Project Euler #42: Coded triangle numbers

This problem is a programming version of Problem 42 from projecteuler.net

The n^{th} term of a sequence of triangle numbers is given by,

$$t_n = \frac{1}{2}n(n+1)$$

so the first ten triangle numbers are:

$$1, 3, 6, 10, 15, 21, 28, 36, 45, 55, \cdots$$

You are given an integer. If it is a triangular number t_n, print the term n corresponding to this number, else print -1

Input Format

First line of input contains an integer T denoting the number of testcases. Each of the next T lines contains an integer.

Constraints

$1 \leq T \leq 10^5$
$1 \leq t_n \leq 10^{18}$

Output Format

Print the answer corresponding to each test case in a new line.

Sample Input

```
3
2
3
55
```

Sample Output

```
-1
2
10
```