

Yet Another Simple Math Problem

Input file: `standard input`
Output file: `standard output`
Time limit: 2 seconds
Memory limit: 1024 megabytes

You are given an integer N . Find the number of pairs of positive integers (a, b) that satisfy both of the following conditions:

- $1 \leq a, b \leq N$
- There exist positive integers (x, y) such that $x + y^2 = a$ and $x^2 + y = b$

Given T test cases, solve each of them.

Input

The input is given from Standard Input in the following format:

```
T
case1
case2
⋮
caseT
```

Each test case case _{i} ($1 \leq i \leq T$) is given in the following format:

```
N
```

- All values in the input are integers.
- $1 \leq T \leq 10^5$
- $1 \leq N \leq 10^{18}$

Output

Output T lines. The i -th line ($1 \leq i \leq T$) should contain the answer for the i -th test case.

Example

standard input	standard output
3	4
6	0
1	83
101	

Note

In the first test case, there are four pairs (a, b) that satisfy the conditions: $(a, b) = (2, 2), (3, 5), (5, 3), (6, 6)$. For example, for $(a, b) = (3, 5)$, choosing $(x, y) = (2, 1)$ satisfies $x + y^2 = 3 = a$ and $x^2 + y = 5 = b$, fulfilling the given conditions.