# 10421   Critical Wave

The task is simple. Through some critical points in 2D, you are to draw a wave like curve. Your goal is to include as many points as possible.

- There will be an imaginary line $y = a$, which we call the major axis for the curve.

- All the points on the curve should have different x coordinates. Their y coordinates should be of form $a - 1$ or $a + 1$.

Two consecutive points on the curve should have a difference of 2 in their y coordinate
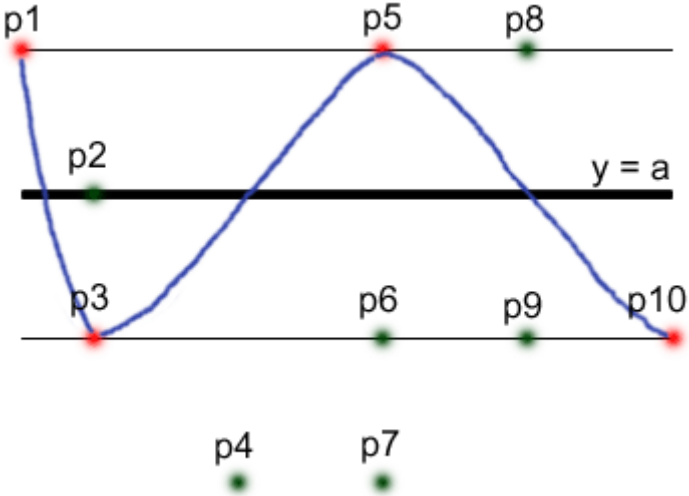
Input

There will be no more than 222 test cases. Each test case starts with an integer N, the number of points in the test case. In the next N lines, there will be N pair of integers giving the x and y coordinate of the points. There will be no more than 1000 points in each test case. All coordinates are integers – they'd fit in an signed 2 byte integer data type.

Output

For each test case print a number – the maximum number of critical points that can be included in a curve drawn from the given points.

Sample Input

```
10
0 1
1 0
1 -1
2 -2
3 1
3 -1
3 -2
```

```
4 1
4 -1
5 -1
10
0 1
1 0
1 -1
2 -2
3 1
3 -1
3 -2
4 1
4 -1
5 -1
```

Sample Output

```
4
4
```