HHPC1 P4 - Yet Another A+B Problem

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

Ryan is completing his math assignment where he stumbles upon a curious problem: find the number of pairs of positive integers (a, b) that satisfy the equation $\frac{1}{a} + \frac{1}{b} = \frac{1}{2}$. The assignment is too easy for him, so he generalises the problem: find the number of ordered pairs of positive integers (a, b) which satisfy $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$ for a given positive integer c.

Can you help Ryan solve this redesigned math problem?

Constraints

For all subtasks:

$1 \leq T \leq 10^5$

$1 \leq c \leq 10^7$

Subtask 1 [5%]

$c = 2$

Subtask 2 [45%]

$1 \leq T \leq 10^3$

$1 \leq c \leq 5 \times 10^4$

Subtask 3 [50%]

No additional constraints.

Input Specification

The first line contains a single integer T, the number of test cases.

The following T lines each contain a single integer c.

Output Specification

For each test case, print a single integer, the number of ordered positive integer pairs (a, b) that satisfy $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$. It can be proven that the answer can fit in a 64-bit signed integer.

Sample Input

```
2
1
3
```

Sample Output

```
1
3
```

Sample Explanation

For the first test case, only $(2, 2)$ satisfies the condition.

For the second test case, $(4, 12)$, $(6, 6)$ and $(12, 4)$ satisfy the condition.