The ternary expansion of a number is that number written in base 3. A number can have more than one ternary expansion. A ternary expansion is indicated with a subscript 3. For example, $1 = 1_3 = 0.222\ldots_3$, and $0.875 = 0.212121\ldots_3$.

The Cantor set is defined as the real numbers between 0 and 1 inclusive that have a ternary expansion that does not contain a 1. If a number has more than one ternary expansion, it is enough for a single one to not contain a 1.

For example, $0 = 0.000\ldots_3$ and $1 = 0.222\ldots_3$, so they are in the Cantor set. But $0.875 = 0.212121\ldots_3$ and this is its only ternary expansion, so it is not in the Cantor set.

Your task is to determine whether a given number is in the Cantor set.

Input

The input consists of several test cases.

Each test case consists of a single line containing a number x written in decimal notation, with $0 \leq x \leq 1$, and having at most 6 digits after the decimal point.

The last line of input is 'END'. This is not a test case.

Output

For each test case, output 'MEMBER' if x is in the Cantor set, and 'NON-MEMBER' if x is not in the Cantor set.

Sample Input

```
0
1
0.875
END
```

Sample Output

```
MEMBER
MEMBER
NON-MEMBER
```