Power Mod

1 seconds, 64 megabytes

This question is very simple

Given Q Questions

For each question, given a, b, c evaluate a^b mod c

Input Data

First line consists of single number Q representing the number of questions

Next Q Lines consists of three number a, b, c representing a, b, c value of that question

Output Data

Has Q lines

Each line contains answer to each questions

Constraints

$1 \leq Q \leq 100\,000$

$2 \leq a, b, c \leq 2 \cdot 10^9$

Subtasks

1. (10 Points) $a^b \leq 2^{63} - 1$

2. (10 Points) $c = 2$

3. (10 Points) $Q = 1$

4. (10 Points) $b \leq 1000$

5. (60 Points) No Additional Constraint

Examples of Input and Output Data

Input Data Examples	Output Data Examples
1 3 4 5	1
2 5 3 2 7 7 7	1 0

Note

Sample Test Case 1 Explanation

$3^4 = 81$ and 81 mod $5 = 1$ thus, the answer to this question is 1