

SEQUENCE

A sequence of natural numbers is given

$A_1=9$

$A_2=96$

$A_3=685$

$A_4=4992$

and so on..

Your task is to find the Nth term of the sequence.

Input

A natural number N such that $5 \leq N \leq 1000$

Output

The Nth number of the sequence which is also a natural number.

Example

Input:

8

Output:

39916680