As a student of the school of electronics engineering and computer science in Peking University, Kyle took the course named Advanced Algebra in his freshman year, which, unluckily, became his nightmare.

His teacher, Mr. X, has an approximately paranoid requirements in the ability of calculation, from which his students suffer a lot.

One day, Mr. X got a whim that he wanted to know for a given integer k and a long numeric string S whose length is N, what is the result of $\sum_{j=1}^{i} F(j,i)$ for each i $(1 \le i \le N)$, where

$$F(j,i) = \left(\sum_{l=j}^{i} S[l] \right)^k$$

$S[l]$ means the l-th digit in S, and l starts from 1.

Mr. X added the problem to the midterm test. Please give a hand to Kyle and tell him the answer mod 1000000007.

Input

There are multiple test cases.

The first line of the input contains an integer T which means the number of test cases.

The first line of each test case contains two integers, above mentioned N and k.

The next line is the above mentioned string S. S consists of only digits('0'..'9').

Output

For each test case, print a single line representing the result of $\sum_{j=1}^{i} F(j,i)$ for each i $(1 \le i \le N)$

Notes:

$T \le 5$

$N \le 50,000, k \le 100$

Sample Input

```
2
5 1
12345
5 1
54321
```

Sample Output

```
1 5 14 30 55
5 13 22 30 35
```