

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 X 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 least K natural numbers X for which the statement $L \leq Q(X) \leq R$ is true.

Input (function.in):

Two natural numbers L and K ($1 \leq L, K \leq 10^{18}$).

Output (function.out):

The required number R . It is guaranteed that $1 \leq R \leq 10^{18}$.

Limits:

Time limit: 6 sec.

Memory limit: 256 MB.

Sample test :

function.in	function.out
42 42	648