British Informatics Olympiad Final

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Coin Flipping

Consider the following game with a stack of n coins: On the first move the top coin is taken, turned over and then replaced on the top of the main stack. On the next move the top two coins are taken as a smaller stack, this smaller stack is turned over and replaced on the main stack. This continues, increasing the number of coins that are picked up on each move one at a time, until on the n^{th} move the entire stack is picked up and turned over. The process is then repeated from the beginning.

If every coin in the stack is initially heads-up, we are interested in the minimum number of moves until every coin is again heads-up.

For example, it takes 9 moves for a stack of 3 coins:

	1	2	3	4	5	6	7	8	9	*move*
	1	2	3	1	2	3	1	2	3	*size of top stack*
H	T	T	T	H	H	T	H	T	H	
H	H	H	T	T	T	H	H	T	H	
H	H	H	H	H	H	T	T	T	H	

Write a program which inputs a single integer n ($1 \leq n \leq 2^{14}$) and outputs a single integer, the minimum number of moves until a stack of initially heads-up coins is again all heads-up.

Sample Input

```
32
```

Sample Output

```
191
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