

# Project Euler #21: Amicable numbers

## Problem Statement

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 and 110 therefore  $d(220) = 284$ . The proper divisors of 284 are 1, 2, 4, 71 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  $N$ .

## Output Format

Print the values corresponding to each test case.

## Constraints

$$1 \leq T \leq 1000$$

$$1 \leq N \leq 10^5$$

## Sample Input

```
1
300
```

## Sample Output

```
504
```