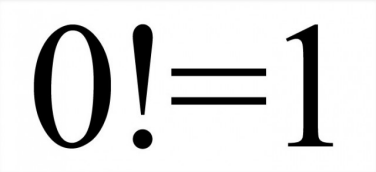
Problem D
Numbers are Easy
Time Limit: 2 seconds

Given an integer N, what is the smallest positive integer X, whose representation in base 10 consists only of digits '0' and '1', such that X is divisible by N?



Input

The first line of the input file starts with the integer T, the number of test cases $(1 \leq T \leq 100)$. Each test case consists of a number $N(1 \leq N \leq 300)$ on a line.

Output

For each test case, output the smallest positive number X such that X is divisible by N and it contains only digits '0' and '1'. Given the constraints, it is guaranteed that there always is a solution (for any positive N) and, in this problem, it will always fit into a 64-bit signed integer.

Sample Input	Sample Output
3 1 2 20	1 10 100