



**ALGERIAN OLYMPIAD IN INFORMATICS  
& EUREKA NHSM CLUB**

**The first AOI College Cup**

December 14<sup>th</sup>, 2024

*Task 2 - Math in Istanbul  
This task is worth 100 points*

## Task 2 - Math in Istanbul

Time limit per test : 5 seconds  
Memory limit per test : 256 megabytes

While the IOI team is stuck at Istanbul airport, Hachem and Assil play a game; Hachem chooses three positive integers  $N, M, R$ , and Assil has to figure out if there exist nonnegative integers  $a, b$  (greater than or equal to 0) such that  $2^a 7^b \leq 10^{15}$  and  $N^{2^a 7^b}$ 's remainder upon division by  $M$  is equal to  $R$ .

Help Assil to win the game by answering the  $t$  queries given by Hachem.

### Input

You will be given on the first line the number of testcases  $t \leq 1000$ . Then on the next  $t$  lines, are given the 3 integers  $N \leq 10^{18}, M \leq 10^9, 0 \leq R < M$ .

### Output

Output  $t$  lines, on the  $i$ -th line output YES if Assil should say that  $a$  and  $b$  exist, or NO otherwise.

## Subtasks

No subtasks for this problem, you will obtain 100 points in case of a submission that passes all the test cases, and 0 points otherwise.

## Examples

Input	Output
15	YES
1 500 1	NO
3 773 424	NO
7 352 14	NO
9 841 477	NO
4 866 518	YES
1 391 1	NO
4 184 111	NO
6 796 285	YES
2 668 16	YES
8 740 64	NO
6 832 306	YES
6 898 658	YES
7 681 661	NO
8 721 397	YES
6 358 4	