Problem I. Partition into Teams

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	256 mebibytes

A company of n people decided to play a game. Each person can either join red team, join blue team, or become a spectator. Each person makes a decision independently and picks one of the three options with equal probability. The team which gets more players will win the game; the game ends in a draw in case both teams have an equal number of players. Let us denote the probability of red team winning by t. Find $(t \cdot 3^n) \bmod p$, where p is prime.

Input

The only line of the input contains two integers n and p ($1 \le n \le 10^{18}$, $5 \le p < 10^6$, p is prime).

Output

Print one integer: the answer to the problem.

Examples

standard input	standard output
5 5	1
5 7	5