Problem H. Intervals

Input file:	`intervals.in`
Output file:	`intervals.out`
Time limit:	6 seconds
Memory limit:	256 megabytes

An integer number is called *good* if it consists of *good* digits.

You are given N intervals $[L_i, R_i]$ and the set of digits which are considered *good*. Find how many ways there are to choose one integer from each of those intervals so that their sum will be a *good* number. You can choose the same number in multiple intervals. Two ways are considered different if there exists an integer i ($1 \le i \le N$) such that different integers are chosen from interval i. The answer may be large, so you have to give it modulo $10^9 + 7$.

Input

The first line of input contains ten integers: i-th of them is equal to 1 if digit i is *good* and 0 otherwise. These integers are numbered from 0 to 9. The next line contains a single integer N ($1 \le N \le 7$): the number of intervals. Next N lines contain two integers each without leading zeros: L_i and R_i ($0 \le L_i \le R_i < 10^{10}$).

Output

Print the number of ways modulo $10^9 + 7$.

Examples

intervals.in	intervals.out
1 1 1 1 1 1 1 1 1 1 2 4 6 15 19	15
1 0 1 0 1 0 1 0 0 0 2 4 6 15 19	7
1 0 0 1 1 1 1 1 1 1 2 4 6 15 19	0