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## Control C301C

P57882\_en

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Given a natural number  $n \geq 1$ , being  $s(n)$  the sum of its divisors not counting itself. A number  $n \geq 3$  is called *popiropis* if  $n = s(n-2) + s(n) + s(n+2)$ . A number  $n \geq 3$  is called *k-popiropis* if  $n * k = s(n-2) + s(n) + s(n+2)$  for an integer  $k \geq 2$ .

For instance, the number 133 is popiropis, because  $s(131) = 1$ ,  $s(133) = 27$  and  $s(135) = 105$ . Besides, 132 is 3-popiropis, because  $s(130) + s(132) + s(134) = 396 = 132 * 3$ .

Your task is to write a program that, for each natural number given, print if it is popiropis, if it is *k-popiropis* (and which is the value of *k*), or if it is nothing.

### Input

The input is a sequence of natural numbers  $n \geq 3$ .

### Output

Your program must print a line for each  $n$ , indicating which class is: popiropis, *k-popiropis*, or nothing.

### Observation

Your program must implement and use the function

```
int sum_divisors(int n);
```

that, given a natural number  $n$  different than 0, returns the sum of its divisors (not counting itself).

### Sample input 1

```
131
132
133
134
```

### Sample output 1

```
131: nothing
132: 3-popiropis
133: popiropis
134: nothing
```

### Sample input 2

```
3
80
273
38222
44642
1000000
1629073
8802908
```

### Sample output 2

```
3: nothing
80: 3-popiropis
273: popiropis
38222: 4-popiropis
44642: 4-popiropis
1000000: nothing
1629073: popiropis
8802908: 3-popiropis
```

### Problem information

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