



Practice Arena

Practice problems aimed to improve your coding skills.

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Perfect Numbers

LAB-PRAC-05_CONDLOOPS

Perfect Numbers [20 marks]

Problem Statement

A positive integer is called a perfect number if the sum of proper divisors of that number is equal to the number itself. When you go back home, you can read more about this here:

https://en.wikipedia.org/wiki/Perfect_number (however, DO NOT BROWSE these websites during the lab).

The proper divisors of a number are all those numbers, except the number itself, which divide that number. Thus, 1 is a proper divisor of every number but 1 itself. For example, the proper divisors of 6 are: 1, 2 and 3. Clearly, $6 = 1 + 2 + 3$. Thus, 6 is a perfect number.

You will be given **a positive number as an int** as input and you will have to give two outputs in **two different lines**. In the first line, give the sum of the proper divisors of that number and in the second line, print "YES" (without quotes) if the number is a perfect number, otherwise print "NO".

Caution

1. Be careful about extra/missing lines and extra/missing spaces.
2. This question will require you to use loops. We are giving below, the general structure of a loop, to help you.

HINTS:

1. A loop is written as follows

```
int counter;
for(counter = 1; counter <= 5; counter++){
    // Do something with the counter
}
```
2. You can change the initial value 1, final value 5, and the update step as you wish.
3. Inside a for loop, you can put in any number of statements.
4. Be careful that the sum of the divisors of a number may not fit inside the int datatype even if the number itself is int datatype. To avoid such errors, use the long datatype to perform computations.

EXAMPLE:

INPUT

28

OUTPUT:

28

YES

Grading Scheme:

Total marks: **[20 Points]**

There will be partial grading in this question. There are two lines in your output. Printing each line correctly, in the correct order, carries 50% weightage. Each visible test case is worth 2 points and each hidden test case is worth 4 points. There are 2 visible and 4 hidden test cases.

Please remember, however, that when you press Submit/Evaluate, you will get a green bar only if all parts of your answer are correct. Thus, if your answer is only partly correct, Prutor will say that you have not passed that test case completely, but when we do autograding afterwards, you will get partial marks.

 **Start Solving!** (</editor/practice/6079>)