Problem 793: Preimage Size of Factorial Zeroes Function

Problem Information

Difficulty: Hard
Acceptance Rate: 46.33%
Paid Only: No
Tags: Math, Binary Search

Problem Description

Let `f(x)` be the number of zeroes at the end of `x!`. Recall that `x! = 1 * 2 * 3 * ... * x` and by convention, `0! = 1`.

* For example, `f(3) = 0` because `3! = 6` has no zeroes at the end, while `f(11) = 2` because `11! = 39916800` has two zeroes at the end.

Given an integer `k`, return the number of non-negative integers `x` have the property that `f(x) = k`.

Example 1:

Input: k = 0 **Output:** 5 **Explanation:** 0!, 1!, 2!, 3!, and 4! end with k = 0 zeroes.

Example 2:

Input: k = 5 **Output:** 0 **Explanation:** There is no x such that x! ends in k = 5 zeroes.

Example 3:

Input: k = 3 **Output:** 5

Constraints:

* `0 <= k <= 109`

Code Snippets

C++:

```
class Solution {
public:
int preimageSizeFZF(int k) {

}
};
```

Java:

```
class Solution {
public int preimageSizeFZF(int k) {

}
}
```

Python3:

```
class Solution:
def preimageSizeFZF(self, k: int) -> int:
```