Project Euler #62: Cubic permutations

This problem is a programming version of Problem 62 from projecteuler.net

The cube, 41063625 (345^3), can be permuted to produce two other cubes: 56623104 (384^3) and 66430125 (405^3).

In fact, 41063625 is the smallest cube which has exactly three permutations of its digits which are also cube.

You are given N, find the smallest cube for which exactly K permutations of its digits are cube of some number which is $(< N)$. If there are multiple sets, print the minimal element of each in sorted order.

Input Format

Input contains two space separated integers N and K.

Constraints

$1000 \leq N \leq 10^6$
$3 \leq K \leq 49$

Output Format

Print the answer corresponding to the test case. If there are more than one number, print them on separate lines.

Sample Input

```
1000 3
```

Sample Output

```
41063625
```