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## E. Product Oriented Recurrence

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Let  $f_x = c^{2x-6} \cdot f_{x-1} \cdot f_{x-2} \cdot f_{x-3}$  for  $x \geq 4$ .

You have given integers  $n$ ,  $f_1$ ,  $f_2$ ,  $f_3$ , and  $c$ . Find  $f_n \bmod (10^9 + 7)$ .

### Input

The only line contains five integers  $n$ ,  $f_1$ ,  $f_2$ ,  $f_3$ , and  $c$  ( $4 \leq n \leq 10^{18}$ ,  $1 \leq f_1, f_2, f_3, c \leq 10^9$ ).

### Output

Print  $f_n \bmod (10^9 + 7)$ .

### Examples

<b>input</b>	<a href="#">Copy</a>
5 1 2 5 3	
<b>output</b>	<a href="#">Copy</a>
72900	

  

<b>input</b>	<a href="#">Copy</a>
17 97 41 37 11	
<b>output</b>	<a href="#">Copy</a>
317451037	

### Note

In the first example,  $f_4 = 90$ ,  $f_5 = 72900$ .

In the second example,  $f_{17} \approx 2.28 \times 10^{29587}$ .

### Codeforces Round #566 (Div. 2)

**Finished**

Practice



### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

[Start virtual contest](#)

### → Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

### → Clone Contest to Mashup

You can clone this contest to a mashup.

[Clone Contest](#)

### → Submit?

 Language: GNU G++14 6.4.0

 Choose file: [Choose File](#) No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

[Submit](#)

### → Last submissions

Submission	Time	Verdict
<a href="#">81436124</a>	May/26/2020 07:49	Accepted
<a href="#">81434719</a>	May/26/2020 07:17	Wrong answer on test 4

### → Problem tags

[dp](#) [math](#) [matrices](#) [number theory](#)  
[\\*2300](#)

No tag edit access