

Simple One

You are given the equation $\tan \alpha = \frac{p}{q}$ and a positive integer, n . Calculate $\tan n\alpha$. There are T test cases.

Input Format

The first line contains T , the number of test cases.
The next T lines contain three space separated integers: p, q and n , respectively.

Constraints

$$\begin{aligned} 0 &\leq p \leq 10^9 \\ 1 &\leq q \leq 10^9 \\ 1 &\leq n \leq 10^9 \\ T &\leq 10^4 \end{aligned}$$

Output Format

If the result is defined, it is always a rational number. However, it can be very big.
Output the answer modulo $(10^9 + 7)$.
If the answer is $\frac{a}{b}$ and b is not divisible by $(10^9 + 7)$, there is a unique integer $0 \leq x < 10^9 + 7$ where $a \equiv bx \pmod{10^9 + 7}$.
Output this integer, x .
It is guaranteed that b is not divisible by $(10^9 + 7)$ for all test cases.

Sample Input

```
2
2 1 2
5 6 7
```

Sample Output

```
666666670
237627959
```

Explanation

If $\tan \alpha = \frac{2}{1}$ then $\tan 2\alpha = -\frac{4}{3}$ and $-4 \equiv 3 \times 666666670 \pmod{10^9 + 7}$.
So, the answer is 666666670.