

# 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  $\dots$ .

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
```