Bit Array

You are given four integers: N, S, P, Q. You will use them in order to create the sequence a with the following pseudo-code.

```
a[0] = S (modulo 2^31)
for i = 1 to N-1
    a[i] = a[i-1]*P+Q (modulo 2^31)
```

Your task is to calculate the number of distinct integers in the sequence a.

Input Format

Four space separated integers on a single line, N, S, P, and Q respectively.

Output Format

A single integer that denotes the number of distinct integers in the sequence a.

Constraints

$1 \leq N \leq 10^8$
$0 \leq S, P, Q < 2^{31}$

Sample Input

```
3 1 1 1
```

Sample Output

```
3
```

Explanation

$a = [1, 2, 3]$

Hence, there are 3 different integers in the sequence.