It is a Tree Problem

Description

You want to start your apple planting business on the heaven of farmers: Apple Tree Land.

Apple Tree Land is a big farm with apple trees on it. It can be viewed as an xy-plane of Cartesian coordinate system. There is one apple tree at every integer point (the point with integer coordinates) on the Apple Tree Land.

Now you are given a simple polygon on the Apple Tree Land. Please calculate how many apple trees you have on this simple polygon. Trees lie on the border of the polygon are also considered as yours.

Input

The first line contains an integer T indicating the total number of test cases.

For each test case, there is an integer N on the first line, indicating the number of vertices for the polygon. The following N lines, each containing two integer x_i, y_i indicating the coordinate of the i-th vertex of the polygon.

- $1 \leq T \leq 80$
- $3 \leq N \leq 50$
- $-10^9 \leq x_i, y_i \leq 10^9$
- The given vertices form a simple polygon (edges intersect only at vertices and no three edges share a single vertex) with limited area in counterclockwise order.

Output

For each test case, output one integer indicating the number of apple trees you have.

Sample Input

```
2
3
0 0
3 0
0 4
4
0 0
1 1
2 0
1 2
```

Sample Output

```
11
4
```