

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

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

Example

$a = 24$

$b = 49$

There are three square integers in the range: 25, 36 and 49. Return 3.

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):

- *int a*: the lower range boundary
- *int b*: the upper range boundary

Returns

- *int*: the number of square integers in the range

Input Format

The first line contains *q*, the number of test cases.
Each of the next *q* lines contains two space-separated integers, *a* and *b*, the starting and ending integers in the ranges.

Constraints

$1 \leq q \leq 100$
 $1 \leq a \leq b \leq 10^9$

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.