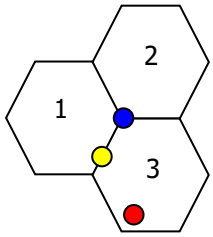
Problem 5
Queen Bee

Let as assume that honeybees live in a beehive consisting of hexagons as shown in the figure below. The task is to find *in which hexagon* the queen bee is located, based on the queen's location, which is specified as a 2-dimensional point (x, y). Each hexagon is assumed to be non-overlapping, but can be adjacent to other hexagons.



The above figure shows a beehive consisting of three hexagons (1, 2 and 3). If the queen's location is the point "a", the queen is located in all hexagons and your program should output all hexagon numbers. If the queen's location is the point "b", the queen is located in hexagon 1 and hexagon 3. If the queen's location is the point "c", the queen is located in hexagon 3.

Input

The first line of the input file contains two integer values, separated by a space, and it specifies the queen's location (x, y). From the second line on, a set of hexagons are given. One hexagon is specified on one line and each consists of six vertices, represented by an ordered vertex list in clock-wise order. A unique hexagon number for each hexagon is assigned using the formula (*line number - 1*).

Output

Output should consist of the hexagon number(s) where the queen resides. In the case that the queen lies on a boundary, all hexagon numbers should be output, delimited by commas.

Sample input

```
file.txt
```

Sample input file (file.txt)

```
10 10
0 0 10 -10 0 -20 -10 -20 -20 -10 -10 0
0 0 10 10 20 10 30 0 20 -10 10 -10
```

Sample output

```
The queen is in the hexagon 2.
```

Additional sample input file (file.txt)

```
3 -4
0 0 10 -10 0 -20 -10 -20 -20 -10 -10 0
0 0 10 10 20 10 30 0 20 -10 10 -10
```

Additional sample output

```
The queen is in the hexagon 1.
```