

L: The Z Stands for Zorro!

Zorro (or El Zorro - the fox) is a fictional “superhero” dating back to 1919, popularized in the 1950’s by a Disney TV series. Zorro’s trademark is the “sign of the Z”, a series of three overlapping slashes of his sword on the clothing of his opponent that forms the letter Z. The Z may be any size and in any orientation, including backwards (since we may be viewing the cloth from the back side). What distinguishes a Z from anything else is that no other slashes intersect with it and there are a pair of opposite acute interior angles. Your task is to detect Zorro’s mark on various pieces of cloth.

Input

Input may consist of multiple cases (after all, there were many episodes to watch!) Each case consists of multiple lines. The first line of a case begins with the size height and length) of the rectangular section of cloth in which to search. The lower lefthand corner will serve as the origin. Following this is a non-negative integer, no more than 100, indicating the number of slashes on that area of cloth. On the second (and possibly succeeding lines) are pairs of x-y coordinates representing the beginning and ending points of (straight) slashes in the cloth. All input will be in integers. Following all cases is a line consisting of a pair of 0’s. Arbitrary white space may be used as delimiters.

Output

For each case, display the case number followed by the answer to whether Zorro was there, formatted as in the sample. Use single spaces as delimiters.

Sample Input

```
10 10 3
 2 8   8 8       7 9
 1 2         2 5   9 4
10 10 0
10 10 1
 4 4   8 5
0 0
```

Sample Output

```
Case 1: yes
Case 2: no
Case 3: no
```
