

## 4632 Sophie

A prime number is an integer greater than 1 that is only divisible by 1 and itself. The first five primes are 2, 3, 5, 7, 11. A Sophie Germain prime is an integer  $p$  such that both  $p$  and  $2p + 1$  are prime. The first five Sophie Germain primes are 2, 3, 5, 11, 23.

Your task is to count the number of Sophie Germain primes there are between 1 and  $N$  inclusive, for various  $N$ .

### Input

The input consists of multiple test cases. Each test case contains a single line containing the integer  $N$ . The end of input is indicated by a line containing the integer '0'.

There will be at most 20 test cases, and the value of  $N$  in each test case will be between 1 and 10 000, inclusive.

### Output

For each test case, output the number of Sophie Germain primes that are between 1 and  $N$ , inclusive, on a separate line.

### Sample Input

```
23
4
100
0
```

### Sample Output

```
5
2
10
```