**Time limit:** 15 minutes.
**Instructions:** This tiebreaker contains 3 short answer questions. All answers must be expressed in simplest form unless specified otherwise. You will submit answers to the problem as you solve them, and may solve problems in any order. You will not be informed whether your answer is correct until the end of the tiebreaker. You may submit multiple times for any of the problems, but **only the last submission for a given problem will be graded**. The participant who correctly answers the most problems wins the tiebreaker, with ties broken by the time of the last correct submission.
**No calculators.**

1. Compute all real nonzero values of $b$ such that $bx^2 - bx - b = 0$ has $b$ as a solution.

2. Leo is at the bottom left corner of the grid. If he can only walk up and to the right, how many different paths can he take to the upper right corner?
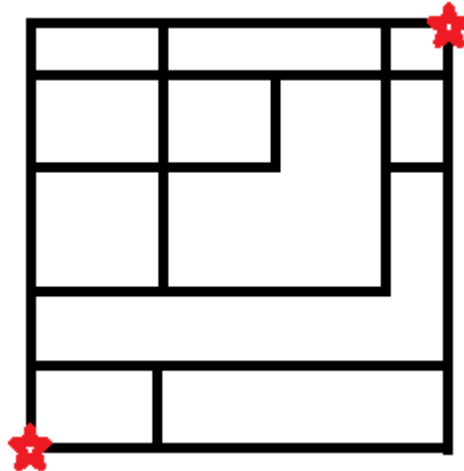


3. The lines $y = 2x + 1$, $y = -\frac{1}{2}x + 6$, and $y = -2x - 3$ split the plane into multiple regions. One of the regions has finite area. Compute the area of that region.