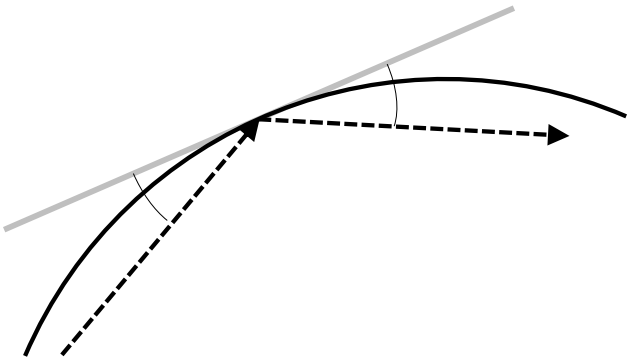
Problem B
Circle Bounce
Time Limit: 1 Second(s)

You are standing by the wall in a large, perfectly circular arena and you throw a tennis ball hard against some other part of the arena. After a given number of bounces, where does the tennis ball next strike the wall?

Map the arena as a unit circle centered at the origin, with you standing at the point $(-1, 0)$. You throw the ball with a direction given by a slope in the coordinate plane of a rational fraction a/b. Each bounce is perfect, losing no energy and bouncing from the wall with the same angle of reflection as the angle of incidence to a tangent to the wall at the point of impact.



After n bounces, the ball strikes the circle again at some point p which has rational coordinates that can be expressed as $(r/s, t/u)$. Output the fraction r/s modulo the prime $M = 1{,}000{,}000{,}007$.

It can be shown that the x coordinate can be expressed as an irreducible fraction r/s, where r and s are integers and $s \not\equiv 0 \pmod{M}$. Output the integer equal to $r \cdot s^{-1} \pmod{M}$. In other words, output an integer k such that $0 \le k < M$ and $k \cdot s \equiv r \pmod{M}$.

For example, if we throw the ball with slope $1/2$ and it bounces once, it first strikes the wall at coordinates $(3/5, 4/5)$. After bouncing, it next strikes the wall at coordinates $(7/25, -24/25)$. The modular inverse of 25 with respect to the prime M is $280{,}000{,}002$, and the final result is thus $7 \cdot 280{,}000{,}002 \pmod{M} = 960{,}000{,}007$.

Input

The single line of input will contain three integers a, b ($1 \le a, b \le 10^9, \gcd(a, b) = 1$) and n ($1 \le n \le 10^{12}$), where a/b is the slope of your throw, and n is the number of bounces. Note that a and b are relatively prime.

Output

Output a single integer value as described above.

- Note that Sample 2 corresponds to the example in the problem description.

Sample Input 1	Sample Output 1
1 1 3	1000000006

Sample Input 2	Sample Output 2
1 2 1	960000007

Sample Input 3	Sample Output 3
11 63 44	22

Sample Input 4	Sample Output 4
163 713 980	0