Counting Phenomenal Arrays

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Let's call an array $[a_1, a_2, \ldots, a_k]$ of positive integers **phenomenal**, if the product of its elements is equal to the sum of its elements (i.e. if $a_1 a_2 \ldots a_k = a_1 + a_2 + \ldots + a_k$) .

For example, the array $[2, 2]$ is phenomenal, because $2 \cdot 2 = 2 + 2 = 4$, and $[3, 1, 2]$ is phenomenal, because $3 \cdot 1 \cdot 2 = 3 + 1 + 2 = 6$, but the array $[2, 3]$ is not phenomenal, as $2 \cdot 3 \neq 2 + 3$.

Let $f(i)$ denote the number of phenomenal arrays of size i. It can be shown that for any fixed $i \geq 2$ there is only a finite number of phenomenal arrays of size i.

You are given an integer n. Find $f(2), f(3), \ldots, f(n)$. As these numbers can be very big, output them modulo P, where P is a given prime number.

Input

The only line of the input contains two integers n, P ($2 \leq n \leq 2 \cdot 10^5$, $10^8 \leq P \leq 10^9$, P is prime).

Output

Output $n - 1$ integers — the values $f(2), f(3), \ldots, f(n)$ modulo P.

Example

standard input	standard output
`7 804437957`	`1 6 12 40 30 84`