Number of triangulations P45584_en

You are given a polygon with n sides without self-intersections. In how many ways can you triangulate it?

Input

Input consists of several cases with only integer numbers. Each case begins with n, followed by the n coordinates x y of the vertices given in counterclockwise order. Assume $3 \leq n \leq 200$ and $|x|, |y| \leq 10^6$. The given polygons are such that no triangulation contains a degenerate triangle.

Output

For every case, print the number of triangulations modulo $10^9 + 7$.

Sample input 1

```
4
0 0  1 0  1 1  0 1
4
0 0  100000 100000
200000 0  100000 200000
7
2 0  3 2  2 4  0 5  -2 4  -3 2  -2 0
8
1 1  0 3  -1 1  -3 0
-1 -1  0 -3  1 -1  3 0
8
0 0  10 0  10 10  0 10
1 9  9 9  9 1  1 1
```

Sample output 1

```
2
1
42
30
8
```

Problem information

Author: Gerard Orriols

Generation: 2026-01-25T11:18:34.373Z