DEPARTMENT OF MATHEMATICS

In Association with

Science Forum and IEEE STUDENT BRANCH(STB99412)

Celebrates

National Mathematics Day-2025

Date:31/12/2025

Convener: Dr. Sumangala B

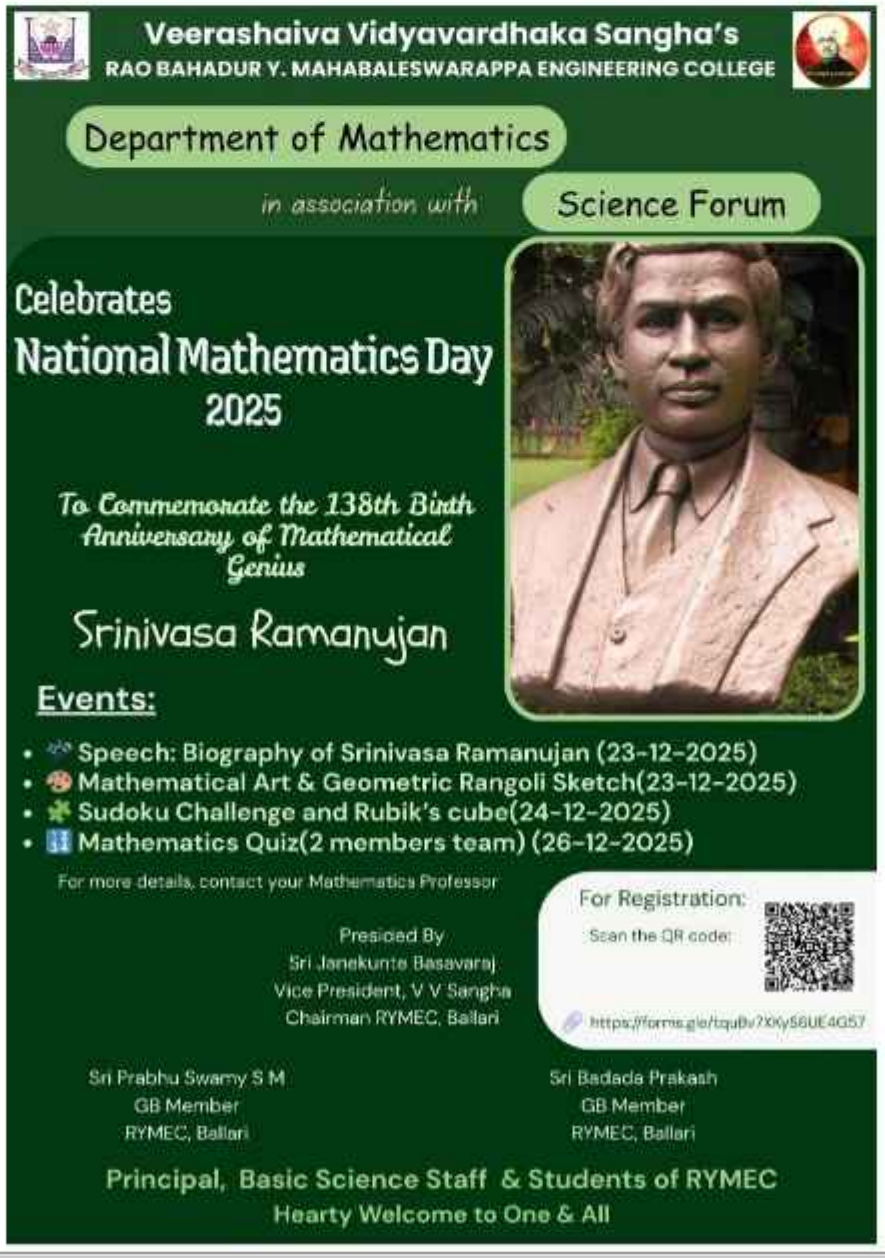
Participation: Students

Date: 29thDec,2025, 30thDec,2025 and 31thDec,2025

Venue: RYMEC CAMPUS

Timing: 3:00 PM - 5:00 P M

Place: Ballari



Srinivasa Ramanujan: A Brief Biography

Srinivasa Ramanujan, stated that "An equation means nothing to me unless it expresses a thought of God". A beautiful expression considering mathematics as a spiritual activity

