H. Recruits

Time Limit: 1 second

Points: 100

Giuseppe is an army officer. There is an infinite line of recruits waiting to join, numbered $1, 2, 3, \ldots$, and Giuseppe must decide which recruits to accept.

- On the first day, Giuseppe begins at the start of the line and rejects every second recruit (starting from the second recruit in the line),
- on the second day, Giuseppe again begins at the start of the line and now rejects every third remaining recruit (starting from the third remaining recruit in the line),
- on the third day, Giuseppe again begins at the start of the line and now rejects every fourth remaining recruit (starting from the fourth remaining recruit in the line),
- and so on.

Only recruits who are never rejected in this process will be accepted, in the order in which they appear in the original line.

Giuseppe planned to continue in this way forever, but his commanding officer has assigned him to other tasks. Help Giuseppe determine the number of the nth recruit to be accepted.

Input

The first line of input consists of a single integer n.

Constraints

All input will satisfy the following constraints:

- $1 \le n \le 100,000,000$

Output

Output a single integer, the number of the nth recruit to be accepted.

Subtasks

H1 (10 points): $1 \le n \le 1,000$.

H2 (20 points): $1 \le n \le 100,000$.

H3 (70 points): no restrictions.

Sample Input 1

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1
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Sample Output 1

1

Sample Input 2

2

Sample Output 2

3

Sample Input 3

3

Sample Output 3

7

Explanations

Initially, the line is $1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, \ldots$.

On the first day, Giuseppe rejects every second recruit, leaving the line $1, 3, 5, 7, 9, 11, 13, \ldots$.

On the second day, Giuseppe rejects every third recruit, leaving the line $1, 3, 7, 9, 11, 13, \ldots$.

On subsequent days, Giuseppe never rejects any of the first three recruits, so recruits 1, 3 and 7 are the first three to be accepted.