

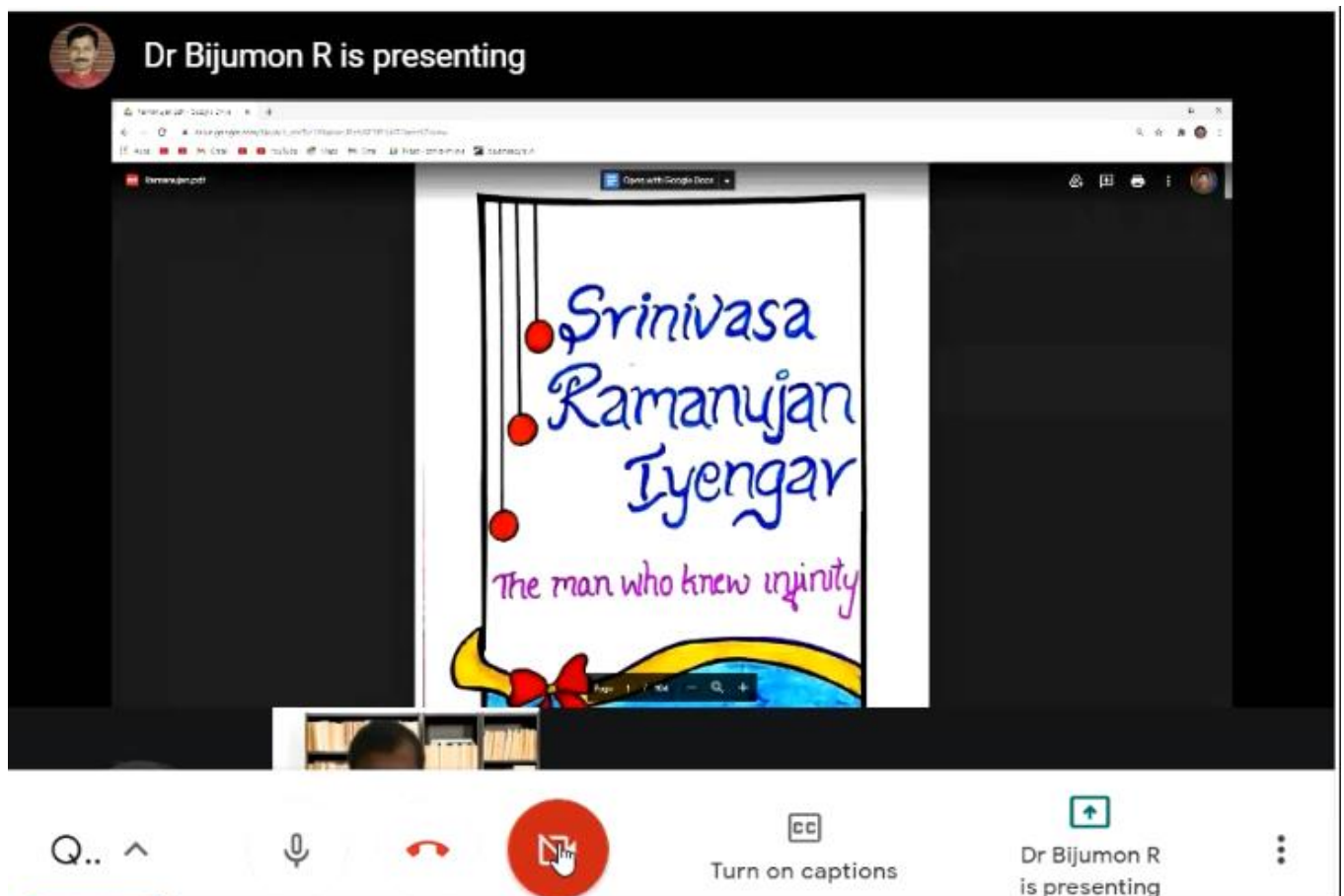
22.12.2020

Programme Report

Name of the Programme: National Mathematics Day Celebrations

Date: 22nd December 2020

Department organized a webinar “Quadric Surfaces” as part of the National Mathematics Day celebrations, on 22nd December 2020. Dr. Bijumon R, Associate Professor and Head, PG Department of Mathematics, MG College, Iritty, Kannur, was the resource person. About 110 students from various colleges participated in the programme. As part of the Day, the Department proudly released the manuscript magazine titled “Sreenivasa Ramanujan Iyengar.” This magazine, meticulously prepared by the students of the department, honors the legendary mathematician Srinivasa Ramanujan and showcases the mathematical talents and creativity of the students. The release of the manuscript magazine “Sreenivasa Ramanujan Iyengar” was a fitting tribute to the legendary mathematician and a testament to the talent and enthusiasm of the students in the Department of Mathematics. The event not only celebrated National Mathematics Day but also inspired a renewed passion for mathematical exploration and creativity among the participants.



