Johnny Learns Modular exponentiation

Description

After Johnny solved problem A in LCPC2012 practice contest he decided to read more about modulo operation so he read the following article.

Modular exponentiation is a type of exponentiation performed over a modulus. It is particularly useful in computer science, especially in the field of cryptography.

A "modular exponentiation" calculates the remainder when a positive integer b (the base) raised to the e-th power (the exponent), and the total quantity is divided by a positive integer m, called the modulus. In symbols, this is, given base *b*, exponent *e*, and modulus *m*, the modular exponentiation *c* is: c = (b^e) mod M

For example, given *b* = 5, *e* = 3, and *m* = 13, the solution *c* is the remainder of dividing 5^3 by 13, which is the remainder of 125 / 13, or 8.

If *b*, *e*, and *m* are non-negative, and *b* < *m*, then a unique solution *c* exists with the property 0 ≤ *c* < *m*.

Input Format

Input will start with ***T*** number of test cases. Followed by ***T*** test cases each test has three integers $0<b<10^9$ and $0<e<10^{18}$ and $0<m<10^9$

Output Format

For each test case, output the result using the following format:

Where ***k*** is the test case number (starting at 1), a single period, a single space, then .

Sample Input	Sample Output
1 3 2 8	1. 1