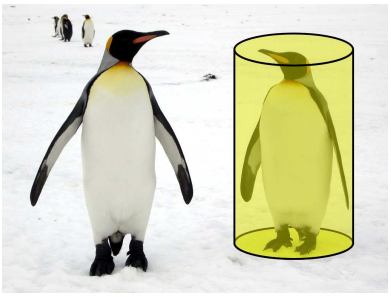
Problem M. Machine Learning with Penguins

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes



Approximated penguin, original image by David Stanley, used under license CC BY 2.0.

Penguins are marine flightless birds which live almost only in the southern hemisphere. These great swimmers are always one of the most popular species in zoos, but unfortunately, such cute creatures are jeopardized by climate change. That's why the International Conservation of Penguins Center (ICPC) launched a project to investigate how to save them. They have launched state-of-the-art autonomous vehicles — plenty of rovers (with camouflage) going around their site collecting images for research. By combining multiple pictures from different points of view, it was possible to study these avians under 3D models, in a more systematic way. However, the drawback was such computation was clearly not possible through human efforts, which was where machine learning came in. Unfortunately, it did not work out. The machine was marking and creating complete nonsense.

Maybe something in the model was wrong. Nevertheless, ICPC needed a complete overhaul of its training methods. Numerous proposals were made, and most of them were easy to implement. However, there was one particular problem they found especially challenging: they wanted to penalize the model for marking shapes that do not resemble penguins, but what exactly makes a shape look like a penguin?

Turns out, physicists have known this for a couple of years: it's a circular cylinder!

How hard could it be to check if there is a circular cylinder of which the surface goes over all the points marked by the algorithm? The truth is, there has not been an effective result during the months. As a consequence, they lowered their short-term target, deciding to only feed in pictures of penguins standing straight. That is, the cylinder is restricted to a right circular cylinder (a cylinder with its cylindrical surface perpendicular to the circle base) with the base of it lying on the x-y plane. Of course, the penguin is neither imaginary nor infinite. The cylinders with zero or infinite volume should be excluded. Could you, renowned computer scientists and the master of geometry, solve this task?

Input

The first line contains a number n ($1 \le n \le 10^5$), which is the number of points the model has marked. Each of the following n lines contains three integers x, y, and z ($-10^9 \le x, y \le 10^9, 0 \le z \le 10^9$), indicating that there is a point in the three dimensional space with coordinate (x, y, z). There will not be duplicated points in the input.

Output

If there is a cylinder satisfying all the constraints, output "`probably`" on the first line. Otherwise, output "`not a penguin`" in a line.

Examples

standard input	standard output
5 0 0 0 3 4 1 -3 -4 2 -3 4 3 3 -4 4	probably
4 0 6 2 3 4 1 -3 -4 1 -3 4 1	not a penguin
2 0 0 0 1 1 0	probably