

## Problem D. Dinner

Input file: `stdin`  
Output file: `stdout`  
Time limit: 3 seconds  
Memory limit: 256 MB

A group of students gathered on a 2D plane for dinner. Before enjoying the feast, they decided to count how many groups of students are in a good position. A group of at least 3 students are in good position if and only if they form a convex polygon, that is, if a line is drawn between any two students, then the line should lie inside, or on the boundary of the polygon.

Please help them count the number of such group of students, such that they are in a good position. Since the output may be large, output the number module  $10^9 + 7$ .

### Input

The first line contains an integer  $n$  ( $1 \leq n \leq 300$ ), the length of the initial array. Each line in the next  $n$  lines contains two numbers,  $x_i, y_i$ ,  $|x_i|, |y_i| \leq 10^6$ , the position of the  $i^{th}$  student on the plane. It is further guaranteed that no three students lie on a same line, and no two students have a same x coordinate, and no two students have a same y coordinate.

### Output

Output a single number, the number of groups are students that are in a good position, module  $10^9 + 7$ .

### Examples

| stdin                   | stdout |
|-------------------------|--------|
| 3<br>0 0<br>-1 1<br>1 2 | 1      |

| stdin                                 | stdout |
|---------------------------------------|--------|
| 5<br>0 0<br>-1 1<br>4 4<br>2 7<br>1 3 | 13     |

| stdin                         | stdout |
|-------------------------------|--------|
| 4<br>0 0<br>4 1<br>1 4<br>2 2 | 4      |