

# Project Euler #56: Powerful digit sum

This problem is a programming version of [Problem 56](#) from [projecteuler.net](#)

A googol ( $10^{100}$ ) is a massive number: one followed by one-hundred zeros.  $100^{100}$  is almost unimaginably large: one followed by two-hundred zeros. Despite their size, the sum of the digits in each number is only 1.

Considering natural numbers of the form,  $a^b$ , where  $a, b < N$ , what is the maximum digital sum?

## Input Format

Input contains an integer  $N$

## Constraints

$$5 \leq N \leq 200$$

## Output Format

Print the answer corresponding to the test case.

## Sample Input

5

## Sample Output

13

## Explanation

$4^4 = 256$  and  $2 + 5 + 6 = 13$ , which is the maximum digital sum for this range.