

Contest Duration: 2021-04-17(Sat) 12:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20210417T1610&p1=248>) - 2021-04-17(Sat) 14:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20210417T1810&p1=248>) (local time) (120 minutes)

iso=20210417T1610&p1=248) - 2021-04-17(Sat) 14:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20210417T1810&p1=248>) (local time) (120 minutes)

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## D - Nowhere P



Time Limit: 2 sec / Memory Limit: 1024 MB

Score : 400 points

### Problem Statement

You are given a prime number  $P$  not less than 2, which you don't like.

Let's call an array of integers  $A_1, A_2, \dots, A_N$  **very good** if it satisfies the following condition:

- there is no  $i$  with  $1 \leq i \leq N$  and  $A_1 + A_2 + \dots + A_i \equiv 0 \pmod{P}$ .

Consider all  $(P - 1)^N$  arrays of length  $N$  with elements from 1 to  $P - 1$ . How many of them are **very good**?

As this number can be very big, output it modulo  $(10^9 + 7)$ .

### Constraints

- $N$  and  $P$  are integers.
- $1 \leq N \leq 10^9$
- $2 \leq P \leq 10^9$

### Input

Input is given from Standard Input in the following format:

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$N$   $P$ 

## Output

Print the count modulo  $(10^9 + 7)$ .

### Sample Input 1

[Copy](#)

3 3

[Copy](#)

### Sample Output 1

[Copy](#)

2

[Copy](#)

Two arrays,  $(1, 1, 2)$  and  $(2, 2, 1)$ , satisfy the condition.

### Sample Input 2

[Copy](#)

3 2

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### Sample Output 2

[Copy](#)

0

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### Sample Input 3

[Copy](#)

45108 2571593

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### Sample Output 3

[Copy](#)

224219544

[Copy](#)**Language**

Python (3.8.2)



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## Source Code

1

\* at most 512 KiB

\* Your source code will be saved as `Main.extension`.

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