

A Maximization Problem

Time Limit: 1.0s **Memory Limit:** 64M

You are given an integer N . You want to break it down into three *non-negative* integers a , b , and c such that $a + b + c = N$ and maximizes:

$$abc + bc + ab + ac$$

Print out the maximum such value of $abc + bc + ab + ac$ given N .

Input Specification

The first line will contain the integer N ($1 \leq N \leq 5 \times 10^6$).

Output Specification

Output the maximum such value of $abc + bc + ab + ac$.

Subtasks

Subtask 1 [20%]

$N \leq 1\,000$

Subtask 2 [80%]

No further constraints.

Sample Input

```
4
```

Sample Output

```
7
```

Explanation for Sample

One possible solution would be $a = 1, b = 2, c = 1$.