

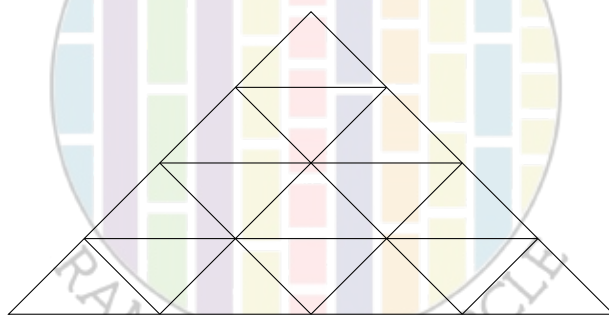
# RAM Maths Circle

Date: August 22, 2026

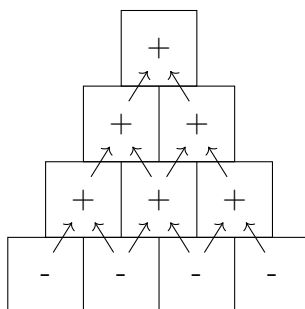
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In this session, the mentors discussed the following questions with the students.

1. Ria writes down the numbers 1, 2, 3, ..., 100, 101 using blue & red pen. The largest number written in blue is equal to the total number of numbers in blue and the smallest number written in red is equal to half of the total number of numbers in red. How many numbers are written in red?
2. Count the number of triangles (all size of triangles).



3. Each box contains the product of the two signs directly below it, using the usual rules for multiplying  $+$  and  $-$ . Using  $+$  and  $-$  signs in the four boxes of the bottom row, find all possible patterns for which the topmost sign is  $+$ .



4. A self-describing number is a number in which the  $i^{th}$  digit tells us how many times the digit  $i - 1$  occurs in the entire number. For example, 1210 is self-describing because it contains 1 zero, 2 ones, 1 two, and 0 threes. Find all 4-digit, 5-digit, and 10-digit self-describing numbers.

