

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

Note

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

Codeforces Round #291 (Div. 2)

Finished

→ Virtual participation

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Start virtual contest

→ Problem tags

brute force data structures geometry
math

No tag edit access

→ Contest materials

- Announcement 
- Tutorial 