On 22nd December 1887, a little boy was born in a beautiful town of Erode, Tamil Nadu. Who would have thought that this toddler would one day go to Cambridge, UK to present his magical mathematical work. As the saying goes 'A yielding crop can be known from its sprout' and inspite of his poverty, Srinivasa Ramanujan mastered various topics in mathematics at the age of just 16 , which even any maths teacher had never touched .

In the year 1913, G.H. Hardy, the great mathematician in Cambridge, received a letter from Srinivasa Ramanujan and the letter had numerous equations with no proofs. Hardy was astonished to see those equations and no one could explain him as how the equations arrived. Srinivasa Ramanujan had told openly to all that it was his family deity, Goddess Namagiri who had whispered those equations to him in his dream.

The moment arrived for Srinivasa Ramanujan to travel to Cambridge after receiving the invitation from G.H. Hardy to answer his queries. As per his orthodox family rules, he was not allowed to go to UK as he has to cross the ocean. But Ramanujan was firm on going and spent an entire day in Sri. Namagiri temple in Namakkal, Tamil Nadu to get her permission from the Goddess. A flower fell from Sri. Namagiri idol which was considered as an approval for his mission. Opposing the orthodox customs, Ramanujan travelled to Cambridge to meet G.H. Hardy.

At Cambridge, he discovered novel series and equations only by intuition, but without any proof. One of his such discovery is 'mock theta function' which is used currently in string theory and quantum gravity. The Hardy-Ramanujan partition formula and Rogers-Ramanujan identities are valuable tools for physicists working in statistical mechanics

Ramanujan had contracted a fatal illness in England in 1918, returned to India next year and reached the lotus feet of Goddess Namagiri on April 26, 1920 at the young age of 32. Ramanujan's brilliance reminds us that passion and intuition can unlock the deepest secrets of mathematics, leaving a legacy that endures far beyond a single lifetime.

Legacy of Srinivasa Ramanujan in Mathematics:

❖ RAMANUJAN'S CONGRUENCES:

Several congruence for partition function were defined by Ramanujan. The notable results are:

$P(5n + 4) \equiv 0 \pmod 5$

$P(7n + 5) \equiv 0 \pmod 7$

$P(11n + 6) \equiv 0 \pmod{11}$

❖ RAMANUJAN'S EQUATION:

The Diophantine equation $x^2 + 7 = 2^n$ is popularly known as Ramanujan's equation.

❖ RAMANUJAN'S-HARDY ASYMPTOTIC FORMULA:

The formula provides accurate approximation for P(n), number of ways to partition an integer n. $P(n) \sim \frac{1}{4n\sqrt{3}} e^{\pi\sqrt{\frac{2n}{3}}}$, was coined by Srinivasa Ramanujan and G.H. Hardy in 1918. Let us take n = 4, P(n) is number of partitions are 4, 3 + 1, 2 + 2, 2 + 1 + 1, 1 +1+1+1. If n gets large the right hand side approaches 1.

❖ MOCK THETA FUNCTION:

Ramanujan stated about Mock Theta Function in his last letter to G.H. Hardy. Ramanujan originally provided 17 examples of his mock theta functions in the form of q-hypergeometric series.

❖ RAMANUJAN'S NUMBER:

1729 is the smallest number that can be expressed as the sum of two cubes in two different ways:

$$1^3 + 12^3 = 1729 = 9^3 + 10^3$$

❖ Honor's Received ny Srinivasa Ramanujan

- He was the first Indian to be chosen as a Fellow of Trinity College. For his contributions to the theory of numbers and complex numbers, he was named a Fellow of the Royal Society in 1918.
- He received a prestigious award from the King of England for his services to mathematics.
- National Mathematics Day is observed annually on December 22, on the birth anniversary of Srinivasa Ramanujan.

