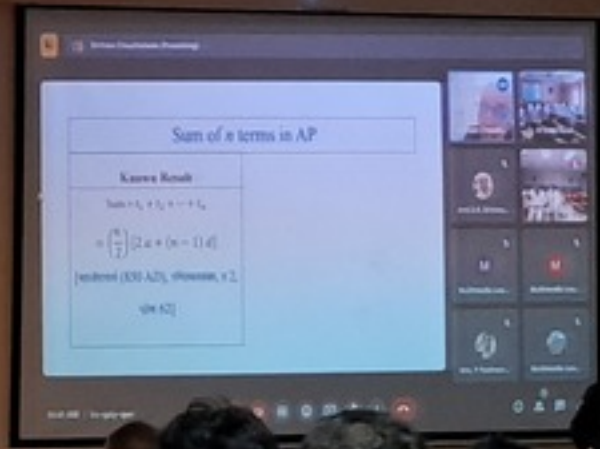
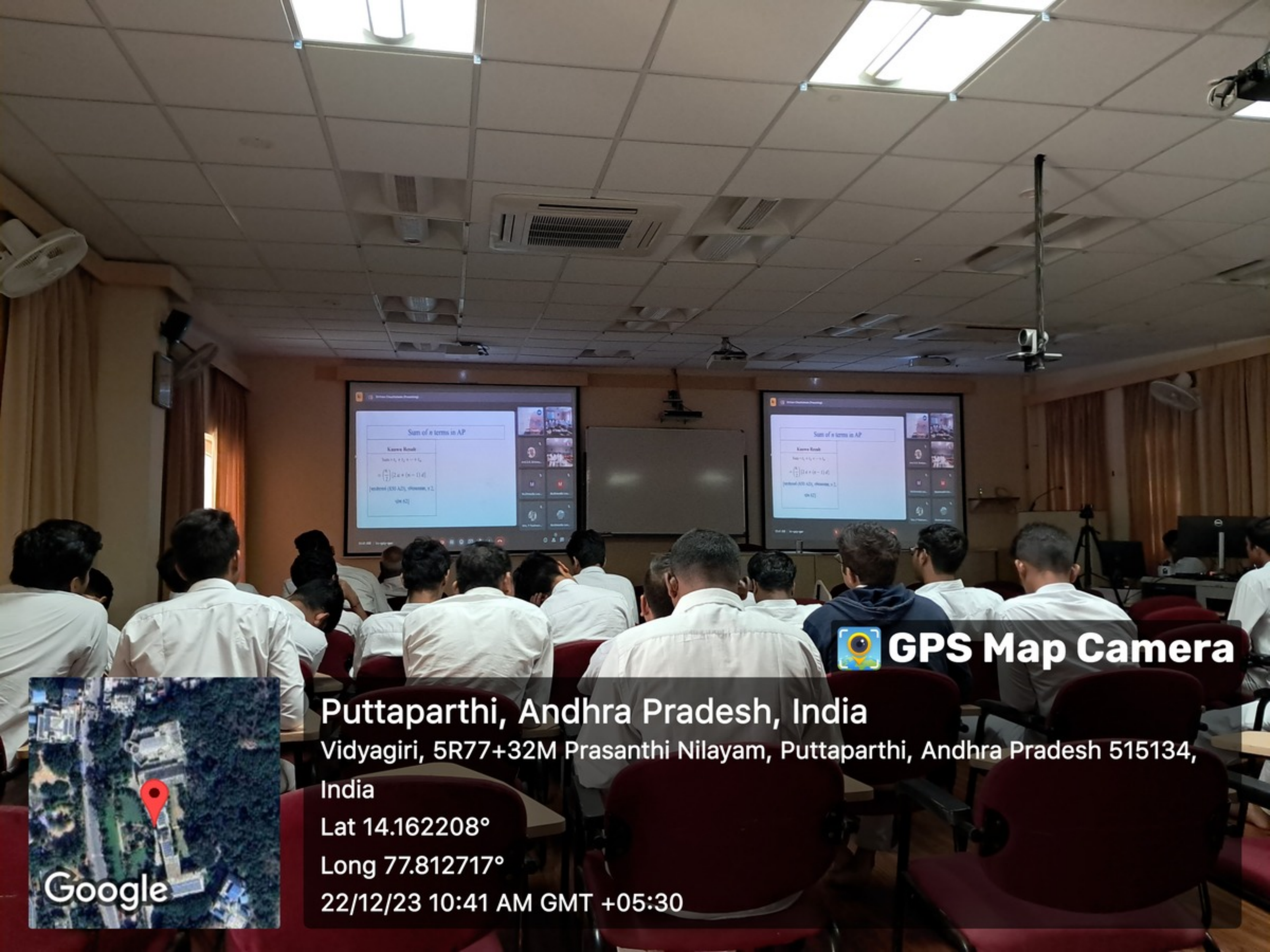
Lat 14.162196°

