

Task: NEC

Necklaces

Stage CSPC 2006. Day Fourth. Source file nec.*

17.06.2006

Available memory: 32 MB.

Byteman has a wife, called Bytelady. He would like to buy her a wonderful birthday present. Bytelady is keen on necklaces, she would like to have every necklace existing in Byteland. Each necklace in Byteland is made of a circular piece of string and n equally distributed gems. Each gem is either a diamond or an emerald. Two necklaces are considered the same if one can be rotated around its center to obtain the other one (see figure).

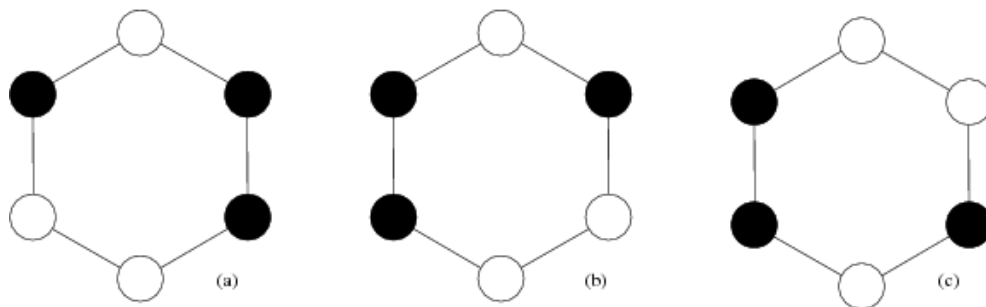


Figure 1: Three necklaces made of $n = 6$ gems each. White circles represent diamonds, black represent emeralds. The necklaces (a) and (c) are the same, whereas (b) is different.

Given the number n , your task is to calculate the number of all the distinct necklaces made of n gems.

Task

Write a program, that:

- reads using SVIO the number n ,
- calculates the number of distinct necklaces of n gems,
- writes to the result using SVIO, encoded in hexadecimal.

Input

The first line of input will contain exactly one integer n ($1 \leq n \leq 100\,000$).

Output

The one and only line of output should contain one number, encoded in hexadecimal using digits 0-9 and lowercase letters a-f, without leading zeroes, that is the number of distinct n -gem necklaces.

Example

For the input data:
6

the correct result is:
e