

Curly Palindromes

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

You are given n points in the plane ($n \leq 100$). All the points are distinct. Each point is labeled with a letter.

Find the largest curly palindrome.

A *curly palindrome* is a sequence such that:

- for all $2 \leq i \leq \text{len}(q) - 1$, the angle of the points $q_{i-1}q_iq_{i+1}$, is counterclockwise. Formally, let $\mathbf{u} = q_i - q_{i-1}$ and $\mathbf{v} = q_{i+1} - q_i$, then $\text{cross}(\mathbf{u}, \mathbf{v}) > 0$, $\text{cross}(\mathbf{a}, \mathbf{b}) := \mathbf{a}_x \cdot \mathbf{b}_y - \mathbf{a}_y \cdot \mathbf{b}_x$.
- No two adjacent points in the sequence should be equal, $q_i \neq q_{i+1}$. It is allowed to use the same point multiple times, as long as the occurrences are not adjacent.
- Lastly, the labels on the points in the curly palindrome must spell out a palindrome.

If you can make curly palindromes of unbounded size, output “Infinity”.

Input

The first line of input contains a single integer, n ($1 \leq n \leq 100$) — the number of points in the input.

Each of the next n lines contains the description of a labeled point. Each line contains two integers x and y and a lowercase english character c , ($0 \leq x, y \leq 10^9$) — the coordinates of the point and the label of the point.

Output

Print a single line containing the length of the largest curly palindrome of the labeled pointset. If the length can be unbounded, instead print on a single line the word “Infinity”

Examples

standard input	standard output
4 0 0 o 1 1 c 2 2 p 3 3 c	2
3 2 3 e 3 2 e 8 9 e	Infinity

Note

In the second case, palindromes of any length k can be made, by starting from some point, and repeatedly walking counterclockwise around the triangle formed by the three e’s. This length can be unbounded, so the output is “Infinity”