Cool pairs P24413_en

In this problem, we will say that a pair of integer numbers (x, y) is cool if $y = x + 1$, and both x and y are perfect squares or perfect cubes. For instance, $(8, 9)$ is a cool pair, because x is a perfect cube ($8 = 2^3$) and y is a perfect square ($9 = 3^2$). As another example, $(0, 1)$ is a cool pair as well (a bit special, since 0 and 1 are perfect squares and also perfect cubes).

Given an interval $[\ell, r]$, how many cool pairs does it contain?

Input

Input consists of several cases, each one with ℓ and r. Assume $0 \leq \ell < r \leq 10^{18}$.

Output

For every case, print the number of cool pairs with x and y inside $[\ell, r]$.

Sample input 1	Sample output 1
0 8 0 9 1 15 999999999999999999 1000000000000000000	1 2 1 0

Problem information

Author: Salvador Roura

Generation: 2026-01-25T10:21:37.433Z