1198 - Prime Gap

Description

The sequence of n-1 consecutive composite positives numbers (whole numbers that are not prime or equal to 1) found between two consecutive primes p and p+n is called prime gap of length n. For example, do 24, 25, 26, 27, 28? between 23 and 29 is a prime gap of length 6. Your mission is to write a program to compute given a positive integer k the length of the prime gap containing k. For convenience, the length is considered 0 if no breach of primes contains k.

Input specification

The input is a sequence of lines, each of which contains a positive integer k (1 < k <= 1299709). The end of input is indicated by a line containing a 0.

Output specification

The output should be composed of lines, each of which contains a unique non-negative number, the length of the prime gap that contains the integer k, or 0 otherwise.

Sample input

```
10
11
27
2
492170
0
```

Sample output

```
4
0
6
0
114
```

Hint(s)

Source	Peking University Online Judge
Added by	**ejaltuna**
Addition date	2011-10-13 07:47:17.0
Time limit (ms)	3000
Test limit (ms)	3000
Memory limit (kb)	131072
Output limit (mb)	64
Size limit (bytes)	100000
Enabled languages	C C# C++ Java Pascal Perl PHP Python Ruby Text