Ocean Staircase

by matfah

Problem Submissions Discussions

While swimming around the ocean floor, Nemo discovers a very peculiar staircase with some interesting mathematical properties. The math is a little above Nemo's head, but a loud mouth clam nearby was more than happy to explain one property - each stair height on the staircase has no 1's in the ternary (base 3 expansion). For example, there is no height of 0.8 because that value is equal to 0.210120101... in base 3 (an infinitely repeating number). Nemo is a little rusty on his base conversions, so the loud mouth clam reminded him that a base 3 number has place values that are powers of 3. So 0.8 = 2(1/3) + 1(1/9) + 0(1/27) + 1(1/81) + ... There is a height of 0.25 because that value is equal to 0.0202020... 0.25 = 0(1/3) + 2(1/9) + 0(1/27) + 2(1/81) + ... Please write a program to help Nemo determine if a stair height is on the staircase.

https://drive.google.com/open?id=0BxxolsFkwnDqZFg1ZXpCTXZEM1E

Input Format

A single fraction a/b.

Constraints

0 <= a/b <= 1, 0 <= a <= 100,000, 1 <= b <= 100,000 a/b's ternanry expansion will begin repeating by the 20th digit

Output Format

If a/b is a height on the staircase, then HEIGHT IS ON STAIRCASE otherwise, NO SUCH HEIGHT

Sample Input 0

```
8/10
```

Sample Output 0

```
NO SUCH HEIGHT
```

Sample Input 1

```
1/4
```

Sample Output 1

```
HEIGHT IS ON STAIRCASE
```

Submissions: 9
Max Score: 5

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Current Buffer (saved locally, editable)

BASH

1

Upload Code as File

Test against custom input

Run Code

Submit Code