

Swan Boats

Filename: swan

You've decided to go downtown to the beautiful lake and rent the pedal powered swan boats. Since the rental cost is based on time, you'd like to minimize the time you spend in the boat while visiting each important location in the lake. Write a program to help you calculate the minimum possible cost for your rental. For the purposes of this problem, the lake is a circle centered at (0, 0) with a radius of 1000 meters.

The Problem

Given the starting location of your swan boat, each important location you would like to visit, and your pedaling speed in meters/minute, determine the minimum amount of time necessary to visit each location and return the swan boat to its starting location.

The Input

The first line of the input file will contain a single positive integer, n ($n \leq 50$), representing the test cases to process. Each of the test cases will follow. The first line of each test case will contain three space separated integers: k ($1 \leq k \leq 10$), the number of important locations, a ($0 \leq a < 360$), representing the degree measure of the starting point in relation to the center of the lake, and s ($1 \leq s \leq 100$), representing your pedaling speed in meters per minute. (0° represents east, 90° represents north, 180° represents west, and 270° represents south.) The starting point is always on shore, exactly 1000 meters from the center of the lake. The following k lines will contain information about each important location. The i^{th} of these lines will have two non-negative integers, d_i ($1 \leq d_i \leq 1000$), representing the distance of the i^{th} important location from the center of the lake, and a_i ($0 \leq a_i < 360$), representing the angle from the center of the lake of the i^{th} important location.

The Output

Output a single positive real number rounded to two decimal places representing the minimum time, in minutes, your journey could take.

Sample Input

```
2
1 0 100
1000 180
5 90 10
80 30
1000 180
280 40
678 235
995 209
```

Sample Output

```
40.00
420.12
```