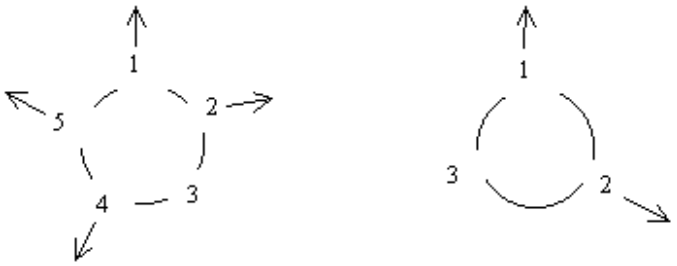
2346 A Benevolent Josephus

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

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5
10
7
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Sample Output

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8
13
14
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