# Tightly Packed
## Problem ID: tightlypacked

Consider packing widgets for shipping where widgets cannot be stacked upon each other (2D packing). Each widget has a 1x1 footprint and is 1 unit high.

Boxes are available in any $W$ by $H$ by 1 size such that $H/2 \leq W \leq 2H$, with $W$ and $H$ being integers. The company wants to minimize the amount of packing material that will be needed to fill empty squares in a box.

Given $N$, the number of widgets to be shipped, what is the smallest number of squares that will be left empty when those widgets are packed for shipping?

## Input

Input consists of one line containing an integer $N$, the number of widgets to be packed. $1 \leq N \leq 10^{16}$.

## Output

Print a single line containing an integer denoting the minimum number of empty squares.

## Examples

| Sample Input 1 | Sample Output 1 |
| --- | --- |
| 47 | 1 |

| Sample Input 2 | Sample Output 2 |
| --- | --- |
| 523 | 2 |

| Sample Input 3 | Sample Output 3 |
| --- | --- |
| 10000000000001 | 6 |