

Report on the Webinar: History of Prime Numbers

Date: 14th March 2024

Speaker: Dr. Gagandeep Singh

Institution: Department of Mathematics, Chandwad College

The Department of Mathematics hosted a webinar on *Number Theory*, a captivating branch of mathematics that deals with the properties and relationships of numbers. The session was conducted by the eminent mathematician Dr. Gagandeep Singh from Punjab University. The lecture, held virtually on 14th March 2024, attracted students, researchers, and mathematics enthusiasts from various institutions. The Principal of the College Professor Dr. D.N.Shimpi bring into notice the importance of Prime number in Mathematics. Mr. Madhukar Zanje, Head Department of Mathematics, Introduce the Resource Person.

Dr. Gagandeep Singh's lecture provided deep insights into number theory, focusing on its historical evolution, key concepts, and modern applications. The session was divided into the following sections Dr. Singh began by tracing the origins of number theory, citing contributions from ancient mathematicians like Euclid, Diophantus, and Brahmagupta. He highlighted how this "Queen of Mathematics" evolved through the works of Fermat, Euler, and Gauss. The importance of prime numbers as the building blocks of integers was discussed in detail. Dr. Singh explained the distribution of primes and their unpredictability, citing the Riemann Hypothesis as one of the unsolved mysteries in mathematics. The speaker introduced the concept of congruences, emphasizing its applications in solving numerical problems efficiently. He elaborated on modular arithmetic and its relevance in modern cryptography. Dr. Singh illustrated how number theory extends beyond pure mathematics to fields like computer science, cryptography, and data security. He discussed RSA encryption and its reliance on the factorization of large numbers, highlighting its importance in securing digital communication. The lecture concluded with a discussion on famous unsolved problems, such as the Goldbach Conjecture and the Twin Prime Conjecture. Dr. Singh encouraged participants to explore these areas and contribute to advancing the field.

Participants engaged actively during the Q&A session, seeking clarification and further insights. Questions ranged from the practical applications of number theory to its connection with other branches of mathematics. Dr. Singh's detailed and approachable answers added great value to the session.



Conclusion


The webinar was a highly enriching experience, shedding light on the elegance and utility of number theory. Dr. Gagandeep Singh's expertise and passion for the subject inspired attendees to delve deeper into this fascinating field.

Dr. S.J.Ansari extended heartfelt gratitude to Dr. Singh for his valuable insights and to all participants for making the event a success.




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