D. Vanya and Triangles

time limit per test: 4 seconds
memory limit per test: 512 megabytes
input: standard input
output: standard output

Vanya got bored and he painted n distinct points on the plane. After that he connected all the points pairwise and saw that as a result many triangles were formed with vertices in the painted points. He asks you to count the number of the formed triangles with the **non-zero** area.

Input

The first line contains integer n ($1 \leq n \leq 2000$) — the number of the points painted on the plane.

Next n lines contain two integers each x_i, y_i ($-100 \leq x_i, y_i \leq 100$) — the coordinates of the i-th point. It is guaranteed that no two given points coincide.

Output

In the first line print an integer — the number of triangles with the non-zero area among the painted points.

Examples

input
4 0 0 1 1 2 0 2 2
output
3

input
3 0 0 1 1 2 0
output
1

input
1 1 1
output
0

Note

Note to the first sample test. There are 3 triangles formed: $(0, 0)$ - $(1, 1)$ - $(2, 0)$; $(0, 0)$ - $(2, 2)$ - $(2, 0)$; $(1, 1)$ - $(2, 2)$ - $(2, 0)$.

Note to the second sample test. There is 1 triangle formed: $(0, 0)$ - $(1, 1)$ - $(2, 0)$.

Note to the third sample test. A single point doesn't form a single triangle.