# Report of Three-Day Mathematics Workshop

**Three-Day Mathematics Workshop on "Problem Solving and Preparation for the Madhava Mathematics Competition-2026"**

**Organizing Unit: Department of Mathematics, M.B. Government Post Graduate College Haldwani, (Collaboration Bhashkracharya Pratishthan, Pune).**

**Duration: January 05–07, 2026**

**Venue: Department of Mathematics, M.B. Government Post Graduate College**

**Objectives:**
1. Enhance problem-solving skills.
2. Prepare students for the Madhava Mathematics Competition.
3. Reduce math anxiety.
4. Promote practical and analytical thinking.

**Target Group: UG students of Mathematics**

**Resource Persons:**
**Dr. P. C. Mathpal,** Assistant Professor, Mathematics, Govt Degree College, Haldwani City.
**Dr. Saurabh Kumar**, Assistant Professor, Mathematics, Maitreyi College, University of Delhi.
**Dr Deepak Kumar Upreti**, Assistant Professor of Physics, MB Govt. PG College, Haldwani.
**Dr. Mukul Tiwari**, Assistant Professor, Physics, MB Govt. PG College, Haldwani.

**Program Details:**
**Day 1**: focused on inauguration, Complex Analysis, and Calculus.
**Day 2**: covered Differential Equations and Matrices.
**Day 3**: focused on Polynomials, Matrices (Eigen Values and Eigen Vectors), and valedictory.

**Outcomes:**
Improved confidence, logical reasoning, and competition readiness.

**Conclusion:** The workshop aligned with NAAC quality benchmarks and enhanced academic excellence.

**Three-Day Mathematics Workshop Report**

**Venue: Department of Mathematics, M.B. Government Post Graduate College**
**Dates: January 05–07, 2026**
**Theme: Problem Solving and Preparation for the Madhava Mathematics Competition**

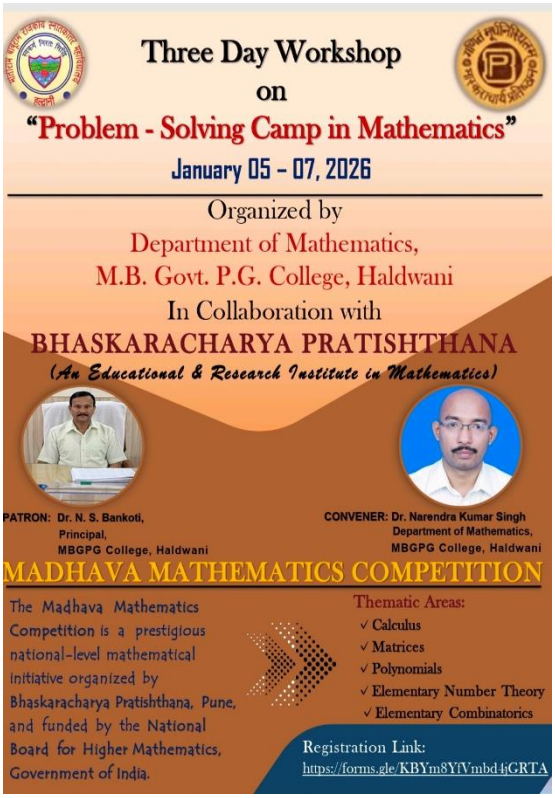
## Introduction

The Department of Mathematics, M.B. Government Post Graduate College, successfully organized a three-day intensive workshop from January 05 to January 07, 2026, with the primary objective of strengthening students' problem-solving abilities and preparing them for the prestigious "Madhava Mathematics Competition". The workshop aimed to bridge the gap between theoretical understanding and practical application, while nurturing analytical thinking, creativity, and confidence among participants.

## Day 1: Introduction and Inauguration (January 05, 2026)

The workshop formally commenced on January 05, 2026, with an inaugural session held at the Department of Mathematics. The program was inaugurated under the esteemed chairmanship of the Principal of the college, Dr. N S Bankoti. In his inaugural address, Dr. Bankoti emphasized the importance of practical problem-solving skills in mathematics, stating that true mathematical understanding goes beyond memorization of formulas and lies in logical reasoning and conceptual clarity.

