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## DIVSUM - Divisor Summation

#number-theory (/problems/tag/number-theory)

Given a natural number  $n$  ( $1 \leq n \leq 500000$ ), 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 about 200000), and that many lines follow, each containing one integer between 1 and 500000 inclusive.

### Output

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

### Example

Sample Input:

```
3
2
10
20
```

Sample Output:

```
1
8
22
```

**Warning: large Input/Output data, be careful with certain languages**

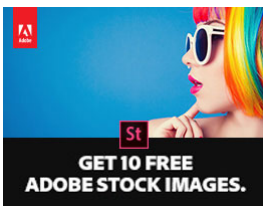
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2. Please be careful, leave short comments only. Don't spam here.
3. For more discussion (hints, ideas, solutions) please visit our forum (/forum).
4. Authors of the problems are allowed to delete the post and use html code here (e.g. to provide some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

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Added by: Neal Zane (/users/nealzane)  
Date: 2004-06-10  
Time limit: 3s  
Source limit: 5000B  
Memory limit: 1536MB  
Cluster: Cube (Intel G860) (/clusters/)  
Languages: All  
Resource: Neal Zane

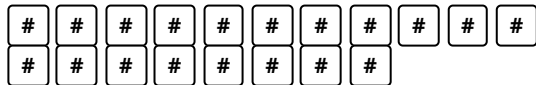
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