Project Euler #250: 250250

Find the number of non-empty subsets of $\{1^1, 2^2, 3^3, \ldots, n^n\}$, the sum of whose elements is divisible by k. Print your answer modulo 10^9.

Input Format

The only line of input contains numbers n and k separated by single space.

Constraints

- $1 \leq n \leq 10^{400}$
- $3 \leq k \leq 50$

Output Format

Print the only number — your answer.

Sample Input 0

```
6 50
```

Sample Output 0

```
0
```

Explanation 0

There are no subsets of $\{1, 4, 27, 256, 3125, 46656\}$ such that it's sum is divisible by 50.

Sample Input 1

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10 50
```

Sample Output 1

```
21
```

Explanation 1

There are 21 such subsets, e.g. $\{1, 256, 823543\}$.