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 \(\ell\) 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**

| 0 8   | 1 |
| 0 9   | 2 |
| 1 15  | 1 |
| 9999999999999999 10000000000000000 | 0 |

**Problem information**

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