874. Walking Robot Simulation

Description

A robot on an infinite XY-plane starts at point `(0, 0)` facing north. The robot can receive a sequence of these three possible types of `commands`:

- `-2`: Turn left `90` degrees.
- `-1`: Turn right `90` degrees.
- `1 <= k <= 9`: Move forward `k` units, one unit at a time.

Some of the grid squares are `obstacles`. The `i th` obstacle is at grid point `obstacles[i] = (x i , y i )`. If the robot runs into an obstacle, then it will instead stay in its current location and move on to the next command.

Return *the* ***maximum Euclidean distance*** *that the robot ever gets from the origin* ***squared*** *(i.e. if the distance is* `5` *, return* `25` *)*.

Note:

- North means +Y direction.
- East means +X direction.
- South means -Y direction.
- West means -X direction.
- There can be obstacle in [0,0].

Example 1:

```
Input: commands = [4,-1,3], obstacles = []
Output: 25
Explanation: The robot starts at (0, 0):
1. Move north 4 units to (0, 4).
2. Turn right.
3. Move east 3 units to (3, 4).
The furthest point the robot ever gets from the origin is (3, 4), which squared is 3 2 + 4 2 = 25 units away.
```

Example 2:

```
Input: commands = [4,-1,4,-2,4], obstacles = [[2,4]]
Output: 65
Explanation: The robot starts at (0, 0):
1. Move north 4 units to (0, 4).
2. Turn right.
3. Move east 1 unit and get blocked by the obstacle at (2, 4), robot is at (1, 4).
4. Turn left.
5. Move north 4 units to (1, 8).
The furthest point the robot ever gets from the origin is (1, 8), which squared is 1 2 + 8 2 = 65 units away.
```

Example 3:

```
Input: commands = [6,-1,-1,6], obstacles = []
Output: 36
Explanation: The robot starts at (0, 0):
1. Move north 6 units to (0, 6).
2. Turn right.
3. Turn right.
4. Move south 6 units to (0, 0).
The furthest point the robot ever gets from the origin is (0, 6), which squared is 6 2 = 36 units away.
```

Constraints:

- `1 <= commands.length <= 10 4`
- `commands[i]` is either `-2`, `-1`, or an integer in the range `[1, 9]`.
- `0 <= obstacles.length <= 10 4`
- `-3 * 10 4 <= x i , y i <= 3 * 10 4`
- The answer is guaranteed to be less than `2 31`.