

# Project Euler #240: Top Dice

This problem is a programming version of [Problem 240](#) from [projecteuler.net](#)

There are **1111** ways in which five **6**-sided dice (sides numbered **1** to **6**) can be rolled so that the top three sum to **15**. Some examples are:

$$D_1, D_2, D_3, D_4, D_5 = 4, 3, 6, 3, 5$$

$$D_1, D_2, D_3, D_4, D_5 = 4, 3, 3, 5, 6$$

$$D_1, D_2, D_3, D_4, D_5 = 3, 3, 3, 6, 6$$

$$D_1, D_2, D_3, D_4, D_5 = 6, 6, 3, 3, 3$$

In how many ways can  $n$   $d$ -sided dice (sides numbered 1 to  $d$ ) be rolled so that the top  $m$  sum to  $s$ ?  
Print your answer modulo  $10^9 + 7$

## Input Format

The first and only line of each test file contains exactly **4** integers separated by single spaces:  $n$ ,  $d$ ,  $m$  and  $s$  in this order.

## Constraints

- $1 \leq n \leq 10000$
- $1 \leq m \leq 50$
- $m \leq n$
- $4 \leq d \leq 50$
- $m \leq s \leq m \times d$

## Output Format

Print exactly one number which is the answer to the problem.

## Sample Input 0

```
5 6 3 15
```

## Sample Output 0

```
1111
```