

Watson likes to challenge Sherlock's math ability. He will provide a starting and ending value describing a range of integers. Sherlock must determine the number of *square integers* within that range, inclusive of the endpoints.

Note: A square integer is an integer which is the square of an integer, e.g. **1, 4, 9, 16, 25**.

For example, the range is $a = 24$ and $b = 49$, inclusive. There are three square integers in the range: **25, 36** and **49**.

Function Description

Complete the *squares* function in the editor below. It should return an integer representing the number of square integers in the inclusive range from a to b .

squares has the following parameter(s):

- a : an integer, the lower range boundary
- b : an integer, the upper range boundary

Input Format

The first line contains q , the number of test cases.

Each of the next q lines contains two space-separated integers denoting a and b , the starting and ending integers in the ranges.

Constraints

$$1 \leq q \leq 100$$

$$1 \leq a \leq b \leq 10^9$$

Output Format

For each test case, print the number of square integers in the range on a new line.

Sample Input

```
2
3 9
17 24
```

Sample Output

```
2
0
```

Explanation

Test Case #00: In range $[3, 9]$, **4** and **9** are the two square integers.

Test Case #01: In range $[17, 24]$, there are no square integers.