

Problem SubsetCheating

Input file `subset.in`
Output file `subset.out`

Little Square and *Little Triangle* took a math test. *Little Triangle* didn't study for the test, but, fortunately for him, *Little Square*, his best friend, succeeded in studying for the exam, so *Little Triangle* was able to copy parts of *Little Square's* solutions on the test.

We know that the test had N problems in total and that at each one of them *Little Triangle's* score is not more than *Little Square's* score. All scores are nonnegative integers. We don't know the exact score of any of them at any problem, but we know that in total *Little Square* has A points while *Little Triangle* has B points total.

Knowing N (the number of problems that made up the math test), A (the sum of the scores that *Little Square* got on the problems) and B (*Little Triangle's* sum of scores), we want to compute the number of ways in which the two of them could have been scored on the test, modulo $10^9 + 7$.

Input data

The sole line of the input file `subset.in` will contain three nonnegative integers N , A and B , separated by a single space, with the same meaning as explained above.

Output data

The output file `subset.out` will contain only one integer, representing the number of ways in which *Little Square* and *Little Triangle* could have been scored on the test, modulo $10^9 + 7$.

Constraints

- $1 \leq N \leq 10^6$
- $0 \leq A, B \leq 10^6$
- 2 ways of scoring are considered distinct (different) if *Little Square* or *Little Triangle* have a different number of points on at least one of the N problems.

Subtask 1 (5 points)

- $N \leq 2$
- $0 \leq A, B \leq 10^3$

Subtask 2 (7 points)

- $N \leq 2$
- $0 \leq A, B \leq 10^6$

Subtask 3 (13 points)

- $1 \leq N \leq 5$
- $0 \leq A, B \leq 5$

Subtask 4 (15 points)

- $1 \leq N \leq 10^6$
- $B = 0$
- $0 \leq A \leq 10^6$

Subtask 5 (30 points)

- $1 \leq N \leq 50$
- $0 \leq A, B \leq 50$

Subtask 6 (30 points)

- No additional constraints.

Examples

subset.in	subset.out
2 3 2	6
2 4 6	0
36 43 27	207434534
100001 999999 888888	991579070

Explanation

In the first example, we have $N = 2$ problems on the math test. *Little Square* has $A = 3$ points in total, while *Little Triangle* has $B = 2$ points in total. From now on let $P1$ be the first problem, and $P2$ the second problem.

There are 6 distinct ways in which *Little Square* and *Little Triangle* could have scored on the test:

- *Little Square*: 0 points - $P1$, 3 points - $P2$; *Little Triangle*: 0 points - $P1$, 2 points - $P2$
- *Little Square*: 1 points - $P1$, 2 points - $P2$; *Little Triangle*: 0 points - $P1$, 2 points - $P2$
- *Little Square*: 1 points - $P1$, 2 points - $P2$; *Little Triangle*: 1 points - $P1$, 1 points - $P2$
- *Little Square*: 2 points - $P1$, 1 points - $P2$; *Little Triangle*: 2 points - $P1$, 0 points - $P2$
- *Little Square*: 2 points - $P1$, 1 points - $P2$; *Little Triangle*: 1 points - $P1$, 1 points - $P2$
- *Little Square*: 3 points - $P1$, 0 points - $P2$; *Little Triangle*: 2 points - $P1$, 0 points - $P2$