Long 77.812874°

22/12/23 04:53 PM GMT +05:30



Google



GPS Map Camera

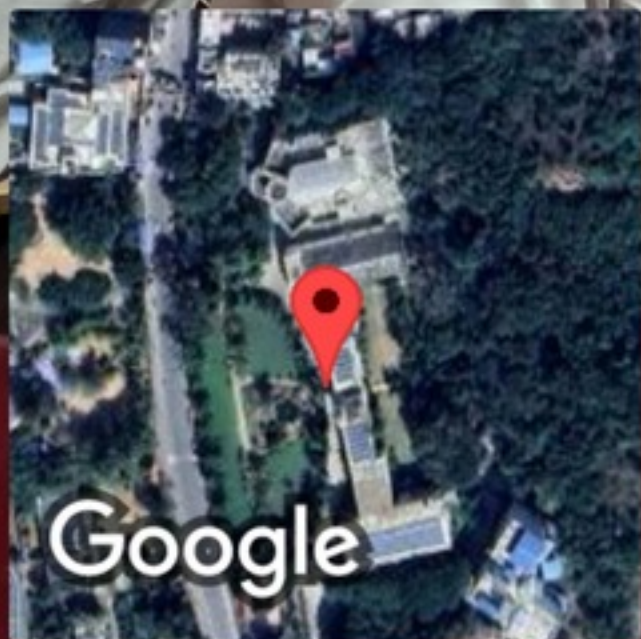
Puttaparthi, Andhra Pradesh, India

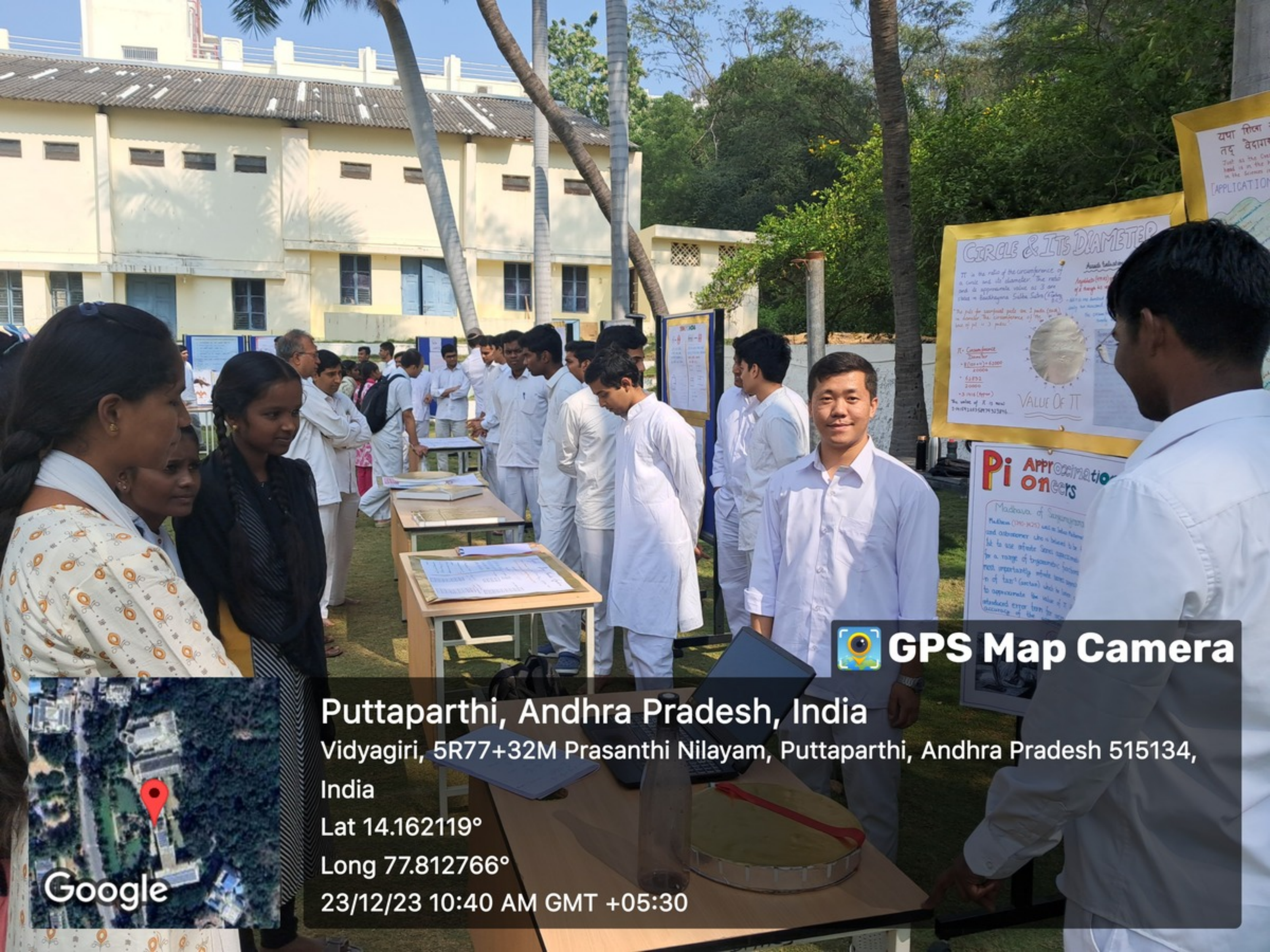
Vidyagiri, 5R77+32M Prasanthi Nilayam, Puttaparthi, Andhra Pradesh 515134,
India

