Olympic cake (cake)

The preparations for the big final competition of this year's Olympiads have already begun!

A big *rectangular* cake will be served at the end of the meal, to celebrate the end of the 2018 edition. Many guests are expected to take part in the festivities and, obviously, everyone wants to taste at least a bit of the special cake.

Figure 1: A rectangular cake baked for the 2014 final of the Italian Olympiad.

The baker wants to please as many people as possible, but time is running out: he can only do *at most* N cuts. Each cut is made either vertically or horizontally, for the whole length of the cake.

How many pieces of cake can the baker obtain at most?

> ☞ Among the attachments of this task you may find a template file `cake.*` with a sample incomplete implementation.

Input

The first and only line of the input contains a single integer: N.

Output

You need to write a single line with one integer: the number of pieces that can be obtained at most, making no more than N cuts.

Constraints

- $0 \leq N \leq 1\,000\,000\,000$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (30 points) $N \leq 1\,000$.

– **Subtask 3** (20 points) $N \leq 50\,000$.

– **Subtask 4** (20 points) $N \leq 1\,000\,000$.

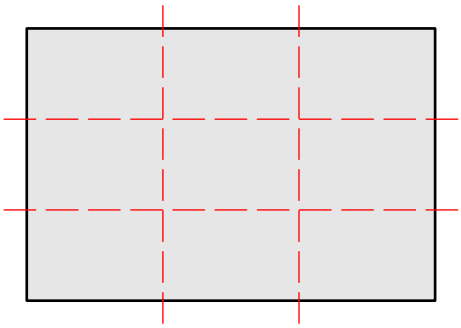
– **Subtask 5** (30 points) No additional limitations.

Examples

stdin/input.txt	stdout/output.txt
4	9
1	2

Explanation

In the **first example**, an optimal solution is to make two vertical cuts and two horizontal cuts. This splits the cake in nine pieces, as shown in the following picture.



In the **second example**, we can obtain two pieces making a single vertical cut. No other allowed cutting strategy leads to more pieces.