

# Project Euler #6: Sum square difference

This problem is a programming version of [Problem 6](#) from [projecteuler.net](#)

The sum of the squares of the first ten natural numbers is,  $1^2 + 2^2 + \dots + 10^2 = 385$ . The square of the sum of the first ten natural numbers is,  $(1 + 2 + \dots + 10)^2 = 55^2 = 3025$ . Hence the absolute difference between the sum of the squares of the first ten natural numbers and the square of the sum is  $3025 - 385 = 2640$ .

Find the absolute difference between the sum of the squares of the first  $N$  natural numbers and the square of the sum.

## Input Format

First line contains  $T$  that denotes the number of test cases. This is followed by  $T$  lines, each containing an integer,  $N$ .

## Constraints

- $1 \leq T \leq 10^4$
- $1 \leq N \leq 10^4$

## Output Format

Print the required answer for each test case.

## Sample Input 0

```
2
3
10
```

## Sample Output 0

```
22
2640
```

## Explanation 0

- For  $N = 3$ ,  $(1 + 2 + 3)^2 - (1^2 + 2^2 + 3^2) \Rightarrow 22$
- For  $N = 10$ ,  $(1 + 2 + \dots + 10)^2 - (1^2 + 2^2 + \dots + 10^2) \Rightarrow 2640$