# [507 Perfect Number (link)](link).

## Description

A **[perfect number](perfect%20number)** is a **positive integer** that is equal to the sum of its **positive divisors**, excluding the number itself. A **divisor** of an integer x is an integer that can divide x evenly.

Given an integer n, return `true` *if* n *is a perfect number, otherwise return* `false`.

### Example 1:

```
Input: num = 28
Output: true
Explanation: 28 = 1 + 2 + 4 + 7 + 14
1, 2, 4, 7, and 14 are all divisors of 28.
```

### Example 2:

```
Input: num = 7
Output: false
```

### Constraints:

- `1 <= num <= 10`$^8$

(scroll down for solution)

# Solution

*Language: cpp*

## Status: Accepted

```cpp
#include <cmath>

class Solution {
public:
    bool checkPerfectNumber(int num) {
        if (num <= 1) return false;

        int sum = 1; // Начинаем с 1, потому что 1 всегда является делителем исключит

        int sqrtNum = sqrt(num);
        for (int i = 2; i <= sqrtNum; ++i) {
            if (num % i == 0) {
                sum += i;
                if (i != num / i) {
                    sum += num / i;
                }
            }
        }

        return sum == num;
    }
};
```