

B. Paint a Strip

time limit per test: 1 second
memory limit per test: 256 megabytes

You have an array of zeros a_1, a_2, \dots, a_n of length n .

You can perform two types of operations on it:

- Choose an index i such that $1 \leq i \leq n$ and $a_i = 0$, and assign 1 to a_i ;
- Choose a pair of indices l and r such that $1 \leq l \leq r \leq n$, $a_l = 1$, $a_r = 1$, $a_l + \dots + a_r \geq \lceil \frac{r-l+1}{2} \rceil$, and assign 1 to a_i for all $l \leq i \leq r$.

What is the minimum number of operations of the **first type** needed to make all elements of the array equal to one?

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^4$). The description of the test cases follows.

The only line of each test case contains one integer n ($1 \leq n \leq 10^5$) — the length of the array.

Note that there is no limit on the sum of n over all test cases.

Output

For each test case, print one integer — the minimum number of needed operations of **first type**.

Example

input	Copy
4	
1	
2	
4	
20	

output	Copy
1	
2	
2	
4	

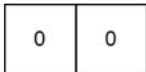
Note

In the first test case, you can perform an operation of the 1st type with $i = 1$.

In the second test case, you can perform the following sequence of operations:

- Operation of 1st type, $i = 1$. After performing this operation, the array will look like this: $[1, 0]$.
- Operation of 1st type, $i = 2$. After performing this operation, the array will look like this: $[1, 1]$.

The sequence of operations in the second test case



In the third test case, you can perform the following sequence of operations:

- Operation of 1st type, $i = 1$. After performing this operation, the array will look like this: $[1, 0, 0, 0]$.
- Operation of 1st type, $i = 4$. After performing this operation, the array will look like this: $[1, 0, 0, 1]$.
- Operation of 2nd type, $l = 1, r = 4$. On this segment, $a_l + \dots + a_r = a_1 + a_2 + a_3 + a_4 = 2$, which is not less than $\lceil \frac{r-l+1}{2} \rceil = 2$. After performing this operation, the array will look like this: $[1, 1, 1, 1]$.

The sequence of operations in the third test case

