Problem 1: Ice Cream Bars!
5+4+4=13 Points

Problem ID: `bars`
Rank: `1+2+3`

Introduction

Summer's finally here, and it's the perfect time to eat ice cream! For the past few months, you've been saving a stash of delicious ice cream bars for this very moment! You decide to come up with a plan to savor these tasty treats: on day 1, you eat 1 bar; on day 2, you eat 2 bars; on day 3, you eat 3 bars, and so on.

Oh, Haagen Dazs, if you wanna give us money, we're looking for sponsors ;)

Problem Statement

Given $\mathbf{N}$ bars of ice cream, find the number of days you can eat following your plan until you run out and won't be able to eat the full amount planned for the next day.

On day 1, you eat 1 bar. On day 2, you eat 2 bars. On day 3, you eat 3 bars, and so on. In other words, on day d, you eat d bars.

Input Format

The first line of input contains a positive integer $\mathbf{T}$ denoting the number of test cases that follow. Each test case is described in a single line containing a single integer $\mathbf{N}$ denoting the number of ice cream bars you have.

Output Format

For each test case, output a single line containing the number of days you can eat for before running out of ice cream bars and not being able to fully eat the next day.

Constraints

$1 \le \mathbf{T} \le 100$

Main Test Set

$0 \le \mathbf{N} \le 10^5$

Bonus Test Set 1

$0 \le \mathbf{N} \le 10^{15}$

Careful! If you are a Java or C/C++ programmer, be aware that the int variable type may be too small to contain $\mathbf{N}$! Java programmers can use variable types long or float instead, and likewise long long or float for C/C++.

Bonus Test Set 2

$0 \le \mathbf{N} \le 10^{10000}$

Careful! Values of $\mathbf{N}$ in this test set are extremely large! They exceed the maximum values of 64 bit integers and floats. This one can be quite tricky to get right, so we recommend trying other problems first if you're stuck.

Sample Test Cases

Sample Input

```
9
0
1
2
3
6
11
69
1337
12345
```

Sample Output

```
0
1
1
2
3
4
11
51
156
```

Sample Explanations

For test case 1, For test case 1, you have no ice cream bars. You can't eat any at all. Thus, you can only eat for 0 days.

For test case 2, you have 1 ice cream bar. You eat your only bar on day 1, and then won't have enough for day 2. Thus, you can only eat for 1 days.

For test case 3, you have 2 ice cream bars. You eat your first bar on day 1, and then won't have enough for day 2 because you need 2 but only have 1 more. Thus, you can only eat for 1 day.

For test case 4, you have 3 ice cream bars. You eat your first bar on day 1, and then your last 2 bars on day 2. You won't have enough for day 3. Thus, you can eat for 2 days.

For test case 5, you have 6 ice cream bars. You eat 1 bar on day 1, 2 bars on day 2, and 3 bars on day 3. You won't have enough for day 4. Thus, you can eat for 3 days.

For test case 6, you have 11 ice cream bars. You eat 1 bar on day 1, 2 bars on day 2, 3 bars on day 3, and 4 bars on day 4. Since you only have 1 left, you won't have enough for day 5. Thus, you can eat for 4 days.