# 倒序输出一个正整数

例如给出正整数 n=12345，希望以各位数的逆序形式输出，即输出54321。

# 打印图形

小明在X星球的城堡中发现了如下图形和文字：

rank=3

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rank=5

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ran=6

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# FJ的字符串

问题描述

　　FJ在沙盘上写了这样一些字符串：  
　　A1 = “A”  
　　A2 = “ABA”  
　　A3 = “ABACABA”  
　　A4 = “ABACABADABACABA”  
　　… …  
　　你能找出其中的规律并写所有的数列AN吗？

输入格式

　　仅有一个数：N ≤ 26。

输出格式

　　请输出相应的字符串AN，以一个换行符结束。输出中不得含有多余的空格或换行、回车符。

样例输入

3

样例输出

ABACABA

# Chloe and the sequence

来源：Codeforces 743B

time limit per test 1 second

memory limit per test 256 megabytes

input standard input

output standard output

Chloe, the same as Vladik, is a competitive programmer. She didn't have any problems to get to the olympiad like Vladik, but she was confused by the task proposed on the olympiad.

Let's consider the following algorithm of generating a sequence of integers. Initially we have a sequence consisting of a single element equal to 1. Then we perform (n - 1) steps. On each step we take the sequence we've got on the previous step, append it to the end of itself and insert in the middle the minimum positive integer we haven't used before. For example, we get the sequence [1, 2, 1] after the first step, the sequence [1, 2, 1, 3, 1, 2, 1] after the second step.

The task is to find the value of the element with index k (the elements are numbered from 1) in the obtained sequence, i. e. after (n - 1) steps.

Please help Chloe to solve the problem!

Input

The only line contains two integers n and k (1 ≤ n ≤ 50, 1 ≤ k ≤ 2n - 1).

Output

Print single integer — the integer at the k-th position in the obtained sequence.

Examples

input

3 2

output

2

input

4 8

output

4

Note

In the first sample the obtained sequence is [1, 2, 1, 3, 1, 2, 1]. The number on the second position is 2.

In the second sample the obtained sequence is [1, 2, 1, 3, 1, 2, 1, 4, 1, 2, 1, 3, 1, 2, 1]. The number on the eighth position is 4.