

# Project Euler #53: Combinatoric selections

This problem is a programming version of [Problem 53](#) from [projecteuler.net](#)

There are exactly ten ways of selecting three from five, **12345**:

**123, 124, 125, 134, 135, 145, 234, 235, 245, and 345**

In combinatorics, we use the notation,  ${}^5C_3 = 10$

In general,

$${}^nC_r = \frac{n!}{r! \times (n-r)!}, \text{ where } r \leq n, n! = n \times n-1 \times n-2 \times \dots \times 3 \times 2 \times 1 \text{ and } 0! = 1$$

It is not until  $n = 23$ , that a value exceeds one-million:

$${}^{23}C_{10} = 1144066$$

How many, not necessarily distinct, values of  ${}^nC_r$ , for  $1 \leq n \leq N$ , are greater than K?

## Input Format

Input contains two integers  $N$  and  $K$ .

## Constraints

$$2 \leq N \leq 1000$$

$$1 \leq K \leq 10^{18}$$

## Output Format

Print the answer corresponding to the test case.

## Sample Input

```
23 1000000
```

## Sample Output

```
4
```