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 $3 \le n \le 200$ and $|x|, |y| \le 10^6$. 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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