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## Perfect primes

P90664\_en

Primer Concurs de Programació de la FME (2004-04-29)

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Given a natural number  $n$ , let  $s(n)$  be the sum of the digits (in base 10) of  $n$ . We say that  $n$  is a *perfect prime* if the infinite sequence formed by  $n, s(n), s(s(n)), \dots$  only contains prime numbers. For instance, 977 is a perfect prime, because 977, as well as  $9 + 7 + 7 = 23$ ,  $2 + 3 = 5$ ,  $5, 5, \dots$  are prime numbers.

### Input

Each line of the input contains a number  $1 \leq n \leq 4000000$ . A line with  $n = 0$  marks the end of the input.

### Output

For each  $n$ , print in a line “yes” or “no”, depending on whether  $n$  is a perfect prime or it is not.

### Sample input

```
977
1
7
17
0
```

### Sample output

```
yes
no
yes
no
```

### Problem information

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