Programming Lab #5

Due: April 11, 11:59 PM

Solomon Golomb's self-describing sequence {f(1), f(2), f(3), …} is the only nondecreasing sequence of positive integers with the property that it contains exactly f(k) occurrences of k for each k. A few moment's thought reveals that the sequence must begin as follows:

n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
f(n)	1	2	2	3	3	4	4	4	5	5	5	6	6	6	6

In this problem you are expected to write a program that calculates the value of f(n) given the value of n.

Input

The input may contain multiple test cases. Each test case occupies a separate line and contains an integer n (1 ≤ n ≤ 2,000,000,000). The input terminates with a test case containing a value 0 for n and this case must not be processed.

Output

For each test case in the input, output the value of f(n) on a separate line.

Sample Input

```
100
9999
123456
1000000000
0
```

Sample Output

```
21
356
1684
438744
```