RAM Maths Circle

September 28, 2025

Nagpur

Introduction

A session was conducted on Pascal's Triangle and Rascal's Triangle, focusing on their structures, patterns, and mathematical significance. The discussion explored how these triangular arrangements reveal elegant numerical relationships and connections to algebraic expansions., Rascal's Triangle was introduced as a lesser-known variant of Pascal's triangle with distinct properties. The session encouraged participants to observe patterns, analyse relationships, and appreciate the simplicity with which these triangles illustrate deeper mathematical ideas.

Spinoff of Pascal triangle(Rascal triangle)

Problem

1

1 1

1 2 1

1 3 3 1

1 4 5 4 1

1 5 7 7 5 1

1 6 9 10 9 6 1

Find and observe patterns in the given triangle.

Subproblems

1. Find patterns in 3 × 3 diamonds formed in the given Triangle.
    2. Find patterns in 2 × 2 diamonds.
    3. Find the 15th element of 80th.

Explorations

Students made the following observations related to rascal triangle

1. S + N - 1 = W + E

Example

Here N=1, S=3, W=1 and E=2

2. Odd diagonal elements are always odd

3. N × S = W × E + 1

4. If North is even then, 2N + 1 = S