RAM Maths Circle

January 19, 2025

Nagpur

The first part of the session dealt with the shopkeeper problem and introduced the students to algebraic inequalities. The students had determined ranges for which various shopkeepers were cheapest in the last class. In this class, using algebra, they created expressions for total cost for all three shopkeeper for different range of values for x (x being number of books to buy) and proved which shopkeeper was the cheapest, and confirmed their answers from the last class.

The second part of the class dealt with the brick wall problem. Students were able to figure out the pattern (Fibonacci series). However, they have been asked to figure out why the pattern emerges and the same will be discussed in the next class.

Questions

The point of this activity is to see how many ways you can build a brick wall using the given amount of bricks.

- Each wall needs to be two units tall.

- Each brick standing on end is two units tall.

- Each brick lying on its side is one unit tall.

- You are first given one, then two, three, etc.

- For one brick, there is only one method of building a wall. Two methods for two, and three methods for three.

1. How many ways are there to build a wall with four bricks, five, six?

2. Can we generalize the result? Explain.

Here is an example showing the possible solutions for one, two three unit walls: