

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 **1** can be mapped to the unmapped one.

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