Marcus Approximation

Time limit: 1.0s **Memory limit:** 256M

Marcus is a mathematician working at the University of Waterloo. Recently, he had been playing with triangles, and as he is a magnificent mathematician, he soon discovered a powerful formula to count right triangles under a certain hypotenuse. Are you able to keep up with Marcus?

More formally, given an integer hypotenuse h, Marcus would like you to count the number of non-degenerate triangles with integer legs and a hypotenuse (possibly non-integral) at most h. In this case, a triangle is defined as an ordered pair (a, b) (representing the lengths of its legs) such that $a, b \in \mathbb{Z}$ and $1 \leq a, b$.

Lastly, to ensure the runtime and integrity of your solution, it will be run on T test cases.

Your solution will be accepted if it has a relative error of at most 10^{-3}. Relative error will be determined using the following formula:

If your answer is p and the correct answer is q, then your answer will be considered correct if

$$0.999q \leq p \leq 1.001q$$

It is guaranteed that the output data has exactly the correct answer.

Constraints

For all subtasks:

$T \in \{10, 100\}$

$1 \leq h \leq 10^9$

Subtask 1 [10%]

$T = 10$

$1 \leq h \leq 10$

Subtask 2 [10%]

$T = 10$

$1 \leq h \leq 1\,000$

Subtask 3 [20%]

$T = 10$

$1 \leq h \leq 10^5$

Subtask 4 [60%]

$T = 100$

$1 \leq h \leq 10^9$

Input Specification

The first line will contain T, the number of test cases.

The next T lines will each contain an integer, the value of h for that test case.

Output Specification

Output the answer to each test case on a separate line.

Note: while the correct answer is always an integer, the `float` checker is used to determine if your solution is correct, so outputting a floating-point value is OK.

Sample Input

```
10
1
2
3
4
5
6
7
8
9
10
```

Sample Output

```
0
1
4
8
15
22
30
41
54
69
```

Explanation

Here are the answers for the first few test cases:

For $h = 1$, there are no triangles that satisfy the requirement.

For $h = 2$, the triangle that satisfies the requirement is $(1, 1)$.

For $h = 3$, the triangles that satisfy the requirement are $(1, 2), (2, 1), (2, 2)$, along with the one that satisfies $h = 2$.

For $h = 4$, the triangles that satisfy the requirement are $(1, 3), (2, 3), (3, 1), (3, 2)$, along with the ones that satisfy $h = 3$.