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DIVSUM2 - Divisor Summation (Hard)

#fast-prime-factorization ([/problems/tag/fast-prime-factorization](#))

Given a natural number n ($1 \leq n \leq 1e16$), please output the summation of all its proper divisors.

Definition: A proper divisor of a natural number is the divisor that is strictly less than the number.

e.g. number 20 has 5 proper divisors: 1, 2, 4, 5, 10, and the divisor summation is: $1 + 2 + 4 + 5 + 10 = 22$.

Input

An integer stating the number of test cases (equal to 500), and that many lines follow, each containing one integer between 1 and $1e16$ inclusive.

Output

One integer each line: the divisor summation of the integer given respectively.

Example

Input:

```
3
2
10
20
```

Output:

```
1
8
22
```

warning: a naive algorithm may not run in time.

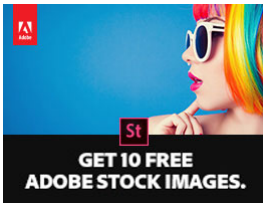
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Notes:

1. Don't post any source code here.
2. Please be careful, leave short comments only. Don't spam here.
3. For more discussion (hints, ideas, solutions) please visit our forum (/forum).
4. Authors of the problems are allowed to delete the post and use html code here (e.g. to provide some useful links).

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Added by: Bin Jin (/users/crazyb0y)
Date: 2007-08-29
Time limit: 18.17s
Source limit: 50000B
Memory limit: 1536MB
Cluster: Cube (Intel G860) (/clusters/)
Languages: All except: CPP
Resource: own problem

Vote requirements



- ✓ be spoj user for at least 5 days
- ✗ solved 9 from 15 needed problems


✖ solve this problem

Own tags

#

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