

Primes

SEASON 7 – ROUND FOUR



As you know a prime number is a positive integer that has exactly two distinct positive integer divisors.

Consider positive integers $a, a + 1, \dots, b$ ($a \leq b$). You want to find the minimum integer l ($1 \leq l \leq b - a + 1$) such that for any integer x

($a \leq x \leq b - l + 1$) among l integers $x, x + 1, \dots, x + l - 1$ there are at least k prime numbers.

Find and print the required minimum l . If no value l meets the described limitations, print -1.

Input

The first row of the file `primes.in` contains of 3 integers – **a, b** and **k**.

Output

In the output file `primes.out` print a single integer - the required minimum l . If there's no solution, print -1.

Constraints

$$1 \leq a, b, k \leq 1\,000\,000$$

$$a \leq b$$

Time limit: 1.0 sec

Memory limit: 256 MB

Example test

Input (<code>primes.in</code>)	Output (<code>prime_test</code>)out)
2 4 2	3
6 13 1	4
1 4 3	-1