Lat 14.162208°

Long 77.812717°

22/12/23 10:41 AM GMT +05:30






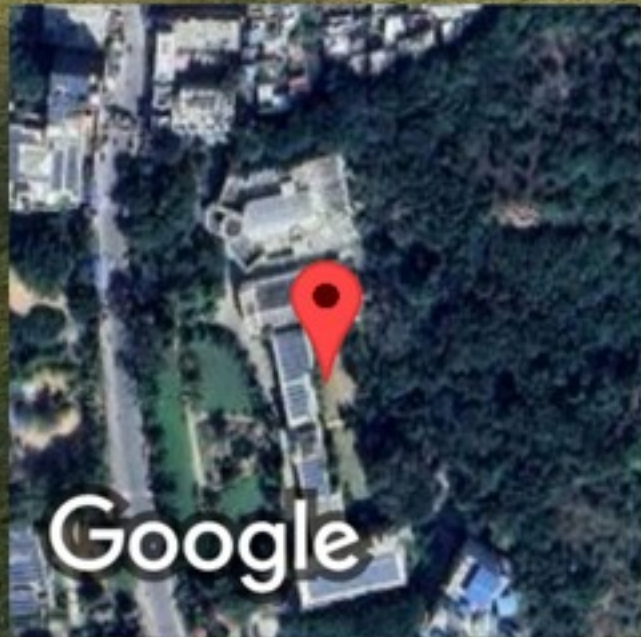
 **GPS Map Camera**

Puttaparthi, Andhra Pradesh, India
Vidyagiri, 5R77+32M Prasanthi Nilayam, Puttaparthi, Andhra Pradesh 515134,
India
Lat 14.162119°
Long 77.812766°
23/12/23 10:40 AM GMT +05:30





 **GPS Map Camera**



Puttaparthi, Andhra Pradesh, India
3/113, Puttaparthi Main Rd, Puttaparthi, Andhra Pradesh 515134, India
Lat 14.162351°
Long 77.812883°
23/12/23 10:40 AM GMT +05:30




 **GPS Map Camera**



Puttaparthi, Andhra Pradesh, India
Vidyagiri, 5R77+32M Prasanthi Nilayam, Puttaparthi, Andhra Pradesh 515134,
India
Lat 14.162237°
Long 77.812943°
23/12/23 10:41 AM GMT +05:30




 **GPS Map Camera**



Puttaparthi, Andhra Pradesh, India
3/113, Puttaparthi Main Rd, Puttaparthi, Andhra Pradesh 515134, India
Lat 14.162258°
Long 77.812981°
23/12/23 10:47 AM GMT +05:30



 **GPS Map Camera**



Puttaparthi, Andhra Pradesh, India
3/113, Puttaparthi Main Rd, Puttaparthi, Andhra Pradesh 515134, India
Lat 14.162258°
Long 77.812981°
23/12/23 10:47 AM GMT +05:30



GPS Map Camera

Puttaparthi, Andhra Pradesh, India

3/113, Puttaparthi Main Rd, Puttaparthi, Andhra Pradesh 515134, India

Lat 14.162264°

Long 77.81298°

23/12/23 10:48 AM GMT +05:30



Google



Hashing: Katakyaadi

- 1 कट प प
- 2 बठ फ र
- 3 गड ब ल
- 4 पठ भ व
- 5 उण म श
- 6 घट - प
- 7 ङट - स
- 8 ञट - ह
- 9 ञट - ङ
- 0 ञट - ङ





Hashing: Katapsyaadi

1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70
71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90
91 92 93 94 95 96 97 98 99 100

PWV

Definition - If two positive integers are each one of the squares, then their product is a sum of two squares in two different ways.

