

Prime Protocol

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

points: 100 · problem code: primeprotocol · author: sleb0005

In the kingdom of MAPS, the royal archives contain a sequence of scrolls numbered from X to Y . The Prime Minister (literally a minister obsessed with prime numbers) has devised a new Prime Security Protocol to ensure the archives remain safe from spies.

The protocol states that for **every** window of exactly M consecutive scrolls, there must be at least K prime-numbered scrolls to ensure numerical purity. If a spy tries to extract knowledge from the archives, they will always encounter a sufficient number of prime scrolls in any section, dismantling their evil plans.

As the kingdom's Chief Mathematician, you must determine the smallest possible M that satisfies this protocol. If there exists no valid M , report -1 to the Prime Minister.

Input

A single line containing three integers X, Y, K .

Output

A single line containing one integer M (if it exists) or -1 .

Constraints

- $1 \leq X, Y, K, \leq 10^6$
- $X \leq Y$

Example 1

Input

```
2 4 2
```

Output

```
3
```

Example 2

Input

```
2 4 3
```

Output

```
-1
```

Example 3

Input

```
6 13 1
```

Output

4