STUDENT REPORT

DETAILS

Name

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Roll Number

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EXPERIMENT

Title

DETECTING PERFECT NUMBERS

Description

A perfect number is a positive integer that is equal to the sum of its proper positive divisors, i.e. the sum of its positive divisors excluding the number itself.

You are given an integer n. Print '1' if n is a perfect number, else print the sum of the proper divisors of n.

Input Format:

The input consists of a single line:

The line contains an integer denoting in.

The input will be read from the STDIN by the candidate

Output Format:

Print "1' if n is a perfect number, else print the sum of the proper divisors of n.

The output will be matched to the candidate's output printed on the STDOUT

Constraints:

0 < n < 109

Sample Input:

6

Sample Output:

1

Explanation:

The proper divisors of 6 are 1,2 and 3

sum= 1+2+3=6

So it is a perfect number

Source Code:

```
def proper_divisor_sum(n):
    if n <= 1:
        return 0

    total_sum = 0
    for i in range(1, int(n**0.5) + 1):
        if n % i == 0:  # If i is a divisor
            total_sum += i  # Add i
            if i != n // i and i != 1:  # Add n/i if it's different and not n itself
                total_sum += n // i

    return total_sum

# Input handling
n = int(input().strip())

# Calculate the sum of proper divisors
sum_of_divisors = proper_divisor_sum(n)

# Check if n is a perfect number
if sum_of_divisors == n:
    print(1)
else:
    print(sum_of_divisors)
```

RESULT

5 / 5 Test Cases Passed | 100 %