Problem G. Nomatrix

Input file	stdin
Output file	stdout

Ionel found a mysterious matrix in his father's old books. The matrix is partially filled with numbers, increasing in a spiral-like fashion, like this:

1	2	9	10	25	26
4	3	8	11	24	27
5	6	7	12	23	28
16	15	14	13	22	29
17	18	19	20	21	30
36	35	34	33	32	31

The numbers are filled in a diagonal-spiral pattern, and the matrix continues infinitely. Ionel has two questions:

1. What is the value at position (L, C) in the infinite matrix?
2. Given a number X, at what coordinates (L, C) does it appear in the matrix?

Task Write a program that, depending on the query type, answers one of the above questions.

Input Data

The first line of the input contains the number n, where:

- $n = 1$ means you're given a position (L, C), and must output the value at that position.
- $n = 2$ means you're given a value X, and must output its coordinates in the matrix.

If $n = 1$, the second line contains two integers L and C.

If $n = 2$, the second line contains a single integer X.

Output Data

Print a single line:

- If $n = 1$, print the value found at position (L, C).
- If $n = 2$, print two integers: the row and column where value X is found.

Restrictions

- $1 < L, C < 10^5$
- $0 < X < 10^9$

Examples

Input file	Output file
1 5 3	19
2 33	6 4