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

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5
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Sample Output

```
13
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Explanation

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