Problem 1155: Number of Dice Rolls With Target Sum

Problem Information

Difficulty: Medium
Acceptance Rate: 62.01%
Paid Only: No
Tags: Dynamic Programming

Problem Description

You have `n` dice, and each dice has `k` faces numbered from `1` to `k`.

Given three integers `n`, `k`, and `target`, return _the number of possible ways (out of the_`kn` _total ways)__to roll the dice, so the sum of the face- up numbers equals_`target`. Since the answer may be too large, return it **modulo** `109 + 7`.

Example 1:

Input: n = 1, k = 6, target = 3 **Output:** 1 **Explanation:** You throw one die with 6 faces. There is only one way to get a sum of 3.

Example 2:

Input: n = 2, k = 6, target = 7 **Output:** 6 **Explanation:** You throw two dice, each with 6 faces. There are 6 ways to get a sum of 7: 1+6, 2+5, 3+4, 4+3, 5+2, 6+1.

Example 3:

Input: n = 30, k = 30, target = 500 **Output:** 222616187 **Explanation:** The answer must be returned modulo 109 + 7.

Constraints:

* `1 <= n, k <= 30` * `1 <= target <= 1000`

Code Snippets

C++:

```
class Solution {
public:
int numRollsToTarget(int n, int k, int target) {

}
};
```

Java:

```
class Solution {
public int numRollsToTarget(int n, int k, int target) {

}
}
```

Python3:

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