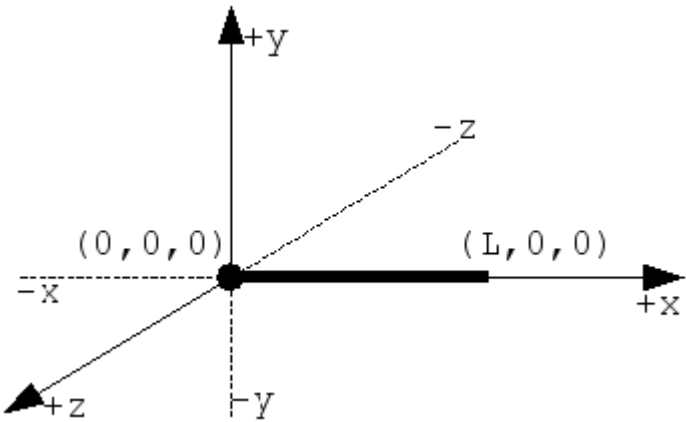


Bender is a robot built by *Mom’s Friendly Robot Company* at its plant in Tijuana, Mexico in 2996. He is a **Bending-Unit 22**, serial number 2716057 and chassis number 1729. He was created for the task of bending metal wires.

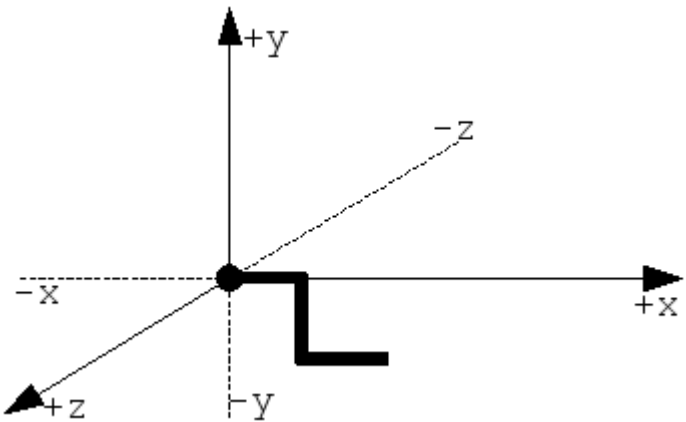
Bender needs to bend a wire of length L ($L \geq 2$ an integer). The wire is represented in the Bender’s brain (a **MOS Technology 6502** microprocessor) as a line stuck in the origin of a tridimensional cartesian coordinate system, and extended along the x positive axis (**+x**), so that the fixed extreme of the wire is in the coordinate $(0,0,0)$ and the free extreme of the wire is in the coordinate $(L,0,0)$.



Bender bends the wire at specific points, starting at the point $(L - 1, 0, 0)$ and ending at the point $(1, 0, 0)$. For each i from $L - 1$ to 1, Bender can take one of the following decisions:

- Not to bend the wire at point $(i, 0, 0)$.
- To bend the wire at point $(i, 0, 0)$ an angle of $\frac{\pi}{2}$ to be parallel to the axis **+y**, **-y**, **+z** or **-z**.

For example, if $L = 3$ and Bender bends the wire at $(2, 0, 0)$ on the **+y** axis direction, and at $(1, 0, 0)$ on the **-y** axis direction, the result would be:



Given a sequence of bends, you must determine what direction is pointed by the last segment of the wire (**+x** in the example). You can suppose that the wire can intercept itself, after all it is the future!

Input

The first line of each test case gives an integer L ($2 \leq L \leq 100000$) indicating the length of the wire. The second line of each test case contains the $L - 1$ decisions taken by Bender at each point, separated by spaces. The j -th decision in the list (for each $1 \leq j \leq L - 1$) corresponds to the decision taken at the point $(L - j, 0, 0)$, and must be one of the following:

- ‘No’ if the wire isn’t bended at point $(L - j, 0, 0)$.
- ‘+y’ if the wire is bended at point $(L - j, 0, 0)$ on the **+y** axis.
- ‘-y’ if the wire is bended at point $(L - j, 0, 0)$ on the **-y** axis.
- ‘+z’ if the wire is bended at point $(L - j, 0, 0)$ on the **+z** axis.
- ‘-z’ if the wire is bended at point $(L - j, 0, 0)$ on the **-z** axis.

The end of the input is indicated when $L = 0$.

Output

For each case in the input, print one line with the direction pointed by the last segment of the wire, ‘+x’, ‘-x’, ‘+y’, ‘-y’, ‘+z’ or ‘-z’ depending on the case.

Sample Input

```
3
+z -z
3
+z +y
2
+z
4
+z +y +z
5
No +z No No
0
```

Sample Output

```
+x
+z
+z
-x
+z
```