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E. Student's Camp

time limit per test: 3 seconds
 memory limit per test: 256 megabytes
 input: standard input
 output: standard output

Alex studied well and won the trip to student camp Alushta, located on the seashore.

Unfortunately, it's the period of the strong winds now and there is a chance the camp will be destroyed! Camp building can be represented as the rectangle of $n + 2$ concrete blocks height and m blocks width.

Every day there is a breeze blowing from the sea. Each block, except for the blocks of the upper and lower layers, such that there is no block to the left of it is destroyed with the probability $p = \frac{a}{b}$. Similarly, each night the breeze blows in the direction to the sea. Thus, each block (again, except for the blocks of the upper and lower layers) such that there is no block to the right of it is destroyed with the same probability p . Note, that blocks of the upper and lower level are **indestructible**, so there are only $n \cdot m$ blocks that can be destroyed.

The period of the strong winds will last for k days and k nights. If during this period the building will split in at least two connected components, it will collapse and Alex will have to find another place to spend summer.

Find the probability that Alex won't have to look for other opportunities and will be able to spend the summer in this camp.

Input

The first line of the input contains two integers n and m ($1 \leq n, m \leq 1500$) that define the size of the destructible part of building.

The second line of the input contains two integers a and b ($1 \leq a \leq b \leq 10^9$) that define the probability p . It's guaranteed that integers a and b are coprime.

The third line contains a single integer k ($0 \leq k \leq 100\,000$) — the number of days and nights strong wind will blow for.

Output

Consider the answer as an irreducible fraction is equal to $\frac{c}{d}$. Print one integer equal to $c \cdot d^{-1} \pmod{10^9 + 7}$. It's guaranteed that within the given constraints $d \not\equiv 0 \pmod{10^9 + 7}$.

Examples

input	Copy
2 2 1 2 1	
output	Copy
937500007	
input	Copy
5 1 3 10 1	
output	Copy
95964640	
input	Copy
3 3 1 10 5	

AIM Tech Round 3 (Div. 1)

Finished

→ Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

[Register for 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.

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→ Problem tags

[dp](#) [math](#) [*3100](#)

No tag edit access

→ Contest materials

- [Announcement \(en\)](#) [×](#)
- [Tutorial \(en\)](#) [×](#)

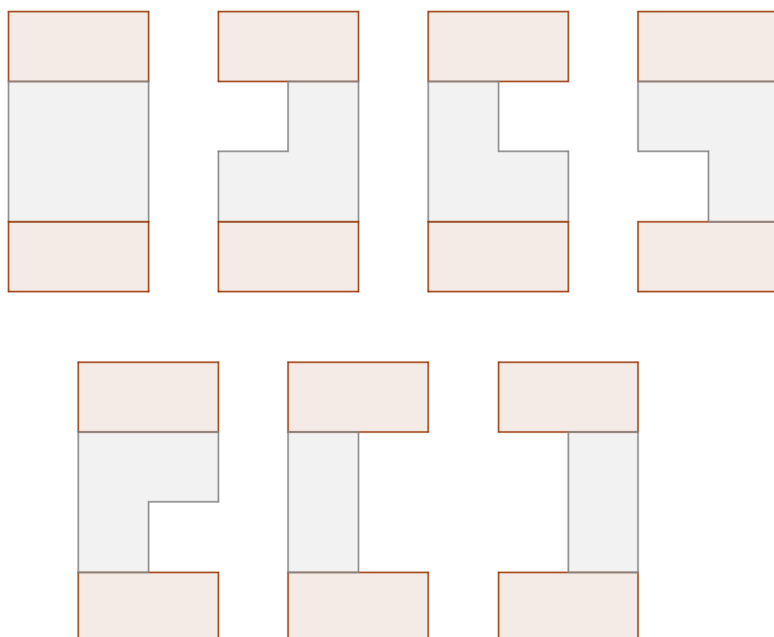
output

Copy

927188454

Note

In the first sample, each of the four blocks is destroyed with the probability $\frac{1}{2}$. There are 7 scenarios that result in building not collapsing, and the probability we are looking for is equal to $\frac{7}{16}$, so you should print $7 \cdot 16^{-1} = 7 \cdot 562500004 = 937500007 \pmod{10^9 + 7}$



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