Example - $12 \times 18 = 216$

$216 = 6^2 + 12^2 = 12^2 + 6^2$

$216 = 9^2 + 15^2 = 15^2 + 9^2$

SUNDAY FUZZLE

1. Find the sum of the first 100 natural numbers.

2. Find the sum of the first 100 even numbers.

3. Find the sum of the first 100 odd numbers.

4. Find the sum of the first 100 squares.

5. Find the sum of the first 100 cubes.

Brahmagupta's Identity

Brahmagupta's Identity

$(a^2 + b^2)(c^2 + d^2) = (ac - bd)^2 + (ad + bc)^2$

Brahmagupta Pell Equation

$x^2 - Dy^2 = 1$

Chakravala Method

Chakravala Method: The Chakravala method is an iterative algorithm for finding the fundamental solution of the Pell equation $x^2 - Dy^2 = 1$.

Step 1: Find the continued fraction expansion of \sqrt{D} .

Step 2: Find the convergents of the continued fraction.

Step 3: Find the convergent $\frac{p}{q}$ such that $p^2 - Dq^2 = \pm 1$.



Pingala's Binary Brilliance: Overlooked in Chandah-shastra

Laghu: 1
Guru: 0

एक तत् सविमु वर्णम् ।
द्वयं विसं योनः प्रोद्यम् ।

Binary
The
Language

Equation with Product Terms

The product This is the value of one unknown
The other is obtained by adding the desired number and the coefficient of the other unknown

ANSWERS

ANITHAM

ANITHAM





Area of a Triangle
 $R^2 + r^2 = d^2$ (Original Problem!!!)
 $(R+r)^2 = d^2$
Expanding
 $R^2 + r^2 + 2Rr = d^2$
Substituting
 $d^2 = R^2 + r^2$
 $R^2 + r^2 + 2Rr = R^2 + r^2$
 $2Rr = 0$
 $R = 0$ or $r = 0$
Not possible
Hence, no solution exists.

Poster with text and diagrams, including a diagram of a triangle and a diagram of a circle.

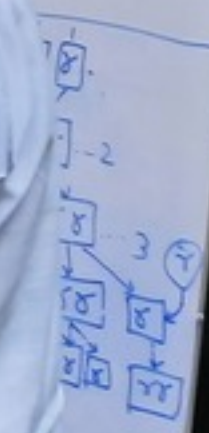
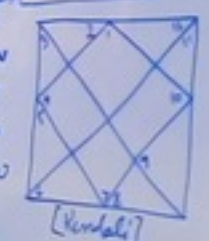


AUM SRI SHI KHM

Poles of $x^2 - 0x + 1$
(Solved Problem!!!)

Eg for resolution of Saturn

$$\frac{46564y - 157791370x}{24}$$




Handwritten notes on a table, including a list of numbers and some text.



HYPOTENUSE BEHOLD THEOREM

Shikharacharya (Theorem 2)
 Shikharacharya was an Indian mathematician and astronomer. He was known for his ability to bring in Indian mathematics to the world. He was the first Indian mathematician to present the Pythagorean theorem in his book 'Lilavati'. He is also known for his work on the 'Brahmagupta's formula' and 'Brahmagupta's theorem'.



History of Hypotenuse

Notes of the theorem:
 The theorem states that the area of the square on the hypotenuse is equal to the sum of the areas of the squares on the other two sides.

Pythagorean Theorem:
 $a^2 + b^2 = c^2$

Pythagorean Triples:
 A set of three positive integers (a, b, c) such that $a^2 + b^2 = c^2$.

Pythagorean Proof:
 The proof involves constructing a large square with side length $a + b$. Inside this square, a smaller square with side length c is inscribed. The area of the large square is $(a + b)^2$. The area of the small square is c^2 . The remaining area is divided into four right-angled triangles, each with legs a and b . The total area of these four triangles is $4 \times \frac{1}{2}ab = 2ab$. Therefore, $(a + b)^2 = c^2 + 2ab$, which simplifies to $a^2 + b^2 = c^2$.

A man in a white shirt and grey trousers is pointing at the board with his right hand. He has a lanyard with an ID card around his neck and a watch on his left wrist.

A group of five young men are gathered around the board, looking at the content. They are dressed in light-colored shirts. One man in the foreground is wearing a grey backpack. They appear to be students or participants in an educational activity.

A table in the foreground holds several colorful geometric shapes used for the theorem's proof: two pink right-angled triangles, one yellow square, and two blue right-angled triangles. A white marker lies on the table.





