

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

B. Han Solo and Lazer Gun

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

There are n Imperial stormtroopers on the field. The battle field is a plane with Cartesian coordinate system. Each stormtrooper is associated with his coordinates (x, y) on this plane.

Han Solo has the newest duplex lazer gun to fight these stormtroopers. It is situated at the point (x_0, y_0) . In one shot it can can destroy all the stormtroopers, situated on some line that crosses point (x_0, y_0) .

Your task is to determine what minimum number of shots Han Solo needs to defeat all the stormtroopers.

The gun is the newest invention, it shoots very quickly and even after a very large number of shots the stormtroopers don't have enough time to realize what's happening and change their location.

Input

The first line contains three integers n, x_0 и y_0 ($1 \leq n \leq 1000, -10^4 \leq x_0, y_0 \leq 10^4$) — the number of stormtroopers on the battle field and the coordinates of your gun.

Next n lines contain two integers each x_i, y_i ($-10^4 \leq x_i, y_i \leq 10^4$) — the coordinates of the stormtroopers on the battlefield. It is guaranteed that no stormtrooper stands at the same point with the gun. Multiple stormtroopers can stand at the same point.

Output

Print a single integer — the minimum number of shots Han Solo needs to destroy all the stormtroopers.

Examples

input	Copy
4 0 0 1 1 2 2 2 0 -1 -1	
output	Copy
2	

input	Copy
2 1 2 1 1 1 0	
output	Copy
1	

Note

Explanation to the first and second samples from the statement, respectively:



Codeforces Round #291 (Div. 2)

Finished

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

brute force

data structures

geometry

implementation

math

*1400

No tag edit access

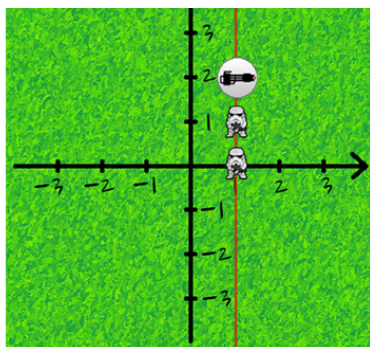
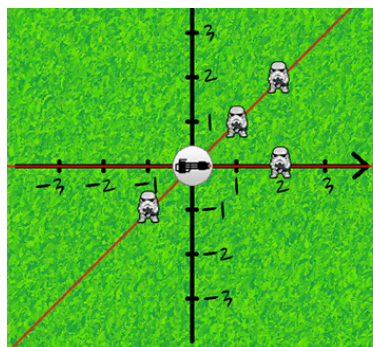
→ Contest materials

Announcement #1 (ru)

Announcement #2 (en)

Tutorial #1 (ru)

Tutorial #2 (en)



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