7675   A New Ground Heating Device

A brand new photosensitive ground heating device is under developing.

This time, to test these devices and help local farmers, engineers placed several devices on the ground in a greenhouse. (You can assume the ground of the greenhouse as a plane and the height of all devices are zero)

There is only a light source in the greenhouse. Its coordinate at the plane must be (0,0), but you can put it at any height above the ground(or on the ground) as you want.

The effective warming radius of the i-th device is $\frac{W}{L_i \times Z_i}$, among which W is the power of the light source, L_i is the distance between light source and the i-th device, while owing to different degree of wear and tear, photoresistance factor of each device, Z_i, may be different.

The winter is so harsh that a piece of land in this greenhouse is suitable for planting only when it is heated by at least K devices at the same time.

Considering the efficiency of production, farmers require that the area of arable land should be greater than S.

Engineers wonder, to satisfy the heating demand raised by farmers, what is the maximum height of the light source.

Input

There are multiple test cases.

The first line of the input contains an integer T which means the number of test cases.

The first line of each test case contains four integers, n, W, K and S, meaning that there are n devices, the power of the light source is W, an arable place must be heated by at least K devices, and the area of arable land should be greater than S.

In the next n lines, each line has two integers x, y, and a real number z $(0.1 \leq z \leq 1)$, meaning that there is a device at position (x, y) and its photoresistance factor is z.

Output

For each test case, print a maximum height satisfying the demand, rounded to four decimals.

If the result exceeds 500, print 'Oops!' instead.

If the demand can't be satisfied, print 'No solution!'.

Notes:

$T \leq 50$

$n \leq 200$

There are only two groups of data having relatively large scale.

All the absolute values of numbers occurring in the input won't be greater than 10000.

Sample Input

```
1
3 100 2 10
0 0 0.1
0 1 0.2
1 0 0.3
```

Sample Output

```
307.0016
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