My Drive - Google Drive | FAIR - Google Drive | Google Calendar - Week of D | Meet - Quadric Surfaces

meet.google.com/yui-dkzr-nnt?authuser=0

Dr Bijumon R is presenting

Nandhana Krish... and 93 more

101 10:43 AM

Quadratic Equations and Conics

A quadratic equation in two variables is an equation that's equivalent to an equation of the form

$$p(x, y) = 0$$

where $p(x, y)$ is a quadratic polynomial.

Examples. $Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$

- $4x^2 - 3xy - 2y^2 + x - y + 6 = 0$ is a quadratic equation, as are $x^2 - y^2 = 0$ and $x^2 + y^2 = 0$ and $x^2 - 1 = 0$.
- $y = x^2$ is a quadratic equation. It's equivalent to $y - x^2 = 0$, and $y - x^2$ is a quadratic polynomial.
- $xy = 1$ is a quadratic equation. It's equivalent to the quadratic equation $xy - 1 = 0$.
- $x^2 + y^2 = -1$ is a quadratic equation. It's equivalent to $x^2 + y^2 + 1 = 0$.
- $x^2 + y = x^2 + 2$ is a not a quadratic equation. It's a linear equation. It's equivalent to $y - 2 = 0$, and $y - 2$ is a linear polynomial.

Madayi College 22.12.2020

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Participants: You, Dr Bijumon R, sruthi pattuva..., jyothika rajesh, Bhavana O K, Amal Joseph

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Dr Bijumon R is presenting

Keerthana and 93 more

101 10:50 AM

in Plane $x=5$

Let $x^2 + y^2 = 4$

$\{(x, y) : x^2 + y^2 = 4\}$

$x=0, y^2=4 \Rightarrow y = \pm 2$

$y=0, x^2=4 \Rightarrow x = \pm 2$

Points: $(-2, 0)$, $(2, 0)$, $(0, 2)$, $(0, -2)$

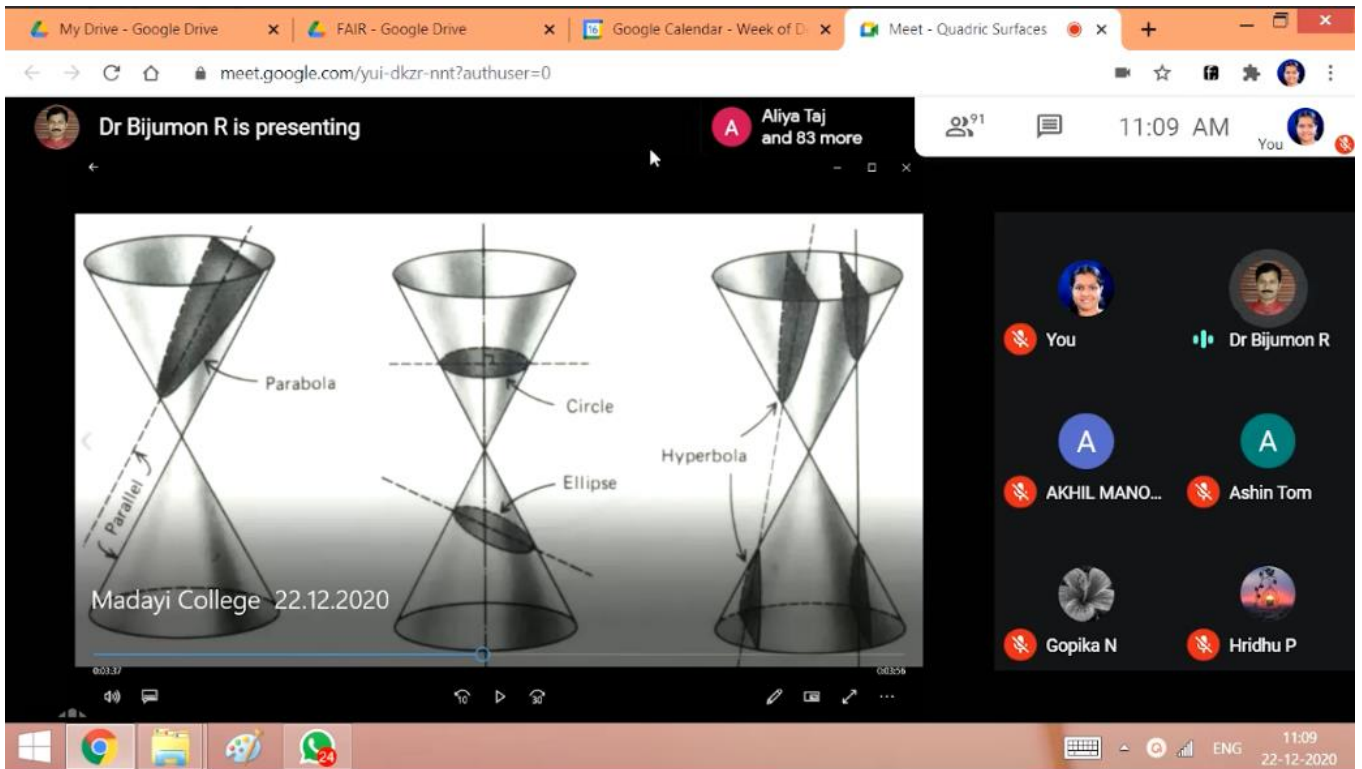
Participants: You, Dr Bijumon R, Aliya Taj, jyothika rajesh, Bhavana O K, AKHIL MANO...

