Problem C
Summation of Polynomials

Input: standard input
Output: standard output
Time Limit: 1 second
Memory Limit: 32 MB

The following text was taken from a book of mathematics:

The antidifference of a function **f(x)** is the function **g(x)** such that **f(x) = g(x+1)-g(x)**. So, if we have a summation of **f(x)**, it can be simplified by the use of its antidifference in the following way:

f(k)+f(k+1)+f(k+2)+...+f(k+n) =
g(k+1)-g(k)+g(k+2)-g(k+1)+g(k+3)-g(k+2)+...+g(k+n+1)-g(k+n) =
g(k+n+1)-g(k)

A factorial polynomial is expressed as **k^{n}** meaning the following expression: **k * (k-1) * (k-2) * (k-(n-1))**. The antidifference of a factorial polynomial **k^{n}** is **k^{n+1}/(n+1)**.

So, if you want to calculate **S_n = p(1)+p(2)+p(3)+...+p(n)**, where p(i) is a polynomial of degree **k**, we can express **p(i)** as a sum of various factorial polynomials and then, find out the antidifference **P(i)**. So, we have **S_n = P(n+1) - P(1)**.

Example:

S = 2*3 + 3*5 + 4*7 + 5*9 + 6*11 + ... + (n+1)*(2n+1) =
p(1) + p(2) + p(3) + p(4) + p(5) + ... + p(n), where p(i) = (i+1)(2i+1)

Expressing **p(i)** as a factorial polynomial, we have:
p(i) = 2(i)^{2} + 5i + 1.

P(i) = (2/3) (i)^{3} + (5/2) (i)^{2} + i. Calculating **P(n+1) - P(1)** we have

S = (n/6) * (4n^2 + 15n + 17)

Given a number **1 <= x <= 50,000**, one per line of input, calculate the following summation:

1 + 8 + 27 + ... + x^3

Input and Output

Input file contains several lines of input. Each line contain a single number which denotes the value of **x**. Input is terminated by end of file.

For each line of input produce one line of output which is the desired summation value.

Sample Input

```
1
2
3
```

Sample Output

```
1
9
36
```

(The Joint Effort Contest, Problem setter: Rodrigo Malta Schmidt)