Functions

While he was in his Maths class, Ivan came into the world of functions.

He chose to define the function P(X) to be the product of the digits of a natural number X.

For example, P(1543) = 1 \* 5 \* 4 \* 3 = 60.

He also defined Q(X) = X \* P(X), where Х is a natural number again.

For example Q(1543) = 1543 \* 60 = 92580.

Write a program **function,** which by given two natural numbers, L and K, finds the smallest natural number R, such that there are at leastK natural numbers X for which the statement L <= Q(X) <= R is true.

**Input** (**function.in**):

Two natural numbers **L** and **K** (1 <= L, K <= 1018).

**Output** (**function.out**):

The required number **R**. It is guaranteed that 1 <= R <= 1018.

**Limits**:

Time limit: 6 sec.

Memory limit: 256 MB.

**Sample test** :

|  |  |
| --- | --- |
| function.in | function.out |
| 42 42 | 648  |