C. Caesar's Legions

Time limit: 2s Memory limit: 256 MB

Gaius Julius Caesar, a famous general, loved to line up his soldiers. Overall the army had n_1 footmen and n_2 horsemen. Caesar thought that an arrangement is **not** beautiful if somewhere in the line there are strictly more that k_1 footmen standing successively one after another, or there are strictly more than k_2 horsemen standing successively one after another. Find the number of *beautiful* arrangements of the soldiers.

Note that all $n_1 + n_2$ warriors should be present at each arrangement. All footmen are considered indistinguishable among themselves. Similarly, all horsemen are considered indistinguishable among themselves.

Input

The only line contains four space-separated integers n_1, n_2, k_1, k_2 ($1 \le n_1, n_2 \le 100, 1 \le k_1, k_2 \le 10$) which represent how many footmen and horsemen there are and the largest acceptable number of footmen and horsemen standing in succession, correspondingly.

Output

Print the number of beautiful arrangements of the army modulo 100000000 (10^8). That is, print the number of such ways to line up the soldiers, that no more than k_1 footmen stand successively, and no more than k_2 horsemen stand successively.

Examples

input
2 1 1 10
output
1

input
2 3 1 2
output
5

input
2 4 1 1
output
0

Note

Let's mark a footman as 1, and a horseman as 2.

In the first sample the only beautiful line-up is: 121

In the second sample 5 beautiful line-ups exist: 12122, 12212, 21212, 21221, 22121