❖ Applications of Ramanujan's Discoveries:

Ramanujan's formula for Pi has a very wide application in modern Physics in understanding black holes, turbulance. They are also used in cryptography and simulation. Provide faster way to compute Pi compared to ealier methods.

Ramanujan's Mock Theta function is useful for calculating the entropy of black holes. Ramanujan had compiled about 3,900 results.

The following events are conducted on the occasion of National Mathematics Day:

Speech : Biography of Srinivasa Ramanujan (29-12-2025)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Ballari, Karnataka, India
Ward No 30, V V Sanghas Campus, Beside Rymec, Vijaya Nagar, Cantonment, Ballari, Karnataka 583104, India
Lat 15.157795° Long 76.891723°
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GPS Map Camera
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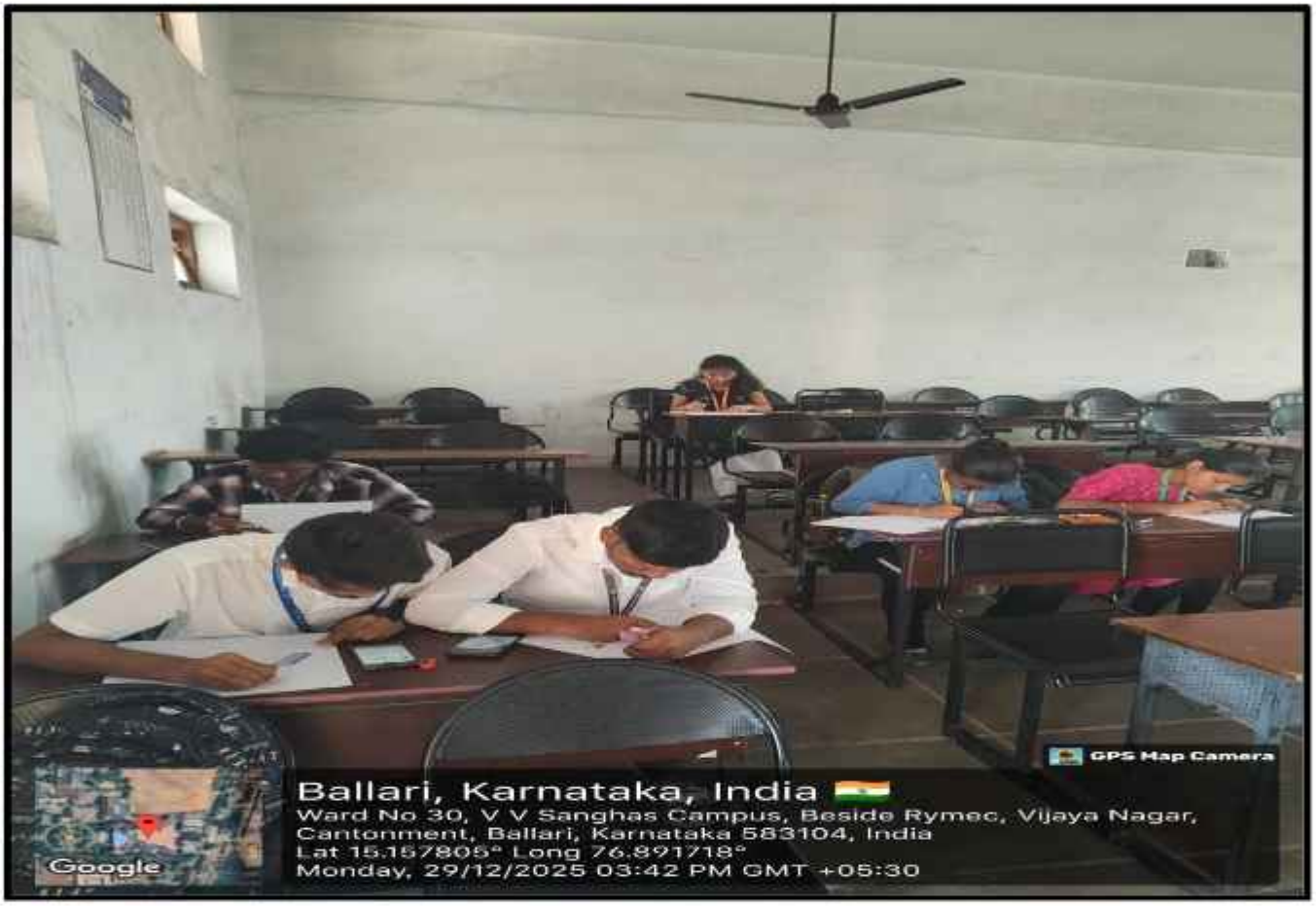
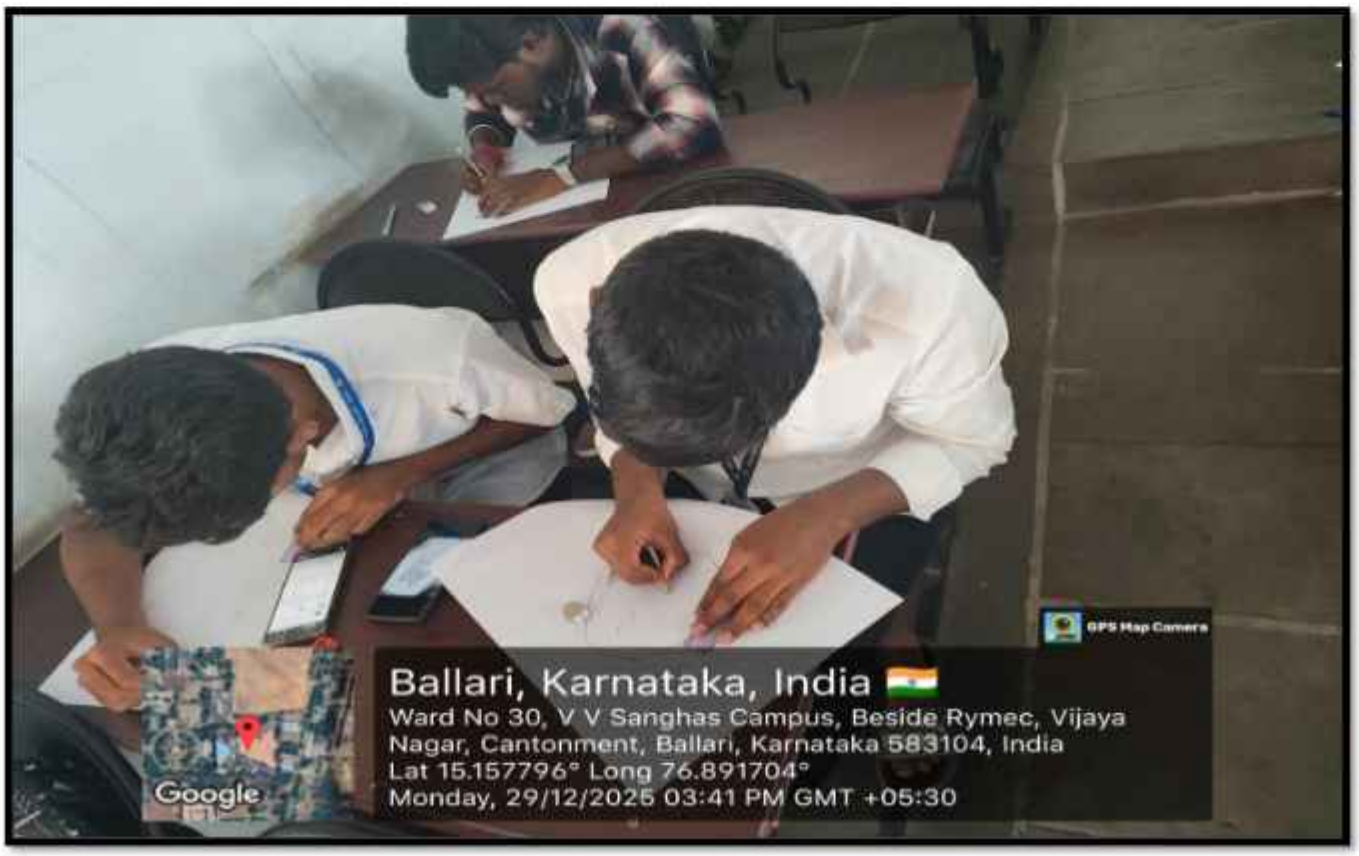
Mathematical Art and Rangoli Sketch (29-12-2025)





