Problem A. Remainder Game

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Andrew went to a binary casino. In a binary casino there is a special slot machine that works as follows: you put n tokens in it, your balance b becomes equal to n and then one or more game rounds happen.

In each round you choose a positive integer k, then slot machine performs following calculations (mod stands for the remainder and $\lfloor x \rfloor$ stands for the integral part of x):

$$m = 2^k$$
$$r = b \bmod m$$
$$b' = \lfloor b/m \rfloor$$

If $r > 0.5m$, players score is increased by one. In any case, new value of balance becomes b'.

When balance b reaches zero, the game is over. Andrew is curious what is the maximum score he can get if he puts exactly n tokens in the slot machine initially, can you help him find the answer before he spends all his money in the casino?

Input

In the only input line there is a single integer n ($1 \le n \le 10^9$), the number of tokens to be put in the slot machine.

Output

Output the maximum possible score that may be achieved if n tokens are put in slot machine.

Examples

standard input	standard output
62	2
5	1
100	1

Note

In the first sample test one of the optimal strategies consists of three game rounds:

1. Choose $k = 3$: $m = 8$, $r = 62 \bmod 8 = 6$, $b' = \lfloor 62/8 \rfloor = 7$, $6 > 0.5 \cdot 8$, so the score becomes 1;
2. Choose $k = 1$: $m = 2$, $r = 7 \bmod 2 = 1$, $b' = \lfloor 7/2 \rfloor = 3$, $1 \le 0.5 \cdot 2$, so the score does not change;
3. Choose $k = 2$: $m = 4$, $r = 3 \bmod 4 = 3$, $b' = \lfloor 3/4 \rfloor = 0$, $3 > 0.5 \cdot 4$, so the score becomes 2 and game is finished as balance reaches zero.

In the second sample test the only optimal strategy is to choose $k = 3$ in the first round: $m = 8$, $r = 5 \bmod 8 = 5$, $b' = \lfloor 5/8 \rfloor = 0$, $5 > 0.5 \cdot 8$, so the score becomes 1 and the game finishes.

In the third sample test one of the optimal strategies is to choose $k = 2$ in the first round: $m = 4$, $r = 100 \bmod 4 = 0$, $b' = \lfloor 100/4 \rfloor = 25$, $0 \le 0.5 \cdot 4$, so the score does not change, and then choose $k = 5$ in the second round: $m = 32$, $r = 25 \bmod 32 = 25$, $b' = \lfloor 25/32 \rfloor = 0$, $25 > 0.5 \cdot 32$, so the score becomes 1 and the game finishes.