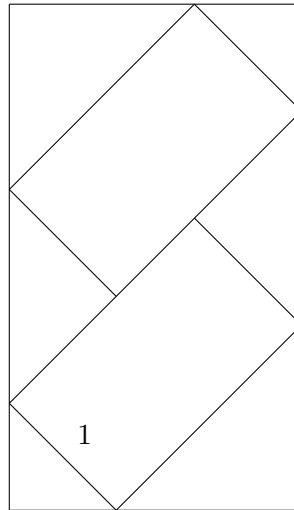


## Division B Tiebreakers

1. Jerry's favorite number  $n$  has the following remarkable property: when 15 copies of  $n$  are added to 13, it produces the same number as if 13 copies of  $n$  were subtracted from 15. What is  $n$ ?
2. Ethan has two identical rectangular blocks, each with width 1. To store them, he places them inside a large rectangular box as shown below:



- If the triangle formed in the bottom right corner is isosceles, and all rectangles in the figure are similar, find the area of the rectangular box.
3. If a number  $k$  is randomly selected from the interval  $[-1, 1]$ , what is the probability that the line  $y = kx$  intersects the circle defined by  $(x - 5)^2 + y^2 = 9$ ?