10:50 22-12-2020

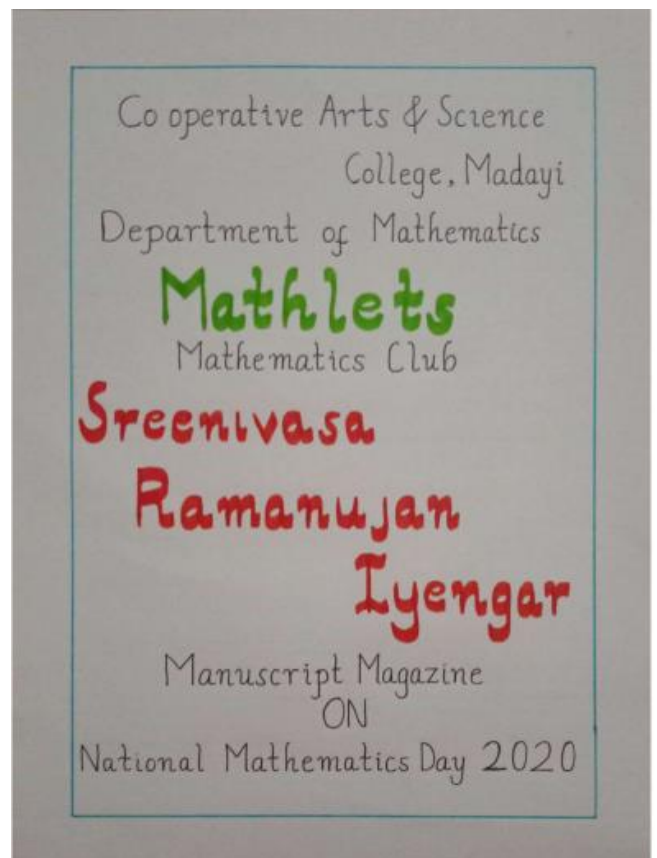
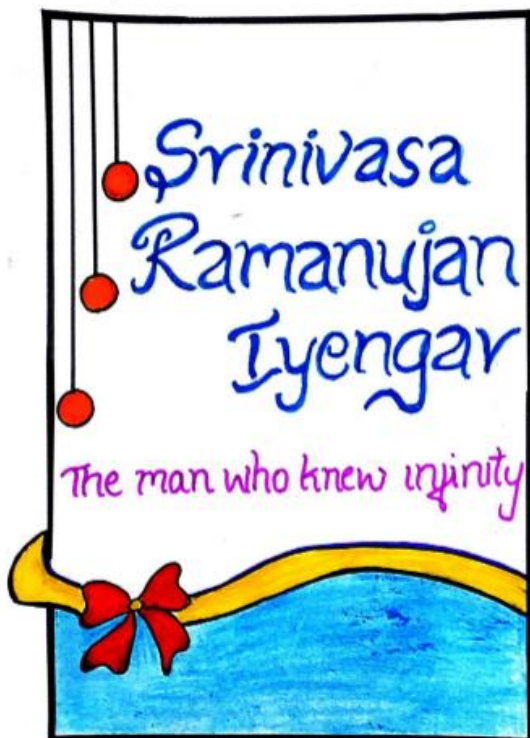
DEPARTMENT OF MATHEMATICS

