Problem 2081: Sum of k-Mirror Numbers

Problem Information

Difficulty: Hard
Acceptance Rate: 63.78%
Paid Only: No
Tags: Math, Enumeration

Problem Description

A **k-mirror number** is a **positive** integer **without leading zeros** that reads the same both forward and backward in base-10 **as well as** in base-k.

* For example, `9` is a 2-mirror number. The representation of `9` in base-10 and base-2 are `9` and `1001` respectively, which read the same both forward and backward. * On the contrary, `4` is not a 2-mirror number. The representation of `4` in base-2 is `100`, which does not read the same both forward and backward.

Given the base `k` and the number `n`, return _the**sum** of the_ `n` _**smallest** k-mirror numbers_.

Example 1:

Input: k = 2, n = 5 **Output:** 25 **Explanation:** The 5 smallest 2-mirror numbers and their representations in base-2 are listed as follows: base-10 base-2 1 1 3 11 5 101 7 111 9 1001 Their sum = 1 + 3 + 5 + 7 + 9 = 25.

Example 2:

Input: k = 3, n = 7 **Output:** 499 **Explanation:** The 7 smallest 3-mirror numbers are and their representations in base-3 are listed as follows: base-10 base-3 1 1 2 2 4 11 8 22 121 11111 151 12121 212 21212 Their sum = 1 + 2 + 4 + 8 + 121 + 151 + 212 = 499.

Example 3:

Input: k = 7, n = 17 **Output:** 20379000 **Explanation:** The 17 smallest 7-mirror numbers are: 1, 2, 3, 4, 5, 6, 8, 121, 171, 242, 292, 16561, 65656, 2137312, 4602064, 6597956, 6958596

Constraints:

* `2 <= k <= 9` * `1 <= n <= 30`

Code Snippets

C++:

```
class Solution {
public:
long long kMirror(int k, int n) {

}
};
```

Java:

```
class Solution {
public long kMirror(int k, int n) {

}
}
```

Python3:

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