

Problem name: Strategy

Language: English

Time limit: 0.1 s
Memory limit: 16 MB

Task description

During the World Cup 2014 qualifications, Serbia national football team had an interesting strategy. They were starting each attack by passing the ball from the player with the number N_1 to the player with the number N_2 . Each following pass was to the player whose number equals the absolute value of the difference between the numbers of the two players previously having the ball. More formally, after the player N_{i-2} passes the ball to the player N_{i-1} , the next player to receive the ball is the player $N_i = |N_{i-2} - N_{i-1}|$.

This strategy, surprisingly, did not prove itself to be a useful one. Nevertheless, it made fans ponder who will be the K -th player to get the ball, given that the attack actually lasts long enough.

Input

The single line of input contains three non-negative integers, N_1 , N_2 , and K .

Output

The single line of output should contain the number N_k .

Example 1

Input:	Output:
37 16 8	6

Example 1 explanation

The players received the ball in the following order:

37, 16, 21, 5, 16, 11, 5, 6, 1, 5, 4, 1, 3, 2, 1, 1, 0, 1, 1, 0, ...

The eighth player to receive the ball is the player with the number 6.

Example 2

Input:	Output:
17254968996716914 5030751795369479754 2731091466	2019640987948

Constraints

- $0 \leq N_1, N_2 < 2^{63}$
- $1 \leq K < 2^{63}$
- In 20% of test cases $K < 2^{15}$