Level 3 - Obstacle

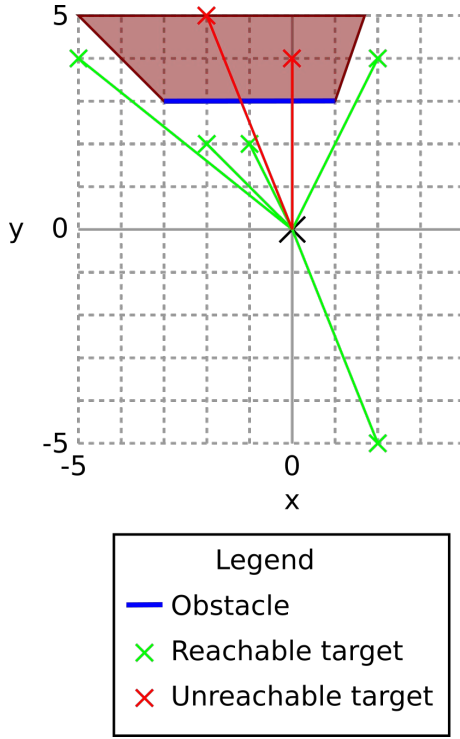
Definitions

- **Obstacles** are horizontal line segments. They represent mountains or other features through which we cannot build hyperloop tubes.
- A target is **reachable** if a *straight* hyperloop tube to it from the start point does not pass through any obstacles.

Task

A single obstacle will be given. Find out which targets are reachable.

Output the reachable targets in the order given in the input.

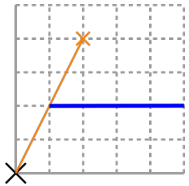


Info

Notes

No targets will be on the obstacle.

No targets will be behind the ends of the obstacle. That is, this ambiguous situation will never occur:



Hints

A target is unreachable if both:

- It is further from the start than the obstacle in its Y-coordinate.
- It has an angle between the angles of the ends of the obstacle.

Data format

Input

`<ObstacleX0> <ObstacleX1> <ObstacleY>` the position of the obstacle with ObstacleX0 < ObstacleX1, and ObstacleY non-zero
`<T>` the number of targets
T lines: `<X> <Y>` the coordinates of a target

Output

`<X_1> <Y_1> … <X_M> <Y_M>`

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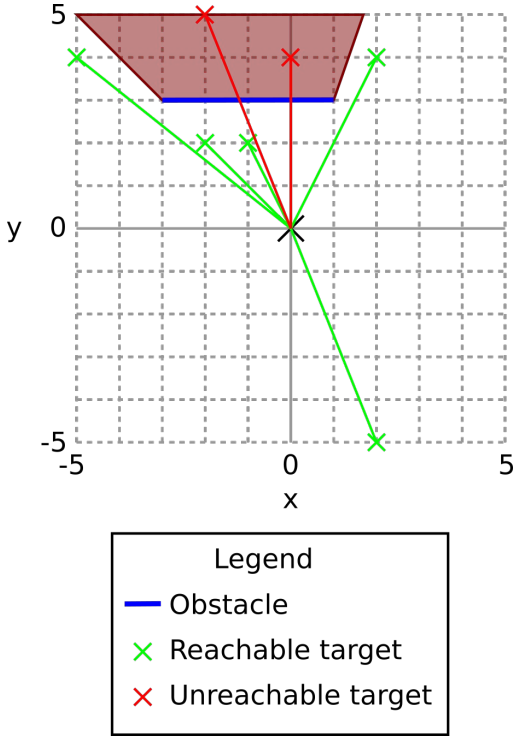
Example

Input

```
-3 1 3
7
2 -5
2 4
0 4
-2 5
-1 2
-2 2
-5 4
```

Output

```
2 -5 2 4 -1 2 -2 2 -5 4
```



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