ACM-ICPC Live Archive

8270 A Partial Order Relation

In mathematics, a partial order set formalizes and generalizes the intuitive concept of an ordering, sequencing, or arrangement of elements of a set. It is a binary relation indicating that, for certain pairs of elements in a set, one of the elements precedes the other in the ordering but not every pair is comparable. For example, the divisors of 120 form a partial order set. Let the binary relation $\prec$ be divisibility relation. So, $120 \prec 24$ and $120 \prec 40$ but there is no such relation between 24 and 40. $\prec$ is a transitive relation such that $120 \prec 40$ and $40 \prec 8$ imply $120 \prec 8$

Let's define a more restrictive binary relation called greatest divisibility relation $\preceq$. Given a number a. Let $div(a)$ be a set of all divisors of a minus a. Then we define $a \preceq b$ if b is a divisor of a but b cannot divide any other numbers in $div(a)$. For example, $div(30) = \{1, 2, 3, 5, 6, 10, 15\}$. $30 \preceq 6$ because 6 cannot be used to divide other elements in the set.

Given a number, you can construct $\preceq$ relation among the its divisors as in Fig. 1 for 120. The depth of the graph from root node (120) to the terminal node (always 1) is 5 and the number of edges are 28. Given an integer, please compute the number of edges in its $\preceq$ relation graph.

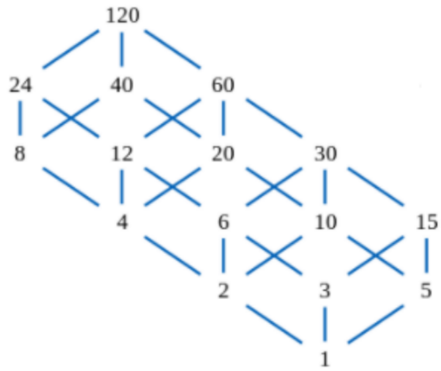

Figure 1: A partial order between the divisors of 120.

Input

The input data begins with a number n ($n \leq 100$), which is the number of test cases.

Each test case contains only a positive integer r, where $1 < r < 2^{40}$. r is the number to build $\preceq$ relation.

Output

For each test case, please print the number of edges in its divisibility relation.

Sample Input

```
2
6
120
```

Sample Output

```
4
28
```