

Problem H. Mines

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 512 mebibytes

A radio-controlled robot mine-sweeper was sent to disarm a minefield.

A sudden magnetic storm broke out and disturbed transmission of commands to the robot. Robot mine-sweeper stopped responding and started moving chaotically. If the controls are not restored, the robot will ultimately run into a mine and blow up. In order to save the robot from the dangerous minefield, a careful rescue plan is what we need. Your part in planning the rescue operation is estimating the amount of time we have for taking action.

The minefield is so vast that in your calculations you may consider it as a Cartesian plane, infinite in every direction. Mines are located in the nodes of a regular grid aligned with coordinate axes. There is a node of the grid in the origin. The distance between vertical lines of the grid is N units and the distance between horizontal lines is M units. There is a mine in each and every node of this grid.

Being affected by the magnetic storm, the robot moves in a following manner. Every second, it makes a one-unit step right, i.e. moves from (x, y) to $(x + 1, y)$, with probability of p percent. Or it makes a one-unit step up, i.e. moves from (x, y) to $(x, y + 1)$, with probability of $(100 - p)$ percent.

The robot mine-sweeper was located at the point with coordinates $(x_{\text{start}}, y_{\text{start}})$ when the control was lost.

Your task is to calculate the expected amount of seconds until the robot blows up on a mine.

Input

The only line of the input contains five integers: N , M , x_{start} , y_{start} and p ($2 \leq N, M \leq 400$, $0 \leq x_{\text{start}}, y_{\text{start}} \leq 10^6$, $1 \leq p \leq 99$).

It is guaranteed that there is no mine in $(x_{\text{start}}, y_{\text{start}})$.

Output

In the only line of the output, write the expected time until robot's detonation on a mine in seconds with absolute or relative error not exceeding 10^{-6} .

Examples

standard input	standard output
2 2 1 1 50	4.0000000000
2 3 7 7 25	6.8299319728