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Sherlock and Squares

by darkshadows

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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. $1, 4, 9, 16, 25$.

Input Format

The first line contains T, the number of test cases.
Each of the next T lines contains two space-separated integers denoting A and B, the starting and ending integers in the ranges.

Constraints

$1 \leq T \leq 100$
$1 \leq A \leq B \leq 10^9$

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.

Easy Submitted 77930 times
Max Score 20

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Resources

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Current Buffer (saved locally, editable) C++14

```cpp
#include <iostream>
#include <cmath>
#define speed std::ios_base::sync_with_stdio(false); std::cin.tie(nullptr); std::cout.tie(nullptr)
typedef signed long long int int64;

int64 SquaresCount(const int64& a, const int64& b)
{
    int64 n = 0, i = sqrt(a);
    if (i * i == a) n++;
    while (++i*i <= b) n++;
    return n;
}

int main()
{
    speed;
    int T; std::cin>>T;
    while(T--)
    {
        int64 A,B;
        std::cin >> A >> B;
        std::cout<<SquaresCount(A,B)<<std::endl;
    }
    return 0;
}

```

Line: 26 Col: 1

Upload Code as File Test against custom input Run Code Submit Code

Congrats, you solved this challenge!

Challenge your friends:

✔ Test Case #0	✔ Test Case #1	✔ Test Case #2
✔ Test Case #3	✔ Test Case #4	✔ Test Case #5
✔ Test Case #6	✔ Test Case #7	✔ Test Case #8

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