# Towers of Hanoi

The Tower of Hanoi is a mathematical puzzle. It consists of three rods, and a number of disks of different sizes which can slide onto any rod. The puzzle starts with the disks in a neat stack in ascending order of size on one rod, the smallest at the top, thus making a conical shape.

The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules:

1.) Only one disk can be moved at a time.
2.) Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.
3.) No disk may be placed on top of a smaller disk.

With three disks, the puzzle can be solved in seven moves. The minimum number of moves required to solve a Tower of Hanoi puzzle is $2^n - 1$, where n is the number of disks.
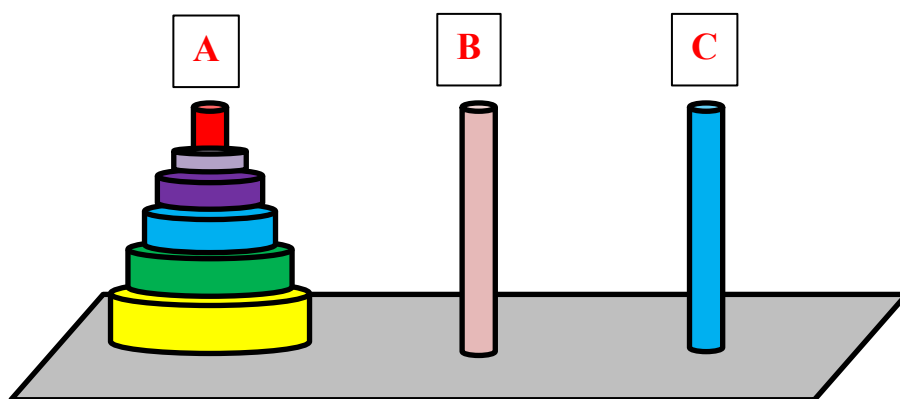
Now, we change the problem by adding one constraint that disk is only allowed to be moved between consecutive rods, i.e. A-B, B-C

Input

Input contains multiple test cases and is terminated by end of file. Each test case contains one integer n, indicating the number of disks. ($1 \leq n \leq 10$).

Output

For each test case, print the minimum number of steps that move disks from rod A to rod C, in a separate line.

Sample Input

2

3

Sample Output

8

26

Hints

In the second example, the steps to move disk from A to C will be

A -> B, B -> C, A -> B, C -> B, B -> A, B -> C, A -> B, B -> C

So, the minimum number is 8.