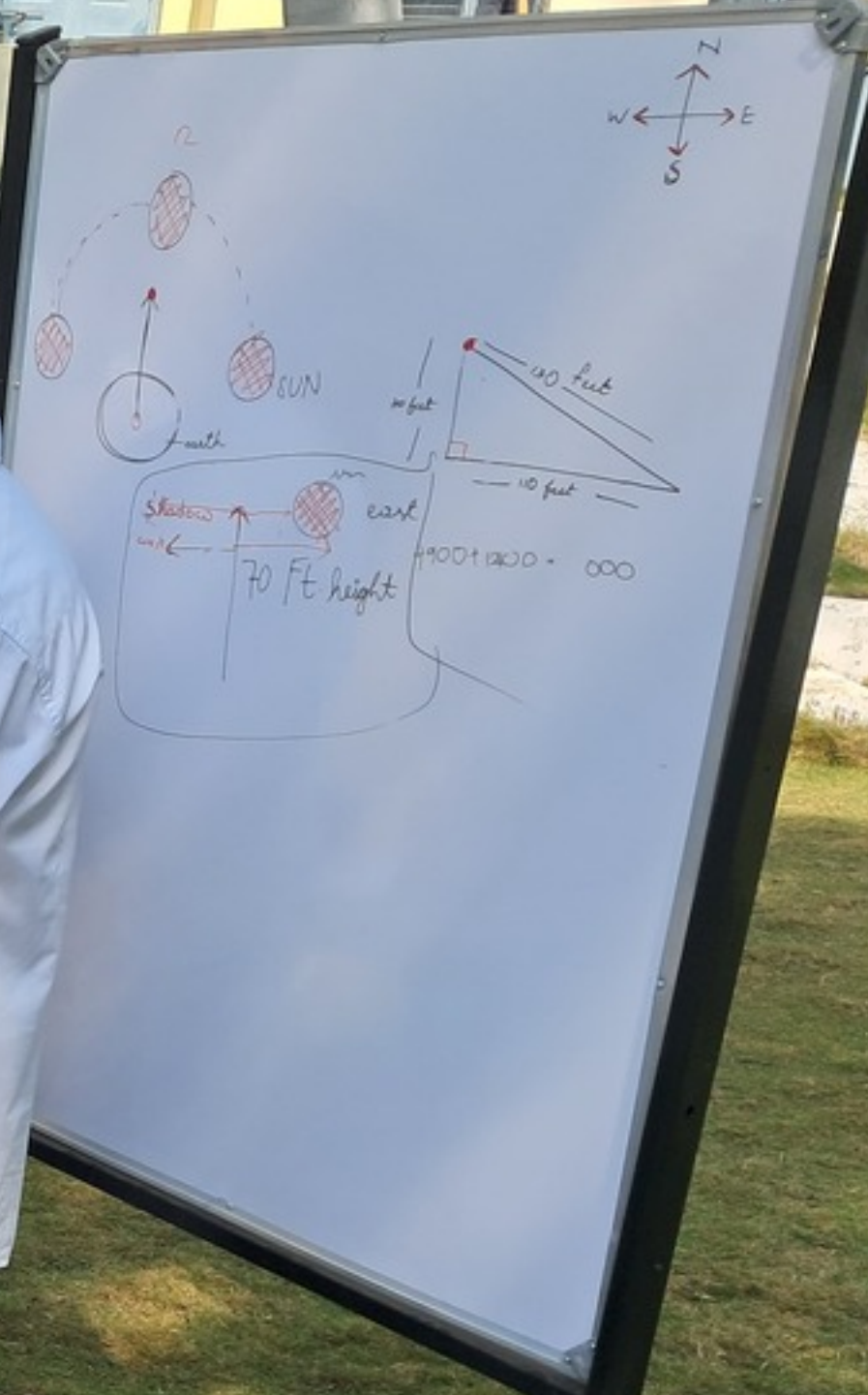
PROPORTION AND CONSTRUCTION (PART 1) ORAL QUESTIONS

- 1. "प्रमाणित कर कि $\frac{a}{b} = \frac{c}{d}$ यदि $\frac{a}{c} = \frac{b}{d}$ है।"
- 2. "प्रमाणित कर कि यदि $\frac{a}{b} = \frac{c}{d}$ है तो $\frac{a+c}{b+d} = \frac{a}{b}$ है।"
- 3. "प्रमाणित कर कि यदि $\frac{a}{b} = \frac{c}{d}$ है तो $\frac{a}{a+b} = \frac{c}{c+d}$ है।"
- 4. "प्रमाणित कर कि यदि $\frac{a}{b} = \frac{c}{d}$ है तो $\frac{a}{c} = \frac{b}{d}$ है।"
- 5. "प्रमाणित कर कि यदि $\frac{a}{b} = \frac{c}{d}$ है तो $\frac{a}{a+b} = \frac{c}{c+d}$ है।"

