

I Prime Cows

Farmer John is lining up his N cows for inspection ($1 \leq N \leq 10^5$)!

Each of these N cows can be associated with any digit 0 through 9. Let's denote the digit of the i th cow to be c_i .

Farmer John determines that the cows will pass inspection if, for every F ($1 \leq F \leq N$), both the F -digit number $c_1c_2c_3 \dots c_F$ and the $(N - F)$ -digit number $c_{F+1}c_{F+2}c_{F+3} \dots c_N$ are prime.

Help the cows find the number of distinct ways they can assign digits to pass the inspection.

SHORT NAME: prime

INPUT FORMAT:

Line 1 contains the integer N , the number of cows.

OUTPUT FORMAT:

Output the number of ways the cows can be numbered to pass inspection.

SAMPLE INPUT:

2

SAMPLE OUTPUT:

4

The assignments that work in the sample case are 2|3, 3|7, 5|3, and 7|3.