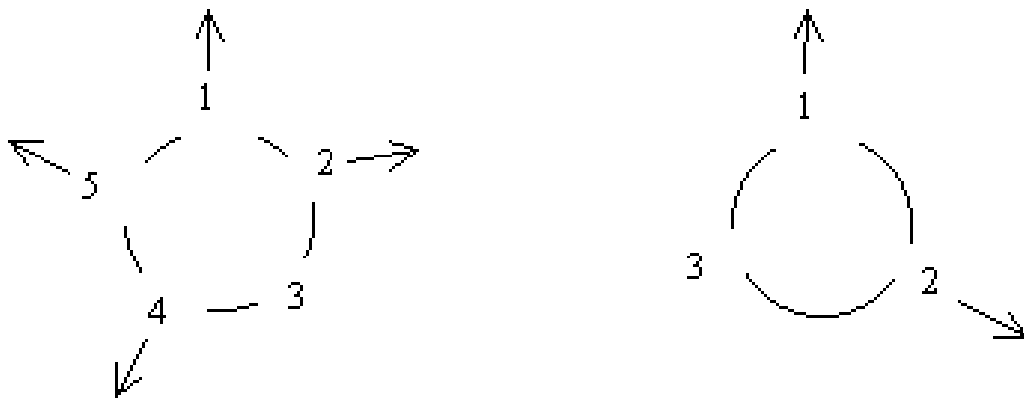




## 2346 - A Benevolent Josephus

Asia - Dhaka - 2001/2002

You must have heard of the Josephus problem in connection with link lists. It dealt with finding the only survivor among  $n$  persons. Here you have a game with a rather happy outcome. Suppose  $n$  players stand in a circle. Counting from player number 1 every alternate player is temporarily removed (for example, at first 2 is removed) to finally end up with the single survivor. After the survivor has been determined each player with number higher than the survivor is paid Tk. 1 and permanently removed from the circle. The same operation is repeated with the remaining players, and players with number higher than the survivor are paid Tk. 1 each and removed from the circle again. Once such an operation fails to decrease the number of players in the circle, each of them is paid Tk. 2 and the game ends. Your problem is to determine total amount of money Josephus will have to pay to all players.



For example, with 5 players in the first round survivor is 3, so players number 4 and 5 are paid Taka 1 each and removed from the game. In the next round survivor is player number 3 again. Consequently no one could be removed, therefore each of them is paid Taka 2, so in total  $(2 + 2 \times 3 =) 8$  will be paid for this game.

### Input

Input for every problem instance is an integer not exceeding 32,767 in a separate line. Input terminates with end of file.

### Output

Output for each problem instance is an integer not exceeding 65,535 which represents the amount of Taka to be paid in total to all the players.

### Sample Input

```
5
10
7
```

### Sample Output

```
8
13
```

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Dhaka 2001-2002