Good Splits

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

There are $2n$ distinct points on the real line, numbered from 1 to $2n$. A way to split them into n pairs $(a_1, b_1), \ldots, (a_n, b_n)$ is *good* if the points in each pair can be connected by a curve such that the n curves don't intersect each other and don't intersect the real line. How many good ways to split are there? As this number may be large, output it modulo p, the given prime number.

Two ways to split are considered the same if we can reorder the pairs and reorder points in each pair so that the first way transforms into the second.

Input

The only line contains two integers N and p: the maximum number of points and the prime modulo ($1 \le N \le 200$; $10^8 < p < 10^9$).

Output

Print N lines: the answer to the problem for $n = 1, 2, \ldots, N$. Print all answers modulo p.

Example

standard input	*standard output*
5 998244353	1 3 14 84 592