1956. Minimum Time For K Virus Variants to Spread

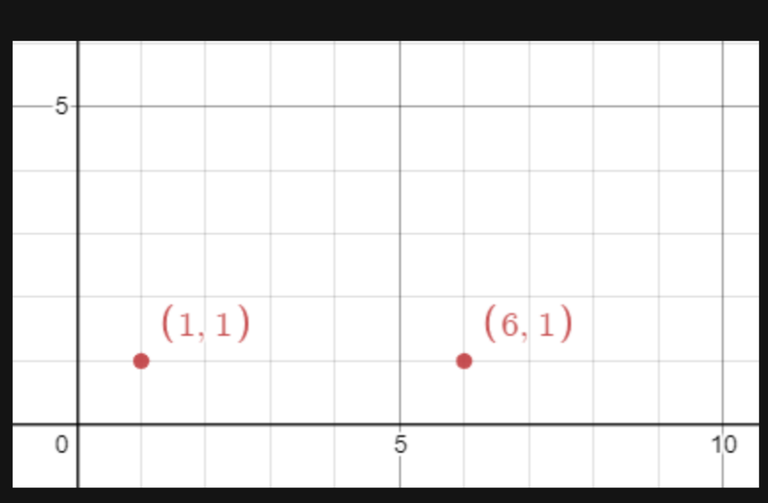
Description

There are `n` **unique** virus variants in an infinite 2D grid. You are given a 2D array `points`, where `points[i] = [x_i, y_i]` represents a virus originating at `(x_i, y_i)` on day `0`. Note that it is possible for **multiple** virus variants to originate at the **same** point.

Every day, each cell infected with a virus variant will spread the virus to **all** neighboring points in the **four** cardinal directions (i.e. up, down, left, and right). If a cell has multiple variants, all the variants will spread without interfering with each other.

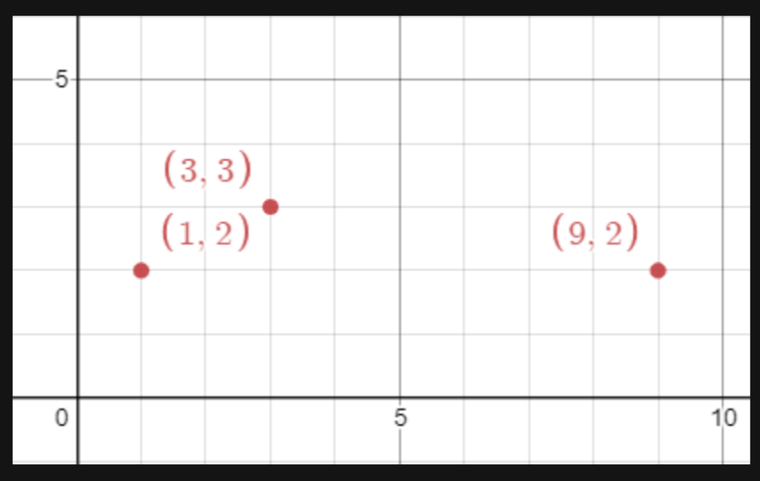
Given an integer `k`, return *the **minimum integer** number of days for **any** point to contain **at least** `k` of the unique virus variants*.

Example 1:



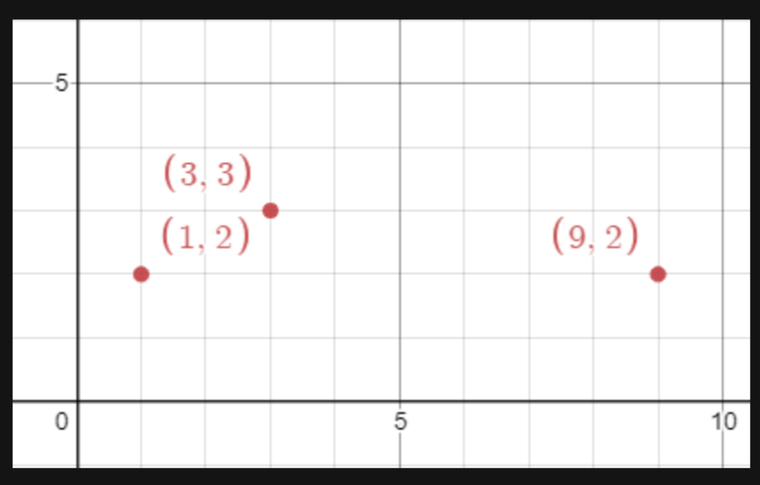

```
Input: points = [[1,1],[6,1]], k = 2
Output: 3
Explanation: On day 3, points (3,1) and (4,1) will contain both virus variants. Note that these are not the only points that will contain both virus variants.
```

Example 2:




```
Input: points = [[3,3],[1,2],[9,2]], k = 2
Output: 2
Explanation: On day 2, points (1,3), (2,3), (2,2), and (3,2) will contain the first two viruses. Note that these are not the only points that will contain both virus variants.
```

Example 3:




```
Input: points = [[3,3],[1,2],[9,2]], k = 3
Output: 4
Explanation: On day 4, the point (5,2) will contain all 3 viruses. Note that this is not the only point that will contain all 3 virus variants.
```

Constraints:

- `n == points.length`
- `2 <= n <= 50`
- `points[i].length == 2`
- `1 <= x_i, y_i <= 100`
- `2 <= k <= n`