

---

## Maximum number in base three

P51176\_en

Vint-i-dosè Concurs de Programació de la UPC - Final (2024-10-02)

---

Here, we consider the base three representation of the natural numbers. For example, 59 is represented as 2012, because  $2 \cdot 3^3 + 0 \cdot 3^2 + 1 \cdot 3^1 + 2 \cdot 3^0 = 59$ . Note that all digits are between 0 and 2, and that we have no zeros on the left.

Write a program to print the result of rearranging the base three digits of each given number, so that the result is the maximum possible, with an additional condition: we cannot have two equal consecutive digits.

### Input

Input consists of several  $n$ , all between 1 and  $10^{18}$ .

### Output

For every given  $n$ , print its base three digit rearrangement without equal adjacent digits that produces the maximum possible result. If no reordering is possible, tell so.

### Sample input

```
59
1
4
12
9
1000000000
99999999999999998378
10000000000000000000
```

### Sample output

```
59 : 2120
1 : 1
4 : no
12 : 101
9 : no
1000000000 : no
99999999999999998378 : no
10000000000000000000 : 21212121212120202020202020202010101010
```

### Problem information

Author : Salvador Roura  
Generation : 2024-10-02 15:36:31