1925. Count Square Sum Triples

Solved

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A **square triple** `(a,b,c)` is a triple where `a`, `b`, and `c` are **integers** and $a^2 + b^2 = c^2$.

Given an integer `n`, return *the number of **square triples** such that* `1 <= a, b, c <= n`.

Example 1:

```
Input: n = 5
Output: 2
Explanation: The square triples are (3,4,5) and (4,3,5).
```

Example 2:

```
Input: n = 10
Output: 4
Explanation: The square triples are (3,4,5), (4,3,5), (6,8,10), and
(8,6,10).
```

Constraints:

- `1 <= n <= 250`

Python:

```
class Solution:
    def countTriples(self, n: int) -> int:
        res = 0
        for u in range(2, int(sqrt(n)) + 1):
            for v in range(1, u):
                if (u - v) & 1 == 0 or gcd(u, v) != 1:
                    continue
                c = u * u + v * v
                if c > n:
                    continue
                res += 2 * (n // c)
        return res
```

JavaScript:

```
const countTriples = n => {
    const gcd = (x, y) => y === 0 ? x : gcd(y, x % y);
```

```
    let res = 0;
    for (let u = 2; u * u <= n; u++) {
        for (let v = 1; v < u; v++) {
            if (~(u - v) & 1 || gcd(u, v) !== 1) continue;
            const c = u * u + v * v;
            if (c > n) continue;
            res += parseInt(n / c) << 1;
        }
    }
    return res;
};
```

Java:

```
class Solution {
    public int countTriples(int n) {
        int res = 0;
        for (int u = 2; u * u <= n; u++) {
            for (int v = 1; v < u; v++) {
                if (((u - v) & 1) == 0 || gcd(u, v) != 1) continue;
                int c = u * u + v * v;
                if (c > n) continue;

                res += 2 * (n / c);
            }
        }
        return res;
    }

    int gcd(int x, int y) {
        return y == 0 ? x : gcd(y, x % y);
    }
}
```