Project Euler #21: Amicable numbers

This problem is a programming version of Problem 21 from projecteuler.net

Let $d(n)$ be defined as the sum of proper divisors of n (numbers less than n which divide evenly into n). If $d(a) = b$ and $d(b) = a$, where $a \neq b$, then a and b are an amicable pair and each of a and b are called amicable numbers.

For example, the proper divisors of 220 are $1, 2, 4, 5, 10, 11, 20, 22, 44, 55 \text{ and } 110$ therefore $d(220) = 284$. The proper divisors of 284 are $1, 2, 4, 71 \text{ and } 142$ so $d(284) = 220$.

Evaluate the sum of all the amicable numbers under N.

Input Format

The first line contains an integer T, i.e., number of test cases.
Next T lines will contain an integer N.

Constraints

- $1 \leqslant T \leqslant 1000$
- $1 \leqslant N \leqslant 10^5$

Output Format

Print the values corresponding to each test case.

Sample Input

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1
300
```

Sample Output

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504
```

Explanation

Under 300 we only have 220 and 284, sum is 504