The power of 2

Input file:	standard input
Output file:	standard output
Time limit:	1 second
Memory limit:	256 megabytes

It is a well-known fact in the programming world that 2 is a very powerful number. This problem is another example of the power of 2.

Initially, you have a list with a single element n. Then you have to perform certain operations on this list. In each operation, you must remove any element x, such that x > 1, from the list and insert at the same position: floor(x/2), x mod 2, floor(x/2) sequentially. You must continue with these operations until all the elements in the list are either 0 or 1.

Now we want the total number of 1s in the range l to r (1-indexed). Can you solve this problem or will you accept your defeat against the power of 2?

Input

The first line contains three integers n, l, r ($0 \le n \le 2^{50}$, $0 \le r - l \le 10^5$, $r \ge 1$, $l \ge 1$).

It is guaranteed that r is not greater than the length of the final list.

Output

Number of 1s in the range l to r in the final sequence.

Example

standard input	standard output
7 2 5	4