PROBLEMS

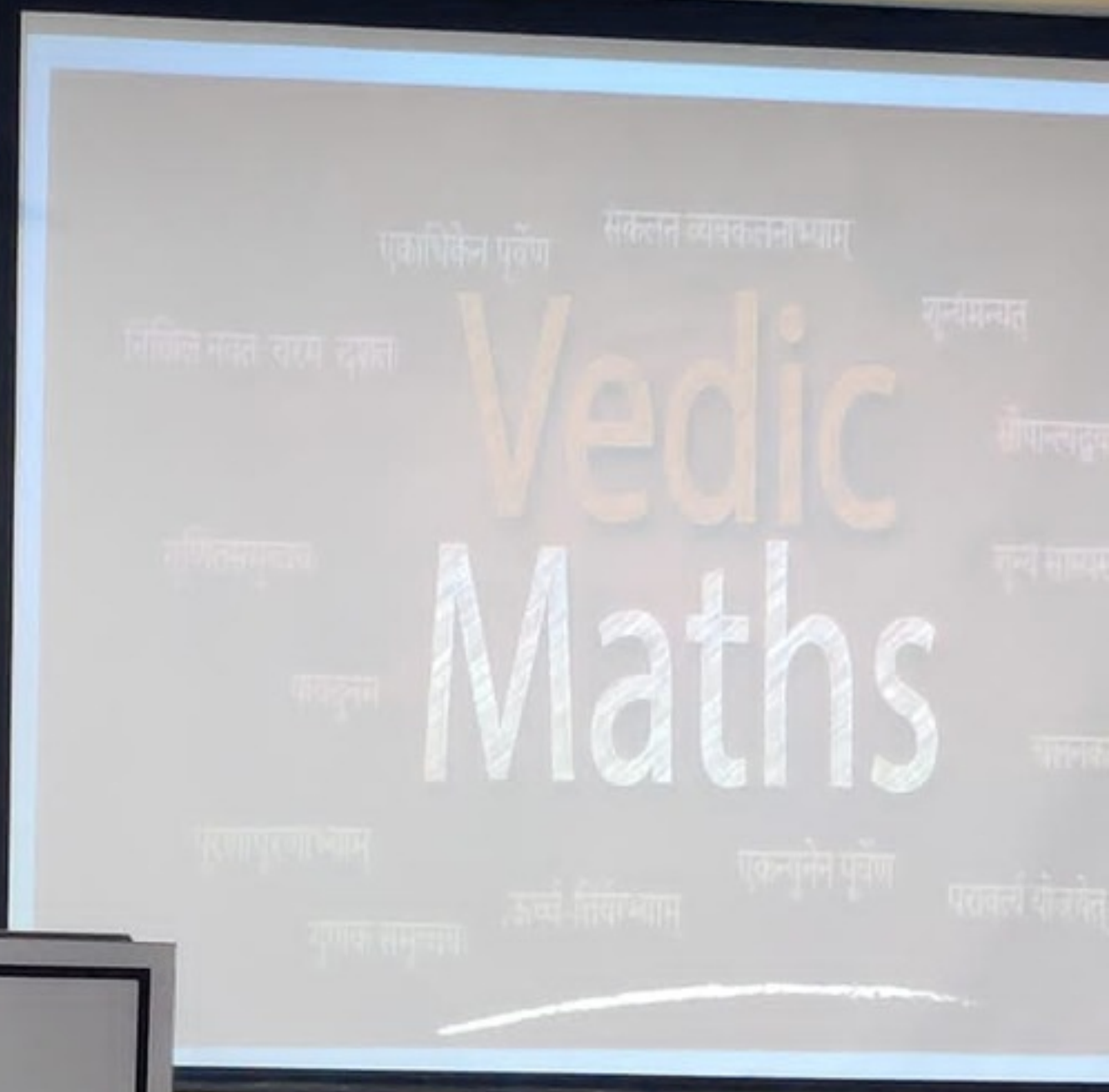
1. The ratio of the length of a rectangle to its width is $\frac{5}{3}$. If the perimeter is 128 m, find the length and width.

2. The ratio of the length of a rectangle to its width is $\frac{5}{3}$. If the area is 1200 m², find the length and width.



Sri Sai Ram
Mathematics and Computer Science
MATHEMATICS WEEK

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING
ANANTHAPUR CAMPUS
Department of Mathematics and Computer Science
Presents **MATHEMATICS**
WEEK CELEBRATION
18-24.12.'23



**MULTIMEDIA
LEARNING CENTRE
ANANTAPUR CAMPUS**

14.66005777N 77.61518947E
Anantapur, 515005
India

Sri Sathya Sai Institute of Higher Learning

Monday, December 18, 2023 15:03:40

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING
ANANTHAPUR CAMPUS
Department of Mathematics and Computer Science
Presents **MATHEMATICS**
WEEK CELEBRATION
18-24.12.23

RAMANUJAN'S MAGIC SQUARE

22	12	18	87	22	12	18	87
88	17	9	25	88	17	9	25
10	24	89	16	10	24	89	16
19	86	23	11	19	86	23	11