CO-OPERATIVE ARTS AND SCIENCE COLLEGE, MADAYI

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Random pages of the Magazine





The War & Ramanujan's life in Cambridge

It was in the spring of 1917 that Ramanujan first appeared to be unwell. He went into a Nursing home at Cambridge. Ramanujan's illness started with a cute episode that was diagnosed as gastric ulcer. Later on the condition eased and the symptomatology must have changed significantly for this diagnosis was rejected and that of tuberculosis favoured. In the early summer and was never out of bed for any length of time again. He was in sanatoria at Wells, at Matlock, and in London, and it was not until the autumn of 1918 that he showed any decided symptom of improvement. Ramanujan's health worsened at England, by the stress and by the scarcity of vegetarian food during the First World War. Ramanujan's life in Cambridge was not easy and we can't shy away from the culture of time. It is all the more remarkable that in his short life he overcome these challenges to produce such amazing Mathematics.

Dharsana Madhusoodhanan
1st BSC Mathematics

Ramanujan has a world record for computing the most digits of Pi. The fastest Algorithms for calculation of Pi are based on his series.

$$\frac{1}{\pi} = \frac{2\sqrt{2}}{9801} \sum_{k=0}^{\infty} \frac{(4k)!}{(k!)^4 516^{4k}} \frac{(1103 + 26390k)}{(k!)^4 516^{4k}}$$

Ramanujan was awarded a Bachelor of Arts by Research degree (the predecessor of the PhD degree) in March 1916 for his work on highly composite numbers, the first part of which was published as a paper in the preceding year of the London Mathematical Society.

K. Anjana
2nd Maths

Ramanujan Sum

The Sum $C_q(n)$ of the n th powers of the primitive q th roots of unity is called a Ramanujan Sum. It can be shown that these are multiplicative Arithmetic function & in fact that:

$$C_q(m) = \frac{\mu(q/d) \phi(q)}{\phi(q/d)}$$

Where $d = \gcd(q, n)$, and μ & ϕ are Mobius function & Euler's totient function respectively.

An arithmetic function $f(n)$ is said to be completely multiplicative, if $f(ab) = f(a)f(b)$ holds for all positive integers a & b , even when they are not coprime.

In number theory, Euler's totient function counts the positive integers up to a given integer n that are relatively prime to n . Denote as ϕ . Also called Euler's phi function.



SWETHA.M
3rd BSC Mathematics

Ramanujan Primes

Ramanujan proved generalization of Bertrand's postulate as follows

Let $\pi(x)$ be the number of positive prime number $\leq x$

Then for every positive integer n there exists a prime number R_n such that

$$\pi(x) - \pi(x/2) \geq n \text{ for all } x \geq R_n$$

(The case $n=1$, $R_n=2$ is Bertrand's postulate)

The R_n is called Ramanujan primes

Bertrand's Postulate

It is a theorem stating that for any integer $n > 1$ there always exists at least one prime number p such that

$$n < p < 2n$$

for $2 < n < \infty$
 $n \rightarrow n^{\text{th}}$ prime number

Madaya K.
11/24 BSc Mathematics

first five Ramanujan Primes

$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 2 & 11 & 41 \\ & \downarrow & \downarrow \\ & 17 & 29 \end{matrix}$

PI FORMULA

In 1914, the formula for computing $\pi(x)$ were discovered, the π that converges rapidly.

The calculation ends when two consecutive results are the same. The accuracy of π improves by increasing the number of digits for calculation.

(1) Ramanujan 1, 1914

$$\frac{1}{\pi} = \frac{\sqrt{8}}{992} \sum_{n=0}^{\infty} \frac{(4n)!}{(4^n n!)^4} \frac{1103 + 26390n}{994n}$$

(2) Ramanujan 2, 1914

$$\frac{4}{\pi} = \frac{1}{882} \sum_{n=0}^{\infty} \frac{(-1)^n (4n)!}{(4^n n!)^4} \frac{1123 + 21460n}{882n}$$

ASWATHI P
 3rd BSc Maths