

## 7120 Everything in Excess!

The prime factorization of a positive integer  $n$  is the list of  $n$ 's prime factors, together with their multiplicities:

$$n = \prod_{i=1}^k p_i^{m_i}$$

where the  $p_i$  are the factors (prime numbers) and the  $m_i$  are the corresponding multiplicities.

The *excess* of  $n$  is defined as the sum of the multiplicities ( $\sum_{i=1}^k m_i$ ) minus the number of factors ( $k$ ). It describes the number of times that factors get “re-used” in the factorization. For example, the excess of 8 is 2, the excess of 16 is 3, and the excess of 100 is 2.

Given a pair of integers  $n_0 \leq n_1$ , print the integer  $n$  that has the largest excess of any integer in the range  $n_0 \dots n_1$  (inclusive).

### Input

The input will consist of one or more test cases.

Each test case will be presented on a single line as a pair of integers, in the range 2 ...10,000,000, denoting the values  $n_0$  and  $n_1$  as described above.

End of input will be indicated by a line containing ‘0 0’.

### Output

For each test case, print a single integer indicating the value in the range  $n_0 \dots n_1$  with the largest excess. If two or more values in the range tie for the largest excess, print the lowest such value.

### Sample Input

```
2 11
600 700
0 0
```

### Sample Output

```
8
640
```