

3718 Fast Track

Travelling in the Infinite Desert is very difficult, dangerous, and boring. Without roads and railway tracks, camel riding is the only form of travel that is available between the cities of the desert. The Desert Development Committee has decided to build a super fast train to connect the cities. The train is so fast that it can go only on a perfectly straight track; even the slightest turn would result in a catastrophe. Therefore, the train track that will be built should be one straight line segment, which means that not every city will be reached by the train. Your task is to design the track in such a way that the number of people who can use the train is maximized. The citizens of a city can only use the train line if the track goes 1 km or closer to the city centre.

Input

The input contains several blocks of test cases. Each case begins with a line containing a single integer $1 \leq n \leq 1000$, the number of cities. Each of the next n lines contain two real numbers $0 \leq x, y \leq 100000$, the coordinates of the city (in km) and an integer $1 \leq p \leq 100000$, the population of the city. It can be assumed that the distance between two cities is always more than 2 km.

The input is terminated by a test case with $n = 0$.

Output

For each test case, you have to output a line containing a single integer: the maximum number of people that the train can reach.

Sample Input

```
4
10 10.4 100
11.0 20 250
9 30 120
20.5 20 200
4
10 10.4 100
11.0 20 250
9 30 120
20.5 20 250
0
```

Sample Output

```
470
500
```