

## 7376 Coverage

A cellular provider has installed  $n$  towers to support their network. Each tower provides coverage in a 1 km radius, and no two towers are closer than 1 km to one another. The coverage region of this network is therefore the set of all points that are no more than 1 km away from at least one tower. The provider wants as much of this region as possible to be connected, in the sense that a user at any point within a connected subregion can travel to any other point within the connected subregion without having to exit the subregion. Their current installation of towers may or may not already form a single connected region, but they have the resources to build one more tower wherever they want, including within 1 km of an existing tower.



Given that the provider is able to build one more tower, what is the maximum number of towers (including the one just built) that can be included within a single connected subregion of coverage?

### Input

The input file contains several test cases, each of them as described below.

The first line consists of a single integer  $n$  ( $1 \leq n \leq 5,000$ ), denoting the number of existing towers. Next follow  $n$  lines each with 2 space-separated real numbers  $x_i, y_i$  ( $0 \leq x_i, y_i \leq 10^5$ ), denoting the location of tower  $i$  in km. It is guaranteed that the optimal number of towers will not change even if the coverage radius of all the towers is increased or decreased by one millimeter.

### Output

For each case, print, on a single line, a single integer denoting the maximum number of towers that can be within a single connected subregion of the network after installing one additional tower.

### Sample Input

```
5
1.0 1.0
3.1 1.0
1.0 3.1
3.1 3.1
4.2 3.1
5
1.0 1.0
3.1 1.0
1.0 3.1
3.1 3.1
10.0 10.0
```

### Sample Output

```
6
5
```