

Barn Expansion

Farmer John has N ($1 \leq N \leq 25,000$) rectangular barns on his farm, all with sides parallel to the X and Y axes and integer corner coordinates in the range $0..1,000,000$. These barns do not overlap although they may share corners and/or sides with other barns. Since he has extra cows to milk this year, FJ would like to expand some of his barns. A barn has room to expand if it does not share a corner or a wall with any other barn. That is, FJ can expand a barn if all four of its walls can be pushed outward by at least some amount without bumping into another barn. If two barns meet at a corner, neither barn can expand. Please determine how many barns have room to expand.

Input

t – the number of test cases, then t test cases follow.

Each test case takes the following form:

The first line contains the number of rectangular barns - n .

Each of the next n lines contains:

Four space-separated integers $A, B, C,$ and D , describing one barn. The lower-left corner of the barn is at (A,B) and the upper right corner is at (C,D) .

Output

For each test case write a single integer that is the number of barns that can be expanded in a separate line

Example

Input:

```
1
5
0 2 2 7
3 5 5 8
4 2 6 4
6 1 8 6
0 0 8 1
```

Output:

```
2
```

Input/Output details:

There are 5 barns. The first barn has its lower-left corner at $(0,2)$ and its upper-right corner at $(2,7)$, and so on.

Only two barns can be expanded --- the first two listed in the input. All other barns are each in contact with at least one other barn.