Problem I. Interested in Skiing

Kotori is interested in skiing. The skiing field is an infinite strip going along y-axis on the 2-dimensional plane where all points (x, y) in the field satisfies $-m \leq x \leq m$. When skiing, Kotori cannot move out of the field, which means that the absolute value of his x-coordinate should always be no more than m. There are also n segments on the ground which are the obstacles and Kotori cannot move across the obstacles either.

Kotori will start skiing from $(0, -10^{10^{10^{10}}})$ (you can regard this y-coordinate as a negative infinity) and moves towards the positive direction of the y-axis. Her vertical (parallel to the y-axis) speed is always v_y which cannot be changed, however she can control her horizontal (parallel to the x-axis) speed in the interval of $[-v_x, v_x]$. The time that Kotori changes her velocity can be neglected.

Your task is to help Kotori calculate the minimum value of v_x^* that once $v_x > v_x^*$ she can safely ski through the skiing field without running into the obstacles.

Input

There is only one test case in each test file.

The first line of the input contains three positive integers n, m and v_y ($1 \leq n \leq 100$, $1 \leq m \leq 10^4$, $1 \leq v_y \leq 10$), indicating the number of obstacles, the half width of the skiing field and the vertical speed.

For the following n lines, the i-th line contains four integers x_1, y_1, x_2 and y_2 ($-m \leq x_1, x_2 \leq m$, $-10^4 \leq y_1, y_2 \leq 10^4$, $x_1 \neq x_2$ or $y_1 \neq y_2$) indicating the i-th obstacle which is a segment connecting point (x_1, y_1) and (x_2, y_2), both inclusive (that is to say, these two points are also parts of the obstacle and cannot be touched). It's guaranteed that no two obstacles intersect with each other.

Output

Output one line containing one number indicating the minimum value of v_x^*. If it is impossible for Kotori to pass through the skiing field, output "-1" (without quotes) instead.

Your answer will be considered correct if and only if its absolute or relative error does not exceed 10^{-6}.

Examples

standard input	standard output
3 2 1 -2 0 1 0 -1 4 2 4 0 1 0 3	1.000000000000000
2 1 2 -1 0 1 0 1 1 0 1	-1
2 3 7 -3 0 2 2 3 1 -2 17	1.866666666666666
1 100 1 -100 0 99 0	0.000000000000000