

110504 Ones

Given any integer $0 \leq n \leq 10,000$ not divisible by 2 or 5, some multiple of n is a number which in decimal notation is a sequence of 1's. How many digits are in the smallest such multiple of n ?

Input

A file of integers at one integer per line.

Output

Each output line gives the smallest integer $x > 0$ such that $p = \sum_{i=0}^{x-1} 1 \times 10^i$, where a is the corresponding input integer, $p = a \times b$, and b is an integer greater than zero.

Sample Input

```
3
7
9901
```

Sample Output

```
3
6
12
```