The Workshop Coordinator, Dr. Narendra Kumar Singh, presented the overall structure and objectives of the workshop. He highlighted the remarkable contributions of the legendary Indian mathematician Madhava of Sangamagrama, whose pioneering work laid the foundation for several concepts in modern mathematics, particularly in calculus and infinite series.




कांपलैक्स नंबर्स की उत्पत्ति पर छात्रों को दी जानकारी

संवाददाता, हल्द्वानी

- एमबीपीजी कॉलेज में तीन दिवसीय माधव गणित कैंप का शुभारंभ
- कई महाविद्यालयों के छात्र छात्राओं ने किया प्रतिभाग

**अमृत विचार :** एमबीपीजी कॉलेज में सोमवार को तीन दिवसीय माधव गणित कैंप का शुभारंभ प्राचार्य डॉ. एनएस बनकोटी ने किया। कैंप में एमबीपीजी के साथ ही महिला डिग्री कॉलेज, राजकीय महाविद्यालय हल्द्वानी शहर गौलापार, हल्दूचौड़ डिग्री कॉलेज और रामनगर कॉलेज के बीएससी गणित के विद्यार्थी प्रतिभाग कर रहे हैं।

12वीं सदी के भारतीय गणितज्ञ माधवाचार्य की स्मृति में भाष्कराचार्य प्रतिष्ठान पुणे की ओर से कैंप किया जा रहा है। कैंप के प्रथम तकनीकी सत्र में डॉ. प्रकाश मठपाल ने कांपलैक्स नंबर्स की उत्पत्ति, उनकी एप्लीकेशन और प्रॉपर्टीज पर चर्चा की। दूसरे सत्र में डॉ. मठपाल ने कांपलैक्स फंक्शन पर अपनी बात रखी। मैत्रेयी कॉलेज दिल्ली विश्वविद्यालय के गणित प्राध्यापक डॉ. सौरभ कुमार ने रियल फंक्शन और उनके ग्राफ पर चर्चा की। आयोजक सचिव डॉ. नरेंद्र कुमार सिजवाली ने बताया कि 11 जनवरी को आयोजित होने वाले मैथमेटिक्स कंपटीशन की तैयारी को मजबूत करने के लिए कैंप लगाया जा रहा है। इस मौके पर प्रो. दीपक तिवारी, डॉ. रिचा तिवारी, डॉ. सुरेंद्र धपोला, डॉ. सुंदर कुमार, प्रो. चारु ढौंढियाल, डॉ. दीपक उप्रेती, डॉ. मुकुल तिवारी रहे।

## Morning Session

The morning technical session was conducted by Dr. P. C. Mathpal, who focused on Complex Analysis. He introduced students to innovative techniques such as the "Intuitive Guess Method, demonstrating how complex problems involving complex numbers and functions can be solved efficiently through logical insights rather than

lengthy calculations. The session was interactive and encouraged students to think creatively while approaching challenging problems.

**Evening Session**

The evening session featured Dr. Saurav Kumar, Assistant Professor from Maitreyi College, University of Delhi, as the keynote speaker. His lecture on Calculus emphasized real-world applications and examination-oriented problem- solving strategies. He explained how a deep understanding of fundamental concepts can significantly improve performance in competitive examinations. The session concluded with an engaging discussion and doubt-clearing interaction.

**Day 2: Advanced Concepts and Practice Sessions (January 06, 2026)**

The second day of the workshop focused on Differential Equations and Matrices, with special emphasis on problem-solving techniques relevant to national-level competitions.

**Morning Session**

The morning session was dedicated to Differential Equations, where resource persons discussed key concepts such as formation of Differential equations, solution of first-order and second-order differential equations. Through carefully selected problems from previous Madhava Mathematics Competitions, students were guided on how to identify patterns, apply theorems efficiently, and avoid common mistakes.