Sudoku Challenge and Rubik's Cube(30-12-2025)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Lat 15.160284° Long 76.891372°
Tuesday, 30/12/2025 04:00 PM GMT +05:30
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Mathematics Quiz(31-12-2025)


GPS Map Camera
Ballari, Karnataka, India
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Lat 15.157841° Long 76.892066°
Wednesday, 31/12/2025 03:28 PM GMT +05:30
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Department of Mathematics

OBJECTIVES OF THE EVENT : -

- To encourage the students to engage in scientific activities.
- Spreading the message of importance of mathematics and its applications in science and technology.
- To develop communication and presentation skills.
- To encourage interdisciplinary learning between mathematics and art by promoting creativity through geometric patterns, symmetry, fractals, and tessellations. Demonstrate the relevance and applications of mathematics in real-world contexts
- To strengthen logical reasoning and problem-solving skills while enhancing speed, accuracy, concentration, and fostering combinatorics and algorithmic thinking in an engaging manner.
- To assess students' conceptual understanding of core mathematical topics while encouraging teamwork, healthy academic competition, and motivating them to prepare for competitive examinations such as GATE and other technical assessments.
- Inspire students with Ramanujan's story of perseverance, dedication, and exceptional mathematical talent.

REPORT : -

The National Mathematics Day celebrations proved to be a resounding success, owing to the dedication and hard work of the entire Mathematics faculty. Their meticulous planning and effective execution of various activities—Speech, Mathematical Art and Rangoli Sketch, Sudoku Challenge and Rubik's Cube, and Mathematics Quiz—created an engaging and enriching experience for all participants.

The enthusiasm and creativity displayed by the students were truly commendable. The celebrations not only commemorated the life and contributions of Srinivasa Ramanujan but also provided a valuable platform to highlight the diverse applications of mathematics and inspire a deeper appreciation for this fundamental discipline.

The Mathematics faculty played a pivotal role in fostering a vibrant and intellectually stimulating environment that encouraged students to explore the fascinating world of mathematics.

Learning outcome : -

- This event exhibited the contributions in the field of mathematics by Srinivasa Ramanujan which motivates and inspires the students for their future endeavors.
- Improved understanding of historical and contemporary contributions in mathematics.
- Preparing for and participating in quizzes requires students to review and understand key mathematical concepts.
- The Mathematical Art and Rangoli Sketch activity strengthened students' understanding of geometric concepts such as symmetry, patterns, transformations, and tessellations, while fostering creativity and interdisciplinary learning..
- Focusing on the applications of mathematics helps students understand how math is relevant to their everyday lives and various professions.
- Learning about Ramanujan's contributions can demonstrate the impact of mathematics on various fields like physics, computer science, and engineering.
- By engaging in these activities, students gained a deeper understanding and appreciation for mathematics, develop essential skills, and be inspired by the achievements of great mathematicians like Srinivasa Ramanujan.

- Overall, the activities promoted a deeper appreciation for mathematics, nurtured critical thinking and creativity, and motivated students to prepare for higher studies and competitive examinations.

Head of the Department,

MATHEMATICS