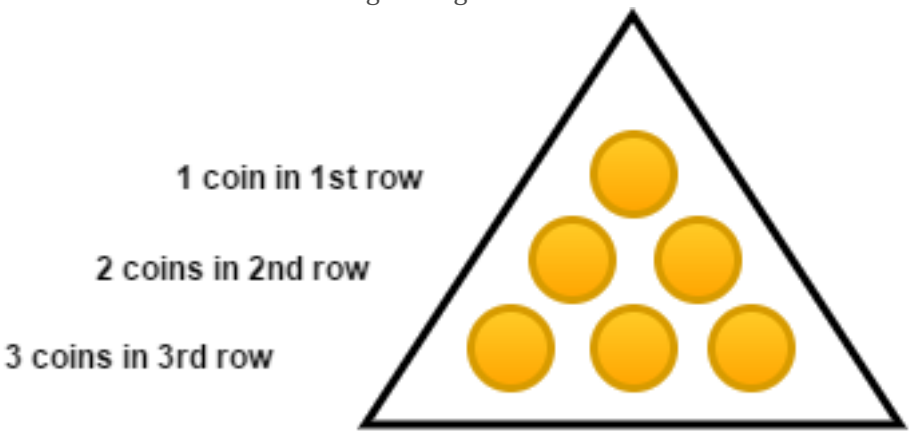
Chef belongs to a very rich family which owns many gold mines. Today, he brought N gold coins and decided to form a triangle using these coins. Isn't it strange?

Chef has a unusual way of forming a triangle using gold coins, which is described as follows:

- He puts 1 coin in the 1^{st} row.
- then puts 2 coins in the 2^{nd} row.
- then puts 3 coins in the 3^{rd} row.
- and so on as shown in the given figure.



A Traingle with height = 3 requires 6 coins

Chef is interested in forming a triangle with maximum possible height using at most N coins. Can you tell him the maximum possible height of the triangle?

Input

The first line of input contains a single integer T denoting the number of test cases.
The first and the only line of each test case contains an integer N denoting the number of gold coins Chef has.

Output

For each test case, output a single line containing an integer corresponding to the maximum possible height of the triangle that Chef can get.

Constraints

- $1 \leq T \leq 100$
- $1 \leq N \leq 10^9$

Subtasks

- Subtask 1 (48 points) : **$1 \leq N \leq 10^5$**
- Subtask 2 (52 points) : **$1 \leq N \leq 10^9$**

Sample 1:

```
Input
Output
3
3
5
7
2
2
3
```

Explanation:

Test 1: Chef can't form a triangle with height > 2 as it requires atleast 6 gold coins. **Test 2:** Chef can't form a triangle with height > 2 as it requires atleast 6 gold coins. **Test 3:** Chef can't form a triangle with height > 3 as it requires atleast 10 gold coins.