## विद्यार्थियों ने वास्तविक फलनों और उनके ग्राफ के बारे में जाना

विज्ञप्ति, हल्द्वानी: एमबीपीजी कालेज में 12वीं सदी के भारतीय गणितज्ञ माधवाचार्य की स्मृति में तीन दिवसीय माधव गणित कैंप आयोजित हुआ। इसमें प्राचार्य प्रो. एनएस बनकोटी ने छात्रों को गणित के लिए प्रेरित किया। डा. प्रकाश मठपाल ने सम्मिश्र संख्याओं की उत्पत्ति, उनके अनुप्रयोगों की जानकारी दी। दिल्ली विवि के मैत्रेयी कालेज के प्राध्यापक डा. सौरभ कुमार ने वास्तविक फलनों व उनके ग्राफ के बारे में बताया। आयोजक सचिव डा. नरेंद्र सिजवाली ने बताया कि 11 जनवरी से माधव मैथमेटिक्स प्रतियोगिता होनी है। इस मौके पर प्रो. दीपक रावत, डा. रिचा तिवारी, डा. सुरेंद्र धपोला, डा. सुंदर कुमार, प्रो. चारू ढौंडियाल आदि मौजूद रहे।

**Afternoon Session**

In the post-lunch session, Basic concepts of Marices were taken up. Students were introduced to types of matrices, operations in matrices, and real applications of matrices, along with shortcuts and analytical techniques useful in time-bound examinations. Emphasis was laid on understanding the use of Matrices on computer science and solutions of simultaneous linear equations.

**Day 3: Polynomials, Eigen Values and Eigen vectors, and Valedictory Session (January 07, 2026)**

The final day of the workshop focused on Roots of bilinear and higher degree algebraic equations and Matrices with reference to eigenvalues and eigen vectors.

**Morning Session**

The first lecture of the session was given by Dr Deepak Kumar Tiwari. The lecture dealt with Polynomials and the solution of algebraic equations, highlighting their applications in higher mathematics and competitive examinations.
Students were trained in efficient root-finding techniques, conceptual problem-solving, and interpretation of various polynomials. In the second lecture of the same session Dr Mukul Tiwari taught the various physical interpretations of eigenvalues and eigenvectors of matrices.

गणित को रोचकता के साथ पढ़ें विद्यार्थी : प्रो. बनकोटी

एमबीपीजी कालेज में माधव गणित कैंप के समापन पर प्रतिभागी व शिक्षक ● जागरण

जागरण संवाददाता, हल्द्वानी : एमबीपीजी कालेज में तीन दिवसीय माधव गणित कैंप आयोजित किया गया। भाष्कराचार्य प्रतिष्ठान पुणे निर्देशन में हुए कार्यक्रम में विद्यार्थियों को गणित की बारीकियां बताई गईं। इलाहाबाद विश्वविद्यालय के डा. स्वप्निल श्रीवास्तव ने सम्मिश्र फलनों की जानकारी दी। डा. दीपक उप्रेती ने बहुपदीय फलनों के मूलों के बारे में बताया। वहीं, बुधवार को समापन सत्र हुआ। प्राचार्य प्रो. एनएस बनकोटी ने प्रमाण पत्र भी वितरित किए। आयोजक सचिव डा. नरेंद्र कुमार सिंह ने बताया कि 11 जनवरी को माधव मैथमेटिक्स स्पर्धा होगी। इस मौके पर डा. प्रकाश मठपाल, डा. सुरेंद्र धपोला, प्रो. चारु चंद्र ढौंडियाल, प्रो. प्रेम प्रकाश, डा. एमएम गुरुरानी आदि रहे।

**Valedictory Session**

The workshop concluded with a valedictory session, where Participants share their learning in the last three days, and faculty members shared their observations and encouraged students to continue practicing mathematics with curiosity and discipline. Certificates of participation were distributed to all attendees. The coordinator, Dr. Narendra Kumar Singh, expressed gratitude to the Principal, invited experts, faculty members, and students for making the workshop a grand success.

**Overall Outcomes and Key Takeaways**

The workshop proved to be highly motivating and intellectually stimulating, helping students overcome mathematical fear and approach problems with renewed confidence. The key takeaways of the workshops are:

1. The workshop significantly reduced mathematics anxiety among students and fostered logical and analytical thinking.
2. Participants developed a strong conceptual foundation and problem-solving mindset essential for national-level competitions.
3. Exposure to expert guidance and competitive problem patterns enhanced students' confidence and motivation.
4. The workshop promoted interactive learning, peer collaboration, and academic excellence.

**Conclusion**

The three-day Mathematics Workshop was a resounding success, achieving its objective of preparing students for the Madhava Mathematics Competition while nurturing a deeper appreciation for mathematics. The Department of Mathematics remains committed to organizing such academic initiatives in the future to promote excellence in mathematical education and research.