

Problem G

YET ANOTHER SEQUENCE

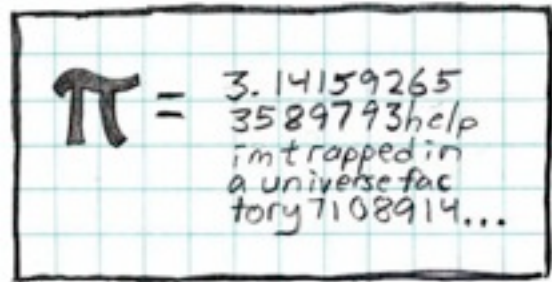
File name: G.{java,c,cpp}

You are given the first N elements of a sequence of decimal digits. Starting with $(N+1)$ th digit, every element is the last digit of the sum of the previous N elements. What is the K th digit in this sequence?

Program Input

Input starts with a single integer C ($1 \leq C \leq 100$) on a line, which denotes the number of test cases to follow.

Each test case consists of two lines. The first line starts with a positive integer N ($4 \leq N \leq 8$), the number from the description above. N decimal digits follow on the same line, separated by spaces. The second line starts with a positive integer M ($1 \leq M \leq 100$), the number of queries. M integers follow, each one corresponding to K in the statement ($0 \leq K \leq 10^{15}$) where K is a zero-based index, also separated by spaces.



Program Output

For each K given, output the K th element of the sequence in that test case on its own line.

Sample Input & Output

INPUT	OUTPUT
2	0
4 1 2 3 4	3
1 4	5
5 1 1 1 1 1	
2 8 9	