Problem H. Qnp

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1.5 seconds
Memory limit:	256 mebibytes

You are given some digits. Your task is to find the K-th smallest integer that consists of **exactly** the digits given, modulo $10^9 + 7$. You should answer Q such queries (a query consists of digit frequencies and an integer K).

Note that integers with leading zeroes are also taken into account.

Input

The first line contains a single integer Q $(1 \leq Q \leq 5000)$.

Each of the next Q lines contains 11 integers. The first ten denote the frequencies of digits 0, 1, ..., 9. The last one is the integer K $(1 \leq K \leq 10^{12})$. For each query, the total number of digits is strictly positive and does not exceed 70 000.

Output

Print Q lines. The i-th line must contain one integer: the answer for the i-th query modulo $10^9 + 7$.

Example

standard input	standard output
6	1
1 1 0 0 0 0 0 0 0 0 1	10
1 1 0 0 0 0 0 0 0 0 2	12
1 1 1 0 0 0 0 0 0 0 1	21
1 1 1 0 0 0 0 0 0 0 2	201
1 1 1 0 0 0 0 0 0 0 5	101
1 2 0 0 0 0 0 0 0 0 2	