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**Sorting by the number of divisors****P64854\_en**

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Given  $n$  natural numbers, sort them. First, by its number of divisors (the larger the better); in case of a tie, by its number of digits (the larger the better); and in case of another tie, by its value (the smaller the better).

**Input**

Input consists of several cases, each one with  $n$  followed by  $n$  numbers between 1 and  $10^7$ . You can assume  $1 \leq n \leq 10^4$ .

**Output**

For every case, print  $n$  lines with every number and its number of divisors, sorted as it is explained above. Print a line with 10 dashes at the end of every case.

**Hint**

Remember that, if the factorization of a number is  $p_1^{q_1} \cdots p_m^{q_m}$ , then its number of divisors is  $(q_1 + 1) \cdots (q_m + 1)$ . For instance, for  $12 = 2^2 \cdot 3^1$  there are  $(2 + 1) \cdot (1 + 1) = 6$  divisors.

**Sample input 1**

```
9 12 1 5 1000 10 8 9 34549 10007
4 10000000 9999999 9999998 9999997
3 23 23 23
```

**Sample output 1**

```
1000 16
12 6
10 4
8 4
9 3
10007 2
34549 2
5 2
1 1
-----
10000000 64
9999999 12
9999997 4
9999998 4
-----
23 2
23 2
23 2
-----
```

**Problem information**

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