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

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5 6 3 15
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Sample Output 0

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1111
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