
Number of triangulations

P45584_en

Divuitè Concurs de Programació de la UPC - Final (2020-10-07)

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

```
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

```
2
1
42
30
8
```

Problem information

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