

## **Dice Throw**

Given  $n$  dice each with  $m$  faces, numbered from 1 to  $m$ , find the number of ways to get sum  $S$  by adding the values appearing on the faces when all the dice are thrown.

### **Example**

If we have 2 dice each with 2 faces, there are only 2 ways to get 3.

**Question 1:** Write a function, DICE, using a top-down approach to compute the number of ways to get sum  $S$  given  $n$  dice each with  $m$  faces

**Question 2:** Analyze the running time of your code.

**Question 3:** Write a function, DICEBOTTOMUP, to solve the same problem using a bottom-up approach.

**Question 4:** Analyze the running time of your code.