BNA'25

Villani's Squares

Brief Study Guide

Villani's Squares

"Villani's Squares" is the mathematics module at Beaconhouse Notion of Academia '25, ingeniously crafted to challenge delegates with the brilliance and innovation of mathematical concepts. This immersive experience pushes boundaries, inviting delegates to unravel the genius of theorems, decode intricate puzzles, and explore groundbreaking applications of mathematics in real-world scenarios. Delegates will work collaboratively on stimulating challenges, fostering teamwork while embracing diverse perspectives.

Round

1

The first round, titled **"π Prison"**, plunges delegates into an energetic escape room simulation where mathematics meets adventure. Divided into four meticulously designed stations, each challenge tests a distinct set of skills. Teams will be tested on their skills and ability to rethink possibilities. From cracking intricate alphanumeric riddles to navigating the strategic complexity of 5x5 risk squares, delving into case studies to deciphering the enigmatic Pascal's Box, delegates must master each stage to reach the next destination. Time is ticking, and success depends on sharp thinking, quick reflexes, and mathematical mastery, with each solved puzzle bringing delegates closer to victory.

Delegate Cap: 2 per team

2

The second round, titled **"Solve n Shuffle"**, immerses delegates in a pair duel between teams, combining the

thrill of competition with the challenge of advanced mathematical problem-solving. In this fast-paced, timed challenge, teams will face off in pairs and compete against each other in a card game wherein they will have to solve questions to collect cards. The team which manages to gather the most cards while adhering to the game's rules will win. Success depends on mathematical skills and effective teamwork. The card game's rules, requiring strategic decision-making, will be revealed on the day, testing quick thinking and mathematical intuition while sharpening analytical abilities under pressure.

Delegate Cap: 3 per team

3

The third round, titled **"Snakes and Ladders"**, reimagines the classic game with a thrilling twist, turning it into a high-stakes, real-life challenge where teams navigate a giant board while solving complex mathematical questions. Delegates will be required to solve problems in calculus, linear algebra, statistics, and probability to advance on the board. Correct answers move teams forward, while landing on certain spots may cause setbacks or rewards. With twists in the classic Snakes and Ladders game, the challenge requires sharp problem-solving and strategic thinking to progress quickly and reach the finish under time pressure.

Delegate Cap: 2 per team

Note: The information in this document is subject to changes.