

# 7<sup>th</sup> South African Regional ACM Collegiate Programming Competition

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## Problem A – Yellow balloon Prime concern

The RSA encryption algorithm requires two large prime numbers to compute an encryption / decryption key pair. The bigger the prime numbers, the harder it becomes to compromise your encrypted data. Thus, the search for large prime numbers begins...

You have developed a novel algorithm for generating *potential* prime numbers. However, since no known deterministic algorithm exists that generates prime numbers, you know that you will have a few non-primes in your output, so you have to filter your algorithm's output to extract the largest prime number.

Your task is simple: given a sequence of numbers, find the largest prime number amongst them.

### Input

Your input will consist of a number of records. Each record is a sequence of integers in the range 2 to  $2^{32} - 1$ , terminated by the value 0.

The last record in the input set will be terminated by the number -1.

### Output

For each input record, your output should be the largest prime number in the sequence.

### Sample Input

```
5
7
21
9
11
101
13
0
65535
131071
-1
```

### Sample Output

```
101
131071
```