



## 2946 - Phony primes

Europe - Southwestern - 2003/2004

You are chief debugger for Poorly Guarded Privacy, Inc. One of the top selling product, ReallySecureAgent©, seems to have a problem with its prime number generator. It produces from time to time bogus primes  $N$ . After a while, you realize that the problem is due to the way primes are recognized.

Every phony prime  $N$  you discover can be characterized as follows. It is odd and has distinct prime factors, say  $N = p_1 * p_2 * \dots * p_k$  with  $p_i < p_j$ , where the number  $k$  of factors is at least 3. Moreover, for all  $i = 1..k$ ,  $p_i - 1$  divides  $N - 1$ . For instance,  $561 = 3 * 11 * 17$  is a phony prime.

Intrigued by this phenomenon, you decide to write a program that enumerates all such  $N$ 's in a given interval  $[N_{\min}, N_{\max}]$ , with  $1 \leq N_{\min} < N_{\max} < 2^{31}$ ,  $N_{\max} - N_{\min} < 10^6$ .

### Input

Input consists of several test cases, each of them following the description below. A blank line separates two consecutive cases.

Each test file contains one line. On this line are written the two integers  $N_{\min}$  and  $N_{\max}$  separated by a blank.

### Output

For each test case, output the list of phony primes in increasing order, one per line. If there are no phony prime in the interval, then simply output 'none' on a line.

The outputs of two consecutive cases will be separated by a blank line.

### Sample Input

```
10 2000
20000 21000
```

### Sample Output

```
561
1105
1729
```

```
none
```

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Southwestern 2003-2004