

Project Euler #56: Powerful digit sum

Problem Statement

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

Output Format

Print the answer corresponding to the test case.

Constraints

$$5 \leq N \leq 200$$

Sample Input

5

Sample Output

13

Explanation

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