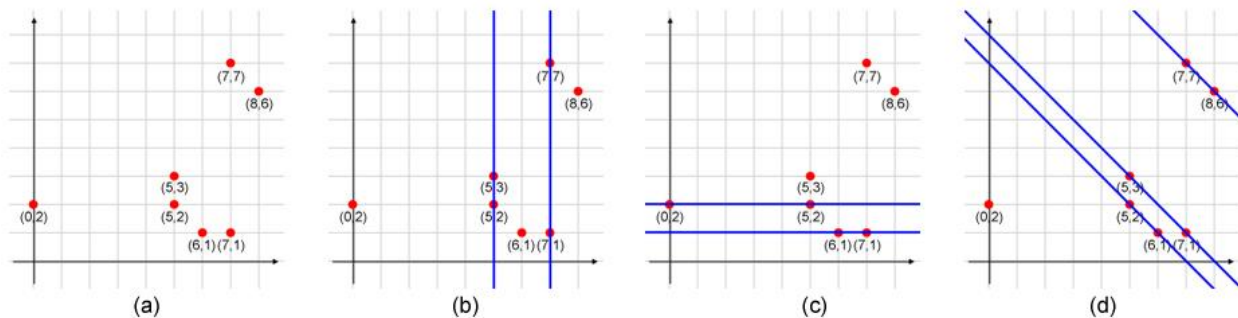


Parallel Lines

Given N distinct points in two-dimensional Cartesian coordinate system, find the maximum number of parallel lines such that each line passes at least two distinct points.

For example, let there be $N = 7$ points: $\{(0,2), (7,7), (8,6), (5,2), (6,1), (5,3), (7,1)\}$, as shown in Figure (a). There are several parallel lines can be formed from the given points. However, the maximum number of parallel lines for these points is 3, as shown in Figure (d).



Note that there should be at least 2 lines parallel to each other in order to be called "parallel lines". If there are no parallel lines can be formed from the input, output 0 instead.

Input

Input begins with an integer N ($1 \leq N \leq 2,000$) denoting the number of points. The next line contains N integers x_i ($0 \leq x_i \leq 1,000,000,000$) representing the x -coordinate of the i^{th} point. The next line contains N integers y_i ($0 \leq y_i \leq 1,000,000,000$) representing the y -coordinate of the i^{th} points.

Output

Output in a line an integer representing the output for the given input.

Examples

input	Example #1
4	
1 2 5 7	
1 2 6 8	

output

2

explanation

There are maximum 2 parallel lines that can be formed; one passes through $\{(1,1), (2,2)\}$, while the other passes through $\{(5,6), (7,8)\}$.

input**Example #2**

6

1 2 3 5 7 10

1 2 3 6 9 11

output

2

explanation

There are maximum 2 parallel lines that can be formed; one passes through $\{(1,1), (2,2), (3,3)\}$, while the other passes through $\{(5,6), (10,11)\}$.

input**Example #3**

5

1 2 5 7 9

1 2 6 4 3

output

0

explanation

There are no parallel lines can be formed.

input

Example #4

```
7
0 7 8 5 6 5 7
2 7 6 2 1 3 1
```

output

```
3
```

explanation

This case corresponds to the example given in the problem statement.