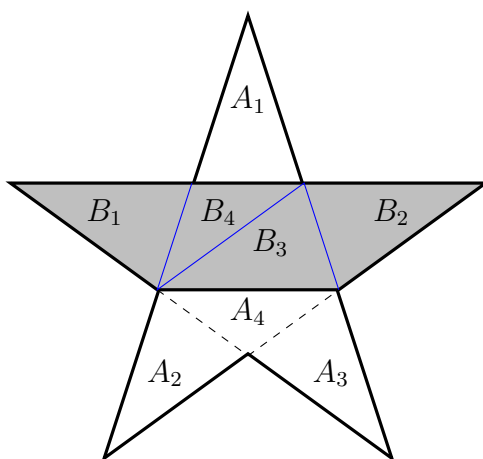


Monthly Maths Circle India Challenge

Solutions February 2024

Solution 1. We can divide Bindu's trapezium into four triangles. The triangles B_1 and B_2 , which form two of the arms of the star, are each congruent to Anita's triangles A_1 , A_2 , and A_3 . Triangle B_3 is congruent to B_2 , and triangle B_4 is congruent to A_4 .



The total area of Anita's four triangular cakes is indeed equal to the area of the single large trapezium cake baked by Bindu. Therefore, the cost should be split equally between the two.

The best solution to this problem was sent to us by Ahona Mukherjee

Solution 2. We can construct a square of area 5 by constructing $\sqrt{5}$. On the square grid, this would be the hypotenuse of the right triangle with sides of lengths 1 and 2. See the figure below.

