CodeVita
The TCS Global Coding Contest

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00 Hr 49 Min 50 Sec

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Coding Area

A B C D E F

ONLINE EDITOR (C)

Even Odd

Problem Description

Given a range [low, high] (both inclusive), select K numbers from the range (a number can be chosen multiple times) such that sum of those K numbers is even.

Calculate the number of all such permutations.

As this number can be large, print it modulo (1e9 +7).

Constraints

0 <= low <= high <= 10^9

K <= 10^6.

Input

First line contains two space separated integers denoting low and high respectively

Second line contains a single integer K.

Output

Print a single integer denoting the number of all such permutations

Time Limit

1

Examples

Example 1

Input

4 5

3

Output

4

Explanation

There are 4 valid permutations viz. {4, 4, 4}, {4, 5, 5}, {5, 4, 5} and {5, 5, 4} which sum up to an even number

Example 2

Input

1 10

2

Output

50

Explanation

There are 50 valid permutations viz. {1,1}, {1, 3},.. {1, 9} {2,2}, {2, 4},... {2, 10} . . . {10, 2}, {10, 4},... {10, 10}. These 50 permutations, each sum up to an even number.

Upload Solution [Question : C]

☐ I, **pawan jindal** confirm that the answer submitted is my own. ☐ Took help from online sources (attributions)

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