

Recaman's Sequence

[English](#)

[Vietnamese](#)

The Recaman's sequence is defined by $a_0 = 0$; for $m > 0$, $a(m) = a(m-1) - m$ if the resulting $a(m)$ is positive and not already in the sequence, otherwise $a(m) = a(m-1) + m$. The first few numbers in the Recaman's Sequence is 0, 1, 3, 6, 2, 7, 13, 20, 12, 21, 11, 22, 10, 23, 9

Given k , your task is to calculate $a(k)$.

Input

The input consists of several test cases. Each line of the input contains an integer k where $0 \leq k \leq 500000$. The last line contains an integer -1 , which should not be processed.

Sample Input

```
7
10000
-1
```

Output

For each k given in the input, print one line containing $a(k)$ to the output.

Sample output

```
20
18658
```