

# Security Encryption Scheme

An *encryption scheme* consists of a set  $\{E_e : e \in K\}$  and a corresponding set  $\{D_d : d \in K\}$  of encrypting and decrypting functions, respectively.

For each  $e \in K$ , there is a unique key  $d \in K$  where  $D_d = E_e^{-1}$ .

An encryption scheme is also called a *cipher*.

It should be clear that every  $e$  is actually a representative of some bijection from  $M$  to  $C$ . In this task, you have to count the number of such bijections and, hence, the number of keys that produce different encryption functions.

Assume that  $|M| = |C| = n$  which is given as the input.

## Constraints

$$1 \leq n \leq 10$$

## Input Format

The input consists of a single positive integer  $n$ .

## Output Format

Output a single positive integer, the number of bijections.

## Sample Input

3

## Sample Output

6

## Explanation

Let us assume that  $M = \{1, 2, 3\}$  and  $C = \{3, 2, 1\}$ .

We can have encryption schemes where **1** can be mapped to **3** or **2** or **1**, **2** can be mapped to the remaining two, and **3** can be mapped to the unmapped one.

This accounts for  $3 * 2 * 1 = 6$  such encryption functions.