

# Counting Divisors (cube)

Let  $\sigma_0(n)$  be the number of positive divisors of  $n$ .

For example,  $\sigma_0(1) = 1$ ,  $\sigma_0(2) = 2$  and  $\sigma_0(6) = 4$ .

Let  $S_3(n) = \sum_{i=1}^n \sigma_0(i^3)$ .

Your task is to find  $S_3(N)$ .

## Input

First line of Input contains  $T$  ( $1 \leq T \leq 10000$ ), the number of test cases.

Each of the next  $T$  lines contains a single number  $N$ . ( $1 \leq N \leq 10^{11}$ )

## Output

For each number  $N$ , output a single line containing  $S_3(N)$ .

## Example

### Input:

5  
1  
2  
3  
10  
100

### Output:

1  
5  
9  
73  
2302

## Explanation for Input

-  $S_3(3) = \sigma_0(1^3) + \sigma_0(2^3) + \sigma_0(3^3) = 1 + 4 + 4 = 9$

## Information

There are 5 Input files.

- Input #1:  $1 \leq N \leq 10000$ ,  $TL = 1s$ .
- Input #2:  $1 \leq T \leq 300, 1 \leq N \leq 10^8$ ,  $TL = 20s$ .
- Input #3:  $1 \leq T \leq 75, 1 \leq N \leq 10^9$ ,  $TL = 20s$ .

- Input #4:  $T \leq 15, N \leq 10^{10}$ , TL = 20s.

- Input #5:  $T \leq 2, N \leq 10^{11}$ , TL = 20s.

My C++ solution runs in 13.71 sec. (total time)

**Source Limit is 12 KB.**