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Solve the Equation

? Ask Doubt

Time-Limit: 1 sec Score: 0.00/100 Difficulty :

Memory: 256 MB Accepted Submissions: 100 Relevant For: AZ-201 AZ-202

Description

You have given an equation of the form ***(a op1 b op2 c) mod p***
op1, *op2* are operators which can be {+, -, *, /}.
Consider the example: *(a * b / c) mod p*. Here *op1 = * and op2 = /*.
It is guaranteed that *(a, p) = (b, p) = (c, p) = 1* and *p* is a prime number.
Compute the value of the equation.

Note:

1. (*a, b*) = 1, means *a* and *b* are coprime numbers.
2. Operators follow the same precedence rules as in mathematics.

Input Format

The first line contains *T* (1 ≤ *T* ≤ 100000), the number of test cases.
Each of the next *T* lines contains an equation in the form (a op1 b op2 c) mod p (1 ≤ *a, b, c, p* ≤ 10^9).
It is guaranteed that *(a, p) = (b, p) = (c, p) = 1* and *p* is a prime number.

Output Format

For each test case, print a single number denoting the value of the equation. Since it is *mod p*, the value must belong to *0* to *p - 1*.

Sample Input 1

Copy

```
2
(1 + 2 / 1) mod 3
(2 * 3 - 8) mod 5
```

Sample Output 1

Copy

```
0
3
```

Note

Explanation 1:
(1 + 2 / 1) mod 3 = 3 mod 3 = 0.

Explanatino 2:
(2 * 3 - 8) mod 5 = -2 mod 5 = 3.

C++14[GCC]

Submit

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1
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