
Pseudoperfect numbers

P82891_en

Cinquè Concurs de Programació de la FME (2008-04-29)

The proper divisors of a number n are all the positive divisors of n that are smaller than n . For instance, the proper divisors of 20 are 1, 2, 4, 5, and 10. In this problem, we will say that a number is pseudoperfect if it can be obtained by adding up some of (or all) its proper divisors. For instance, 20 is pseudoperfect, because $1 + 4 + 5 + 10 = 20$.

Write a program that, for every given number n ,

- if n has more than 15 proper divisors, prints how many it has;
- if n has 15 or less proper divisors, tells if n is pseudoperfect or not.

Input

Input consists of several strictly positive natural numbers.

Output

For every given n , print its number of proper divisors, if this is larger than 15. Otherwise, tell if n is pseudoperfect or not. Follow the format of the example.

Sample input

```
1
6
10
20
210
2310
65536
100000000
999999996
999999937
999999936
```

Sample output

```
1 : NOT pseudoperfect
6 : pseudoperfect
10 : NOT pseudoperfect
20 : pseudoperfect
210 : pseudoperfect
2310 : 31 proper divisors
65536 : 16 proper divisors
100000000 : 99 proper divisors
999999996 : pseudoperfect
999999937 : NOT pseudoperfect
999999936 : 167 proper divisors
```

Problem information

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