

6327 Math Homework

Yes, your teacher gave you another hard math homework, and you have to finish it before its deadline.

This homework is about the division operation, and it's a practice for the division by small numbers. You are asked to count the non-negative numbers which consist of exactly N digits (leading zeros are allowed), and they satisfy some division requirements, for example let's say you want to count the numbers which consist of 2 digits and they are divisible by 6 and not divisible by 5, these are the numbers which satisfy these requirements: 06, 12, 18, 24, 36, 42, 48, 54, 66, 72, 78, 84 and 96.

Note that zero is divisible by any positive number (check the third sample test case).

So, you decided to write a program to solve this homework for you, because N can be really large.

Input

Your program will be tested on one or more test cases. The first line of the input will be a single integer T , the number of test cases ($1 \leq T \leq 1,000$). Followed by T lines, each line represents one test case, and consists of an integer N ($1 \leq N \leq 10^{18}$) which is the length of the numbers you are asked to count (again, leading zeros are allowed) followed by a space then a string of 6 digits (each digit is '0', '1' or '2'), the i -th digit (the left most digit is the digit number 1) is '0' if the numbers shouldn't be divisible by i , and it's '1' if the numbers should be divisible by i , and it's '2' if the numbers can be divisible or not divisible by i .

Output

For each test case, print on a single line one integer, the count of the numbers you are asked to count as described above, since the result may be very large, print it modulo 1,000,000,007 ($(10^9 + 7)$).

Sample Input

```
4
2 222201
1 111001
1 111111
2 222222
```

Sample Output

```
13
1
1
100
```