

Co-Prime

Given a number N , you are asked to count the number of integers between A and B inclusive which are relatively prime to N .

Two integers are said to be co-prime or relatively prime if they have no common positive divisors other than 1 or, equivalently, if their greatest common divisor is 1. The number 1 is relatively prime to every integer.

Input Specification

The first line on input contains T ($0 < T \leq 100$) the number of test cases, each of the next T lines contains three integers A, B, N where ($1 \leq A \leq B \leq 10^{15}$) and ($1 \leq N \leq 10^9$).

Output Specification

For each test case, print the number of integers between A and B inclusive which are relatively prime to N . Follow the output format below.

Sample Input

2

1 10 2

3 15 5

Sample Output

Case #1: 5

Case #2: 10

In the first test case, the five integers in range $[1,10]$ which are relatively prime to 2 are $\{1,3,5,7,9\}$.