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Carryless Square Root

Time limit: 1 second

Carryless addition is the same as normal addition, except any carries are ignored (in base 10). Thus, $37 + 48$ is 75, not 85.

Carryless multiplication is performed using the schoolbook algorithm for multiplication, column by column, but the intermediate sums are calculated using *carryless* addition. Thus:

$$9 \cdot 1234 = 9000 + (900 + 900) + (90 + 90 + 90) + (9 + 9 + 9 + 9)$$
$$= 9000 + 800 + 70 + 6 = 9876$$

$$90 \cdot 1234 = 98760$$

$$99 \cdot 1234 = 98760 + 9876 = 97536$$

Formally, define c_k to be the kth digit of the value c. If $c = a \cdot b$ then

$$c_k = \left[\sum_{i+j=k} a_i \cdot b_j \right] \bmod 10$$

Given an integer n, calculate the smallest positive integer a such that $a \cdot a = n$ in *carryless* multiplication.

Input

The input consists of a single line with an integer n ($1 \le n \le 10^{25}$).

Output

Output the smallest positive integer that is a *carryless* square root of the input number, or -1 if no such number exists.

Sample Input	Sample Output
6	4
149	17
123476544	11112
15	-1