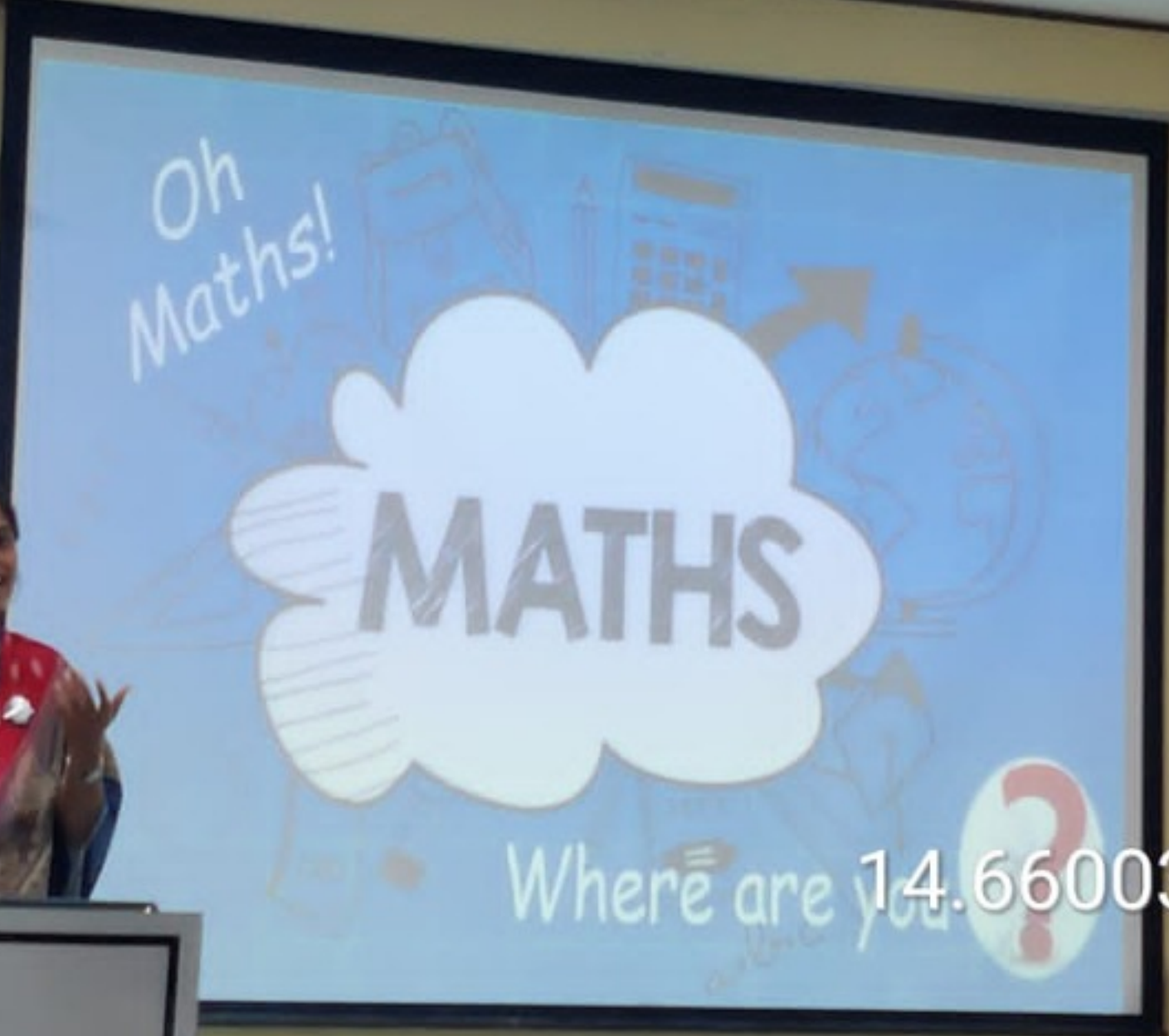
Sum of numbers of any diagonal is also 139.
Sum of corner numbers is also 139.

MULTIMEDIA
LEARNING CENTRE
ANANTHAPUR CAMPUS

14.66004047N 77.61518428E
Anantapur, 515005
India

Sri Sathya Sai Institute of Higher Learning
Monday, December 18, 2023 15:11:32

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING
ANANTHAPUR CAMPUS
WEEK CELEBRATION
18-24.12.23



MULTIMEDIA
LEARNING CENTRE

14.66003154N 77.61523283E
Anantapur, 515005
India
Sri Sathya Sai Institute of Higher Learning
Monday, December 18, 2023 15:42:40

PRIME COUNTING FUNCTIONS

- Shows the number of primes less than or equal to x
- Denoted by $\pi(x)$
- Example: $\pi(2) = 1$ which is only 2
 $\pi(3) = 2$ which are 2 and 3

14.66002906N 77.61518716E
Anantapur, 515005
India

Sri Sathya Sai Institute of Higher Learning
Monday, December 18, 2023 15:24:07

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING
ANANTAPUR CAMPUS
Mathematics Club, Computer Science
MATHEMATICS
CELEBRATION
18-24.12.23

Partition of numbers



$$524 = 500 + 30 + 4$$

Application - ATM.



