

Problem B

Beautiful Binary Strings

Maria is solving a code puzzle to unlock an ancient treasure chest she found on a remote island. The puzzle is based on finding a special binary string called a "Beautiful Binary String." A Beautiful Binary String is a binary string with unique properties.

Maria has a partial binary string, but she needs to determine the maximum length of the Beautiful Binary String she can form, ensuring it complies with specific constraints. The string must have at most C_0 '0's and at most C_1 '1's, and it must not contain any substring consisting solely of '0's with more than M_0 characters, or any substring consisting solely of '1's with more than M_1 characters.

Given the values of C_0 , C_1 , M_0 , and M_1 , your task is to help Maria find the length of the largest Beautiful Binary String she can form.

Input

The input consists of a single line containing four integers separated by a space: C_0 ($0 \leq C_0 \leq 10^6$), C_1 ($0 \leq C_1 \leq 10^6$), M_0 ($0 \leq M_0 \leq 10^6$), and M_1 ($0 \leq M_1 \leq 10^6$).

Output

Print a single integer, which is the length of the largest Beautiful Binary String that can be formed. If it is not possible to form a Beautiful Binary String, print -1.

Input example 1 10 10 10 10	Output example 1 20
Input example 2 10 1 1 1	Output example 2 2
Input example 3 2 2 3 3	Output example 3 4