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
1000000000
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
1000000000 : 99 proper divisors
999999996 : pseudoperfect
999999937 : NOT pseudoperfect
999999936 : 167 proper divisors
```

Problem information

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