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 uppere 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.