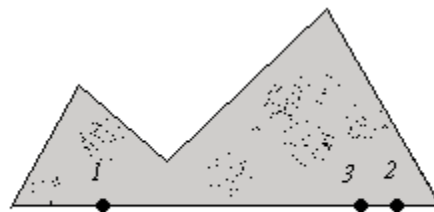


# Problem F

## Mysterious Mountain

A group of  $M$  people is chasing a very strange animal. They believe that it will stay on a mysterious mountain  $T$ , so they decided to climb on it and have a loot. The mountain looks ordinary, shown below:



*Mountain T and 3 people*

That is, the outline of the mountain consists of  $N+1$  segments. The endpoints of them are numbered  $0..N+1$  from left to right. That is to say,  $x[i] < x[i+1]$  for all  $0 \leq i \leq n$ . And also,  $y[0]=y[n+1]=0$ ,  $1 \leq y[i] \leq 1000$  for all  $1 \leq i \leq n$ .

According to their experience, the animal is most likely to stay at one of the  $N$  endpoints numbered  $1..N$ . And... funny enough, they soon discover that  $M=N$ , so each of them can choose a different endpoint to seek for the animal.

Initially, they are all at the foot of the mountain. (i.e at  $(s_i, 0)$ ) For every person  $i$ , he is planning to go left/right to some place  $(x, 0)$  (where  $x$  is an integer - they do not want to take time to work out an accurate place) at the speed of  $w_i$ , then climb directly to the destination along a straight line (obviously, no part of the path that he follows can be OVER the mountain - they can't fly) at the speed of  $c_i$ . They don't want to miss it this time, so the teamleader wants the latest person to be as early as possible. How fast can this be done?

### Input

The input will contain no more than 10 test cases. Each test case begins with a line containing a single integer  $N$  ( $1 \leq N \leq 100$ ). In the following  $N+2$  lines, each line contains two integers  $x_i$  and  $y_i$  ( $0 \leq x_i, y_i \leq 1000$ ) indicating the coordinate of the  $i$ th endpoints. in the following  $N$  lines, each line contains three integers  $c_i, w_i$  and  $s_i$  describing a person ( $1 \leq c_i < w_i \leq 100$ ,  $0 \leq s_i \leq 1000$ ) - the climbing speed, walking speed and initial position. The test case containing  $N=0$  will terminate the input and should not be regarded as a test case.

### Output

For each test case, output a single line containing the least time that these people must take to complete the mission, print the answer with two decimal places.

### Sample Input

```
3
0 0
3 4
6 1
12 6
16 0
2 4 4
8 10 15
4 25 14
0
```

### Sample Output

```
1.43
```

### Note

In this example, Person 1 goes to (5,0) and climbs to endpoint 2, Person 2 climbs directly to endpoint 3. person 3 goes to (4,0) and climbs to endpoint 1. Shown below:

