Problem G. Global Warming

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

Global warming becomes an important issue on Meow Planet. As a great scientist, you are trying to predict the temperature in the future. Thus you need to figure out the effect of heating from sunlight.

Since the sun of Meow Planet is far enough, you can assume that the sunlight is parallel and uniformly spread in the space. Meow Planet is a convex polygon. It's obvious that those surface which facing the sun is heating by the sunlight. An 1 Meow meter surface gets 1 Meow joule if the surface is perpendicular to the sunlight. But if the surface is not perpendicular to the sunlight, the energy absorbing may reduce. For example, a surface with 30° angle to sunlight gets only 0.5 Meow joule, since the equivalent length which facing to sun remains half. The equivalent length is defined as $-L\cos\theta$, where L is the length of the surface and θ is the angle between the normal vector of the surface and the direction vector of sunlight.

Besides, Meow Planet also has a Meow Moon, which partially reflect sunlight and is a convex polygon too. The Meow Moon reflects sunlight with a specific ratio α, which is a real number between 0 to 1. These reflected light should also be considered, but the energy is multiplied by α. Notice that if an area on Meow Planet is simultaneously lighted by sun and moon, the energy from both should be summed together.

Input

The first line of input contains a integer T ($T \leq 20$), indicating the number of test cases.

Each test case starts with n, m, α, v_x, v_y. n, m are the number of the points of Meow Planet and Meow Moon and α is the reflection ratio of Meow Moon. v_x, v_y is the X and Y component of the direction vector of sunlight. n, m are positive integer and $3 \leq n, m \leq 50000$. α, v_x, v_y are real number, which $0 \leq \alpha \leq 1$ and $-10 \leq v_x, v_y \leq +10$.

Then followed by $n + m$ lines. Each of the first n lines is a point x_i, y_i of the polygon of Meow Planet and Each of the rest m lines is a point x_i, y_i of the polygon of Meow Moon. Both polygon is convex and given in counter-clockwise order. Each point x_i, y_i of both polygon is a real number that $-100000 \leq x_i, y_i \leq +100000$.

All real number are given with at most six digits after the decimal point.

Output

For each test case, only output a line contains the total energy absorbed by the Meow Planet. The answer will be considered correct if the absolute or relative error does not exceed 10^{-6}.

Example

standard input	standard output
1 4 4 0.5 1 -1 0 0 1 0 1 1 0 1 1 1.5 2 1.5 2 2.5 1 2.5	1.590990258