

Sum of Factors

Find the sum of the factors of a number including 1 and the given number.

Input

Number of test cases T followed by T lines of number n.

$0 < T \leq 5000$

$0 < n \leq 999999999$

Note: The number will not have a very large prime factor.

Output

The sum of the factors for each test case.

Example

Input:

2

6

5

Output:

12

6