Music

Description

Garry and Willer are composing a music. They have $n-1$ kinds of music notes, for the i_{th} kind of note, the musical value is $i+1$.

Now, they want to choose some music notes respectively. A choosing plan is defined to be disharmonious if and only if there exists a kind of note with a music value of x among the notes chosen by Garry, and a kind of note with a music value of y among the notes chosen by Willer, such that x and y are not relatively prime.

Now please help them calculate the number of harmonious choosing plan (the result should modulo p).

Input Format

Two integers, n, p.

Output Format

One integer, the number of harmonious plan.

Sample

Sample Input

```
3 10000
```

Sample Output

```
9
```

Hint

For 30% testcases, $2 \leq n \leq 30$.

For 100% testcases, $2 \leq n \leq 500$, $0 < p \leq 10^9$.

Notice that one person may not choose any notes.