Project Euler #32: Pandigital products

This problem is a programming version of Problem 32 from projecteuler.net

We shall say that an N -digit number is pandigital if it makes use of all the digits 1 to N exactly once; for example, the 5-digit number, 15234, is 1 through 5 pandigital.

The product 7254 is unusual, as the identity, 39 × 186 = 7254, containing multiplicand, multiplier, and product is 1 through 9 pandigital.

Find the sum of all products whose multiplicand/multiplier/product identity can be written as a 1 through N pandigital.

HINT: Some products can be obtained in more than one way so be sure to only include it once in your sum.

Input Format
Input contains an integer N

Output Format
Print the answer corresponding to the test case.

Constraints
$4 \leq N \leq 9$

Sample Input

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4
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Sample Output

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12
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