

Problem A. sam's challenge

Time limit 2000 ms
Mem limit 262144 kB

In an ancient magical forest, Sam found himself lost. This forest was protected by the legendary Tree of Wisdom. Hoping to find a way out, Sam approached the Tree of Wisdom, seeking its guidance. However, the Tree of Wisdom did not offer assistance lightly; it presented Sam with a riddle to test his intellect.

The Tree of Wisdom showed Sam a mysterious sequence of numbers, initially containing just one number n . The tree informed Sam that in order to unlock the path out of the forest, he must transform this number following a specific rule. For every number in the sequence greater than one, he needs to break it down into three numbers: $x / 2$ (round down) , $x \% 2$, $x / 2$ (round down) These three numbers would then replace the original number in the sequence. Sam would need to continue this process until all numbers in the sequence are either 0 or 1.

Upon completing this challenge, the Tree of Wisdom had one final question. It asked Sam to determine, in the ultimate sequence, how many 1 were present within a specified range from l to r . If Sam answered this question correctly, the Tree of Wisdom would show him the way out of the forest.

Whether or not Sam could successfully navigate his way out of this ancient magical forest depended entirely on solving this enigma.

输入

The input contains three integers n, l, r ($0 \leq n < 2^{50}, 0 \leq r - l \leq 10^5, r \geq 1, l \geq 1$)

Ttle assurance r value must be less than the length of the final list.

输出

Outputs the number of 1's contained in the $[l, r]$ interval of the final list.。

样例1

输入	输出
7 2 5	4

样例2

输入	输出
10 3 10	5

提示

样例1：

$[7] \rightarrow [3, 1, 3] \rightarrow [1, 1, 1, 1, 3] \rightarrow [1, 1, 1, 1, 1, 1, 1] \rightarrow [1, 1, 1, 1, 1, 1, 1]$

2 到 5区间的列表元素为 $[1, 1, 1, 1]$ ，这个区间里面包含的1的个数为4.

样例2:

$[10] \rightarrow [1, 0, 1, 1, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1]$

3到 10区间的列表元素为 $[1, 1, 1, 0, 1, 0, 1, 0]$ ，这个区间里面包含的1的个数为5.