

It's the year 6023 A.D. relative to the time-coordinates of the earth, where humans have evolved to an advanced civilization extending from the *Milky Way* to a greater extent of our home supercluster *Laniakea*.

Admiral Orion Maverick is the leader of the spacecraft *Pegasus*, and he, along with his crew, is on a mission to the nearby supercluster *Ursa Major*.

During their travel, they encounter some disturbances in space, and they are forced to take a detour from their usual path through the Coma supercluster. Based on their calculations, they are certain that they will be able to reach their target, although the nature of the journey would be quite uncertain.

Following this new route, they come across another issue: they encounter a dark stellar system that does not appear in any of their star maps. They notice that this area in space consists of a large number of densely packed stellar matter including asteroids with voids in between them. They stop there for a little while and try to understand the nature of this system, in order to safely navigate through it.

Through the observations of movements of the asteroids, they figure out that they will be able to safely pass through this area through *some* voids between asteroids. But the problem is that they have to be cautious with this: when they travel between two asteroids, they have to control their ship such that the distances from the ship to the two asteroids be proportional to the strength of their gravitational pull (which is proportional to their radii, which are equal); in doing so, they will not be attracted to an orbit around either of the asteroids so that they will not be drawn off course. In addition, there may be certain voids through which the ship will be unable to travel through because of other effects from the area, and the ship must avoid those.

Meanwhile, you're aboard the *Pegasus* as a member of the crew, who specializes in devising navigational strategies for the ship. During the emergency meeting with the Admiral regarding this situation, you are requested to come up with a solution to tackle this issue and move forward in the mission. In other words, you are expected to devise a set of specific steps that can be fed to the automatic navigation system of the ship and help the ship pass through this area.

Can you devise a specific set of steps to guide the ship *Pegasus* through this area?

Task

The ship gives you the n 2D coordinates $(x_i, y_i), (i \in [0, n])$ of all the asteroids that are in this field (with respect to your current position).

Your task will be to analyse the positions of the asteroids, and devise a set of rules for the ship as given in the input format section.

Notes:

- Focus on improving the score rather than getting all the testcases correct.

Input Format

There will be k sets of coordinates for the asteroids. Each testcase will contain the following:

- First line will contain a number y , which is the target y-coordinate.
- Second line will be the starting x- and y-coordinate.
- Third line will contain an integer n , denoting the total number of asteroids in the field.
- Each of the next n lines will contain coordinates (x_i, y_i) separated by spaces; where x_i and y_i are the 2D coordinates of the asteroid. Due to a small anomaly, the ship coordinates are initially read as $(x_0, y_0) \equiv (0.493312501, -1.545782596)$.

Constraints

- $n \in \mathbb{Z}^+$ such that $1 \leq n \leq 10^7$
- $x_i \in [-50, 50]$
- $y_i \in [0, 50]$

Output Format

Print a list of steps to guide the ship. A simplified list of possible instructions is given below:

- **MOVE d** : moves a distance of d with the current heading
- **RTURN α** : turns the ship clockwise by α degrees (set heading to current heading plus α)
- **LTURN β** : turns the ship anticlockwise by β degrees (set heading to current heading minus β)

Example:

```
START
MOVE 10.50
RTURN 15.35
MOVE 5.10
LTURN 10.27
MOVE 1.09
```

Explanation of the steps: From the current position, move **10.50** units forward with the current heading. Turn right by **15.35°** and then move **5.10** units forward. Turn left by **10.27°**, and move **1.09** units forward.