

# Galaxy of Stars in a Dream

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            1 second  
Memory limit:         1024 megabytes

Everyone has their own galaxy of stars that they long for but cannot reach.

In a dream, Xinghe has a non-negative integer  $x$ . He needs to find three non-negative integers  $a, b, c$  such that  $a \times b + c = x$ . Let the maximum among these three numbers be  $M = \max(a, b, c)$ , and the minimum be  $m = \min(a, b, c)$ . His goal is to make the range  $M - m$  as small as possible. Please help him determine the minimum possible value of  $M - m$  among all triples  $(a, b, c)$  satisfying the condition.

## Input

The first line contains an integer  $T$  ( $1 \leq T \leq 10^5$ ), denoting the number of test cases.

For each test case, there is one line containing an integer  $x$  ( $0 \leq x \leq 10^9$ ), as described in the statement.

## Output

For each test case, output one integer on a separate line, representing the minimum value of  $M - m$ .

## Example

standard input	standard output
4	1
1	0
12	8
1000	5
729320	