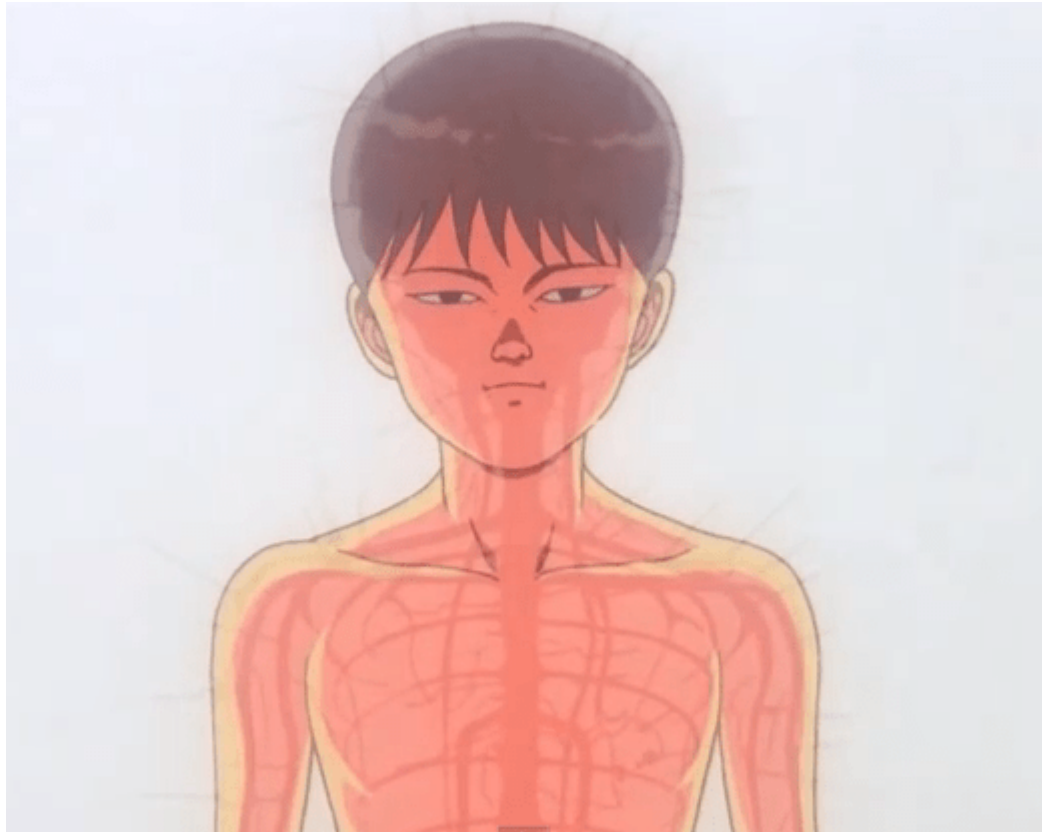


Problem A

Akira's Crisis



In the year 3012, in some place of Neo Mexico. All the pieces of Akira are awakening, each one making a big sphere of light in the process.

Every sphere of light consumes everything it touches, which is why it has been considered a Level 1 catastrophe all the volume delimited by the sphere. However, as time passes by, the spheres will become so big that they start to intersect one another, the moment when two spheres intersect they will be more close to summoning Akira, so they will be categorized as a Level 2 catastrophe. In general, the moment when a level A catastrophe intersects a Level B catastrophe they will become a Level $A + B$ catastrophe.

You know where are all the pieces of Akira and the number of kilometers the spheres expand each second. Determine the minimum time it will take to a catastrophe of level K or greater to be present.

Input

The first line contains the number of independent test cases T ($1 \leq T \leq 200$). Next T lines contain a description of test cases.

The first line of description of each test case contains the number of pieces of Akira N ($1 \leq N \leq 1000$), a real number M ($1 \leq M \leq 100$) indicating the number of kilometers that the sphere expand each second, and finally the level of catastrophe K ($1 \leq K \leq N$)

The next N lines contain a pair of integers X, Y ($-10^6 \leq X, Y \leq 10^6$), representing the position of each of Akira's pieces.

Output

Print T real numbers, each number on a separate line.

In i -th line print the answer for the i -th case. Your answer will be considered correct if its absolute or relative error does not exceed 10^{-6} .

Input example 1 1 1 1 1 0 0	Output example 1 0
Input example 2 1 4 1 2 0 0 0 2 500 500 500 100	Output example 2 1.000000