

Contest Duration: 2025-09-14(Sun) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250914T2100&p1=248>) - 2025-09-14(Sun) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250914T2240&p1=248>) (local time) (100 minutes)

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G - Small Multiple 2

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 600 points

Problem Statement

Find the minimum possible value of a positive integer n that satisfies the following two conditions:

- n is a multiple of K .
- The decimal representation of n contains S as a substring.

T test cases are given, so find the answer for each.

► [What is a substring?](#)

Constraints

- T is an integer.
- $1 \leq T \leq 200$
- K is an integer.
- $1 \leq K \leq 10^9$
- S is a string consisting of digits (0 - 9).
- The first character of S is not 0.
- $1 \leq |S| \leq 5 \times 10^5$
- For each input file, the sum of $|S|$ over all test cases is at most 5×10^5 .

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Input

The input is given from Standard Input in the following format:

```
T  
case1  
case2  
:  
caseT
```

case_i represents the i -th test case. Each test case is given in the following format:

```
K  
S
```

Output

Output T lines. The i -th line ($1 \leq i \leq T$) should contain the answer to the i -th test case.

Sample Input 1

Copy

```
4  
271  
414  
15  
23  
155521  
1000  
920950937  
99999999999999999999
```

Copy

Sample Output 1

Copy

```
34146  
1230  
100000003  
10000099999999999999999999
```

Copy

In the first test case, among positive integers that are multiples of 271, the minimum one whose decimal representation contains 414 as a substring is 34146.

In the second test case, among positive integers that are multiples of 15, the minimum one whose decimal representation contains 23 as a substring is 1230.

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In the third test case, among positive integers that are multiples of 155521, the minimum one whose decimal representation contains 1000 as a substring is 100000003.

In the fourth test case, among positive integers that are multiples of 920950937, the minimum one whose decimal representation contains 999999999999999999999999 as a substring is 1000000999999999999999999.

'#telegram)

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