

Problem

Primes

Input File: PrimesIn.txt

Output File: PrimesOut.txt

Project File: Primes

Your cousin Geoff is having trouble in his math class. He is studying prime numbers, and a special subset of the prime numbers called $4k+3$ primes. A prime number is an integer greater than 1 that is only evenly divisible by itself and 1. A prime, p , is a $4k+3$ prime if there is some integer k such that $p = 4k+3$.

Ms. Maggie, Geoff's math teacher, has asked him to find the lowest prime number above a given integer, n . Geoff is stumped, and frankly he suspects Ms. Maggie can't find the $4k+3$ prime either. Your job is to help cousin Geoff and Ms. Maggie by writing a program to determine the lowest $4k+3$ prime above an integer, n .

Inputs

The input file will contain several values of n , one per line.

Outputs

For each value of n , output the corresponding value of p (the lowest $4k+3$ prime above n) one output per line.

Sample input

14
278
1145
2784

Sample output

19
283
1151
2791