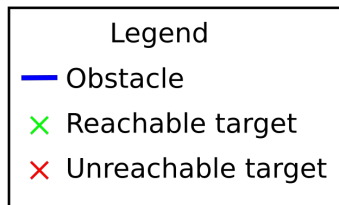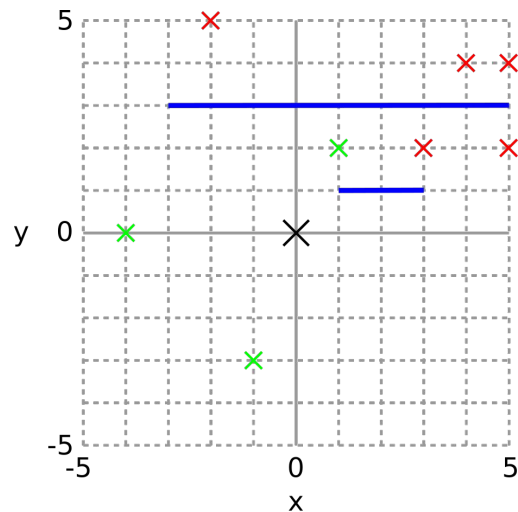# Level 4 - Many obstacles

Task

The full data includes multiple obstacles. Find out which targets are reachable.

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

Notes

As before, no targets will be on an obstacle, and for no target will the straight tube be obstructed only by the end of an obstacle.

Legend
— Obstacle
✕ Reachable target
✕ Unreachable target

Level 4

Data format

Input

`<V>` the number of obstacles

V lines: `<ObstacleX0> <ObstacleX1> <ObstacleY>` an obstacle as before

`<T>` the number of targets

T lines: `<X> <Y>` the coordinates of a target

Output

`<X_1> <Y_1> … <X_M> <Y_M>`
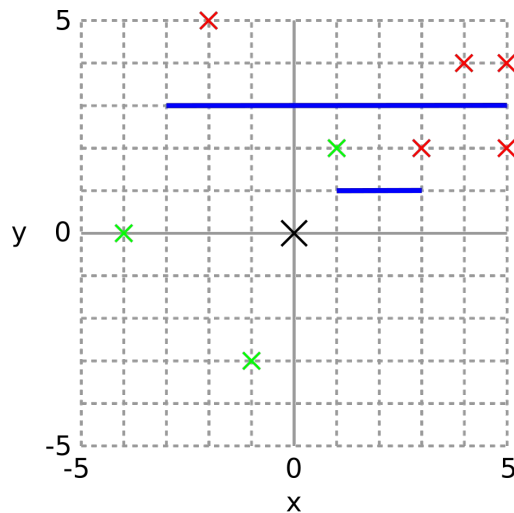
Level 4

Example

Input

```
2
-3 5 3
1 3 1
8
-2 5
4 4
5 4
1 2
3 2
5 2
-4 0
-1 -3
```

Output

```
1 2 -4 0 -1 -3
```


Legend
— Obstacle
× Reachable target
× Unreachable target

Level 4