14.65999333N 77.61521139E

Anantapur, 515005

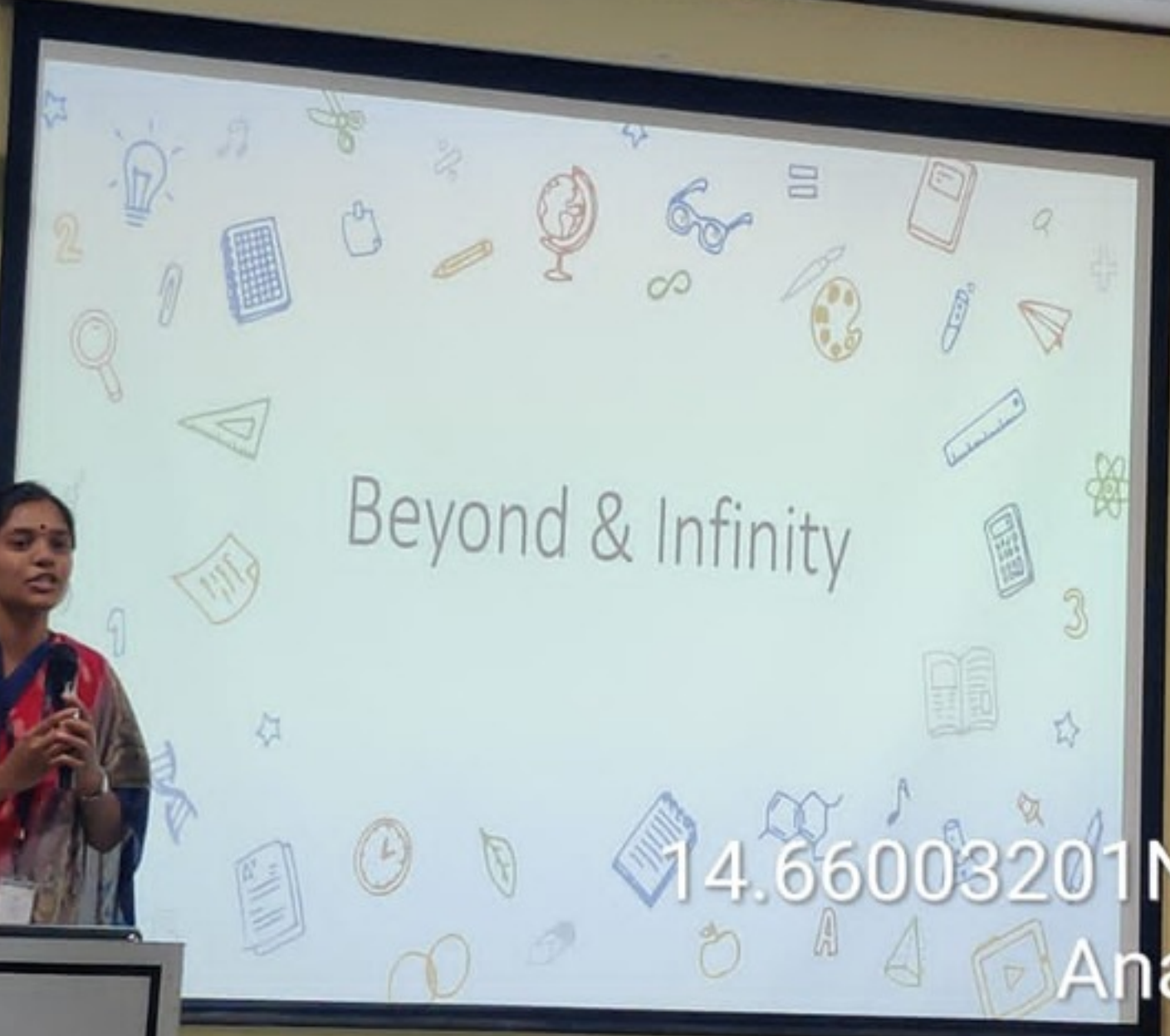
India

MULTIMEDIA
CENTRE

Sri Sathya Sai Institute of Higher Learning

Monday, December 18, 2023 15:50:55

SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING
ANANTHAPUR CAMPUS
Department of Mathematics and Computer Science
Presents **MATHEMATICS**
WEEK CELEBRATION
18-24.12.'23



**MULTIMEDIA
LEARNING CENTRE**

14.66003201N 77.61523401E
Anantapur, 515005
India

Sri Sathya Sai Institute of Higher Learning
Monday, December 18, 2023 15:42:23