

Sum of Three Inversions

Input file: standard input
Output file: standard output
Time limit: 3 seconds
Memory limit: 1024 megabytes

You are given integers N, X, Y, K , and M . Find the number of triples (A, B, C) of integer sequences of length N that satisfy all of the following conditions, modulo M .

- For each $i = 1, 2, \dots, N$, the tuple (A_i, B_i, C_i) is a permutation of $(1, 2, 3)$.
- The sequence A contains exactly X occurrences of 1 and Y occurrences of 2.
- The sum of the number of inversions of A, B , and C is equal to K .

Here, the **number of inversions** of a sequence a is defined as the number of pairs of integers (i, j) satisfying $1 \leq i < j \leq |a|$ and $a_i > a_j$.

Input

The input is given in the following format:

$N \ X \ Y \ K \ M$

- All input values are integers.
- $2 \leq N \leq 50$.
- $0 \leq X, Y \leq N$.
- $X + Y \leq N$.
- $0 \leq K \leq \frac{3}{2}N(N - 1)$.
- $10^8 \leq M \leq 10^9$.

Output

Print the answer.

Examples

standard input	standard output
3 1 1 4 998244353	24
4 0 0 18 123456789	0
50 10 20 1000 1000000000	805988728

Note

In the first example, there are 24 triples (A, B, C) that satisfy the conditions. For example, if we take $A = (1, 2, 3)$, $B = (3, 3, 2)$, and $C = (2, 1, 1)$, then (A, B, C) satisfies all the conditions.