


ACM-ICPC 2016

Thailand Central A & B Contest
SEPTEMBER 11, 2016

B

Math Contest

Time Limit	1 second

International Mathematical Olympiad (IMO) 2016 was held on 11th – 12th July. There are 3 problems in each day and one of them is as follows.

Problem 2. Find all positive integers n for which each cell of an $n \times n$ table can be filled with one of the letters *I*, *M* and *O* in such a way that:

- In each row and each column, one third of the entries are *I*, one third are *M* and one third are *O*; and
- In any diagonal, if the number of entries on the diagonal is a multiple of three, then one third of the entries are *I*, one third are *M*, and one third are *O*.

Note: The rows and columns of an $n \times n$ table are each labelled 1 to n in a natural order. Thus each cell corresponds to a pair of positive integers (i,j) with $1 \le i, j \le n$. For $n > 1$, the table has $4n-2$ *diagonals* of two types. A diagonal of the first type consists of all cells (i,j) for which $i+j$ is a constant, and a diagonal of the second type consists of all cells (i,j) for which $i-j$ is a constant.

The answer of this question is all positive integers which is divisible by 9 ($n = 9k$ for some positive integer k). However, you are now participating ACM-ICPC contest, not IMO, so the question is changed to "Determine whether the given positive integer x can be used as n in the given problem?"

Input

The first line contains the number of test cases T ($1 \le T \le 1000$)

For each test case, there will be an integer x ($1 \le x \le 10^{100\,000}$)

Output

For each test case, print '**YES**' if ***x*** can be used as ***n***, and '**NO**' otherwise, both without quote.

Example

Input	Output
3 1 81 9999999999999999999999999999	NO YES YES