



HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

B. Quest to World Final

time limit per test: 2 s. memory limit per test: 256 MB

Char dreams of winning the ICPC World Final! To prepare for this ultimate challenge, he focuses on improving two crucial skills: $algorithmic\ thinking\$ and $implementation\$ accuracy. To be fully prepared, Char must gain at least A points in algorithm skill and B points in implementation skill.

Char has identified n practice problems that can help him improve. Solving the i-th problem grants a_i algorithm points per hour and b_i implementation points per hour. Char can switch between problems at any time, and gains skill proportionally based on the time spent on each problem. However, he can only work on one problem at a time.

Find the real value equal to the minimum number of hours Char needs to reach or exceed both of his skill goals.

Input

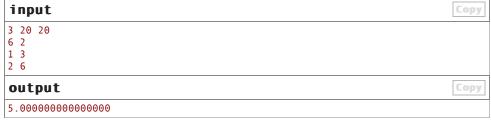
The first line of the input contains three integers n, A and B ($1 \le n \le 100\,000$, $1 \le A$, $B \le 1\,000\,000$) — the number of problems and the required number of algorithm and implementation skill points.

Each of the next n lines contains two integers a_i and b_i ($1 \le a_i$, $b_i \le 1\,000\,000$) — the hourly increase in algorithm and implementation skills for solving the i-th problem.

Output

Print a real value — the minimum number of hours Char needs to reach the required amount of algorithm and implementation skill. Your answer will be considered correct if its absolute or relative error does not exceed 10^{-6} .

Examples



input	Сору
4 1 1	
2 3	
3 2	
2 3	
3 2	
output	Сору
0.400000000000000	

Note

Sample 1: Char will spend 2.5 hours each on problem 1 and problem 3.

UIUC CS 491 Spring 2025

Private

Participant



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Group website

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- Line Sweep Homework (Extra Credit)
- · Convex Hull Preclass
- Number Theory I Homework
- Line Sweep Preclass
- Number Theory II Homework
- · Combinatorics Homework
- · Geometry Preclass
- Geometry Homework
- Convex Hull Homework (Extra Credit)
- Rabin Karp Homework
- Number Theory II Preclass
- · Combinatorics Preclass
- DP TSP Homework
- KMP Homework
- DP Tree Homework
- Number Theory I Preclass
- KMP Preclass
- DP Palindromes Homework
- · Rabin Karp Preclass
- DP Edit Distance Homework
- DP Knapsack Homework
- DP TSP Preclass
- DP Longest Increasing Subsequence -Homework
- DP Intro Homework
- DP Tree Preclass
- Greedy Homework
- · Fenwick Tree Homework