E. Double Happiness

time limit per test: 3 seconds
memory limit per test: 128 megabytes
input: standard input
output: standard output

On the math lesson a teacher asked each pupil to come up with his own lucky numbers. As a fan of number theory Peter chose prime numbers. Bob was more original. He said that number t is his lucky number, if it can be represented as:

$$t = a^2 + b^2,$$

where a, b are arbitrary positive integers.

Now, the boys decided to find out how many days of the interval $[l, r]$ ($l \le r$) are suitable for pair programming. They decided that the day i ($l \le i \le r$) is suitable for pair programming if and only if the number i is lucky for Peter and lucky for Bob at the same time. Help the boys to find the number of such days.

Input

The first line of the input contains integer numbers l, r ($1 \le l, r \le 3 \cdot 10^8$).

Output

In the only line print the number of days on the segment $[l, r]$, which are lucky for Peter and Bob at the same time.

Examples

input
3 5
output
1

input
6 66
output
7