

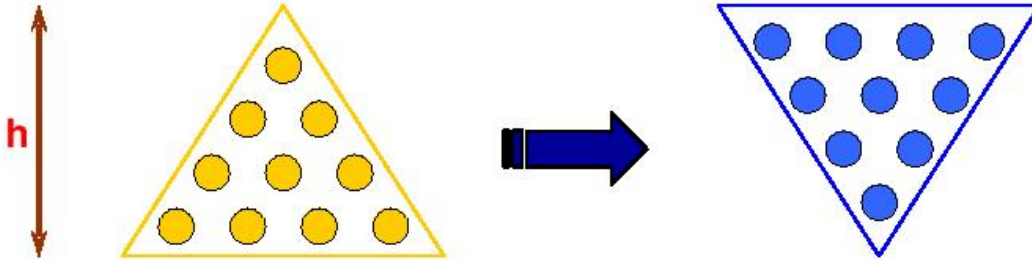
Move To Invert

A triangle made of coins of height h is as follows

It has h coins at the base and $h-1$ coins one level above base and so on. (Coins are placed as shown in the figure below)

And at the top most level there will be only one coin

Now given h the task is to invert this triangle by moving minimum number of coins. For example when $h=4$ triangle is



For $h=4$ at least 3 coins must be moved to invert it.

Input

In the first line N will be given and then N lines follow with each line having an integer which is the height of triangle in that test case. $0 \leq h < 10^{10}$;

Output

For each test case output in a separate line the minimum number of moves required to invert the triangle. Output fits in long long data type

Example

Input:

1
3

Output:

2