JEALOUS NUMBERS

There is a trouble in Numberland, prime number p is jealous of another prime number q. She thinks that there are more integer numbers between a and b, inclusively, that are divisible by greater power of q than that of p. Help p to get rid of her feelings.

Let $\alpha(n, x)$ be maximal k such that n is divisible by x^k. Let us say that a number n is p-dominating over q if $\alpha(n, p) > \alpha(n, q)$. Find out for how many numbers between a and b, inclusive are p-dominating over q.

Input

The first line of the input file contains a, b, p and q ($1 \le a \le b \le 10^{18}$; $2 \le p, q \le 10^9$; $p \neq q$; p and q are prime).

Output

Output one number — how many numbers n between a and b, inclusive, are p-dominating over q.

Example

№	stdin	stdout
1	1 20 3 2	4