Coins And Triangle

Difficulty Rating: 1075 Expand

Statement | Hints | Submissions | Solution | Ask a Doubt

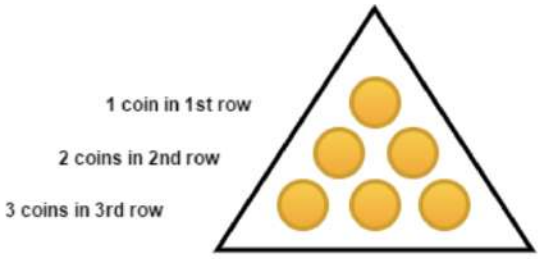
Problem

Read problems statements in Mandarin Chinese , Russian and Vietnamese as well.

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 **1st** row.
- then puts **2** coins in the **2nd** row.
- then puts **3** coins in the **3rd** 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?

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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