A. Beru-taxi

time limit per test
1 second
memory limit per test
256 megabytes
input
standard input
output
standard output

Vasiliy lives at point (a, b) of the coordinate plane. He is hurrying up to work so he wants to get out of his house as soon as possible. New app suggested n available Beru-taxi nearby. The i-th taxi is located at point (x_i, y_i) and moves with a speed v_i.

Consider that each of n drivers will move directly to Vasiliy and with a maximum possible speed. Compute the minimum time when Vasiliy will get in any of Beru-taxi cars.

Input

The first line of the input contains two integers a and b ($-100 \le a, b \le 100$) — coordinates of Vasiliy's home.

The second line contains a single integer n ($1 \le n \le 1000$) — the number of available Beru-taxi cars nearby.

The i-th of the following n lines contains three integers x_i, y_i and v_i ($-100 \le x_i, y_i \le 100$, $1 \le v_i \le 100$) — the coordinates of the i-th car and its speed.

It's allowed that several cars are located at the same point. Also, cars may be located at exactly the same point where Vasiliy lives.

Output

Print a single real value — the minimum time Vasiliy needs to get in any of the Beru-taxi cars. You answer will be considered correct if its absolute or relative error does not exceed 10^{-6}.

Namely: let's assume that your answer is a, and the answer of the jury is b. The checker program will consider your answer correct, if $\frac{|a-b|}{\max(1,b)} \le 10^{-6}$.

Examples

input

Copy

```
0 0
2
2 0 1
0 2 2
```

output

Copy

```
1.0000000000000000000
```

input

Copy

```
1 3
3
3 3 2
```

```
-2 3 6
-2 7 10
```

output

Copy

```
0.5000000000000000000
```

Note

In the first sample, first taxi will get to Vasiliy in time 2, and second will do this in time 1, therefore 1 is the answer.

In the second sample, cars 2 and 3 will arrive simultaneously.