

Problem CLEARSHOT: A clear shot

James is fighting a bad guy on top of a moving train. You are his assisting field agent and M has ordered you to shoot the bad guy. You've positioned yourself along a stretch of railway track in between tunnels to make the shot. Unfortunately, there is not just the difficulty of trying to hit the bad guy while James is fighting him; there are also obstacles obstructing your clear view of the full track length in between the tunnels. To optimally prepare for taking the shot, you'd like to determine the longest consecutive interval of train track to which you have a clear view for making the shot.

The train track and obstacles are described in reference coordinates around you. That is, your position is at the origin $(0, 0)$. The train track is always a straight, horizontal line segment that lies North of you ($y > 0$). For simplicity all obstacles are considered to be circles, and no obstacle overlaps either you or the railway track; obstacles are allowed to overlap each other. All obstacles lie completely in the half plane given by $y > 0$.

Input

The first line contains the number of test cases t ($1 \leq t \leq 100$). Then follows for each test case:

- a line containing three integers x_a, x_b, y ($-10\,000 \leq x_a < x_b \leq 10\,000, 1 \leq y \leq 10\,000$), the coordinates (x_a, y) and (x_b, y) of the railway track endpoints;
- a line containing an integer n ($0 \leq n \leq 1\,000$), the number of obstacles;
- for each obstacle a line containing three integers x_i, y_i, r_i ($-10\,000 \leq x_i, y_i \leq 10\,000, 1 \leq r_i \leq 1\,000$), the circle center (x_i, y_i) and its radius r_i .

Output

For each test case, print on a separate line the maximum consecutive track length onto which you have a clear view. If you cannot see any of the track, then print "IMPOSSIBLE".

Your answer should have an (either relative or absolute) precision of 10^{-6} . If you do have a clear shot, then it will be for at least a length of 10^{-4} .

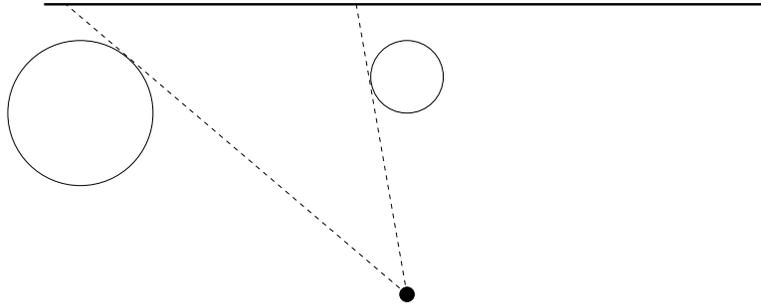


Figure 1: the first example; the longest visible track is right of the object in the middle.

Sample Input 1

```
3
-10 10 8
2
-9 5 2
0 6 1
0 8 10
1
1 5 4
-10 10 8
2
-1 2 1
10 10 1
```

Sample Output 1

```
8.64775
IMPOSSIBLE
10
```