

Limited Factor Number - Report

Problem Statement

A limited factor number is a positive integer whose factors consist only of the values 2, 3, and 5. Given a positive integer x , determine if it is a limited factor number.

Explanation

1. We only consider positive numbers.
2. We continuously divide the number by 2, 3, and 5.
3. If the final result is 1, then the number only contains valid factors (2, 3, or 5).
4. If the final result is anything other than 1, the number has other factors and is not a valid limited factor number.

Python Code

```
def is_limited_factor_number(x):  
    if x <= 0:  
        return False  
  
    for factor in [2, 3, 5]:  
        while x % factor == 0:  
            x //= factor  
  
    return x == 1
```

Example 1

Input: 6

Output: True

Explanation: Factors of 6 are 2 and 3, all are allowed.

Example 2

Input: 1

Output: True

Explanation: 1 has no prime factors, so it meets the criteria.

Example 3

Input: 14

Output: False

Explanation: Factors of 14 are 2 and 7, but 7 is not allowed.