Project Euler #245: Coresilience

This problem is a programming version of Problem 245 from projecteuler.net

We shall call a fraction that cannot be cancelled down a **resilient** fraction.

Furthermore we shall define the resilience of a denominator, $R(d)$, to be the ratio of its proper fractions that are resilient; for example, consider $d = 12$. The proper fractions with a 12 denominator are $1/12, \ 2/12, \ 3/12, \ \ldots, \ 11/12$. Four of these cannot be cancelled down, so the resilience is $R(12) = 4/11$.

The resilience of a number $d > 1$ is then

$$R(d) = \frac{\varphi(d)}{d - 1}$$

where φ is Euler's totient function.

We further define the **coresilience** of a number $n > 1$ as

$$C(n) = \frac{n - \varphi(n)}{n - 1}.$$

Given an integer N, find the sum of all integers $1 < n \leq N$ for which $C(n)$ is a unit fraction, that is, a fraction with a numerator of 1 after cancelling down.

Input Format

Each test file contains a single line containing a single integer N.

Constraints

$2 \leq N \leq 10^{11}$

Output Format

Print the integer value of the sum of all integers $1 < n \leq N$ for which $C(n)$ is a unit fraction.

Sample Input 0

```
5
```

Sample Output 0

```
10
```

Explanation 0

Integer	2	3	4	5
Euler Phi	1	2	2	4

The sum of integers with Coresilience a unit fraction: $2 + 3 + 5 = 10$.