

2847. Smallest Number With Given Digit Product Premium

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Given a **positive** integer n , return *a string representing the **smallest positive** integer such that the product of its digits is equal to n , or -1 if no such number exists.*

Example 1:

Input: $n = 105$
Output: "357"
Explanation: $3 * 5 * 7 = 105$. It can be shown that 357 is the smallest number with a product of digits equal to 105. So the answer would be "357".

Example 2:

Input: $n = 7$
Output: "7"
Explanation: Since 7 has only one digit, its product of digits would be 7. We will show that 7 is the smallest number with a product of digits equal to 7. Since the product of numbers 1 to 6 is 1 to 6 respectively, so "7" would be the answer.

Example 3:

Input: $n = 44$
Output: "-1"
Explanation: It can be shown that there is no number such that its product of digits is equal to 44. So the answer would be "-1".

Constraints:

- $1 \leq n \leq 10^{18}$

Seen this question in a real interview before? 1/5

Yes No

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💡 Hint 1

Find the prime factors of n .

💡 Hint 2

If there is a prime factor p such that $p \geq 11$, the answer is -1 . Since there are no digits whose products equal p .

💡 Hint 3

Factors 5 and 7 should be included in the answer since their product with any number bigger than 1 is a 2-digit number.

💡 Hint 4

For factors 2 and 3 , we group every three 2 into an 8 and every two 3 into a 9 .

💡 Hint 5

For any leftover 2 or 3 , check all the possible combinations.

💬 Discussion (1)