

1096 - nth Term

You have to find the n^{th} term of the following function:

$$f(n) = a * f(n-1) + b * f(n-3) + c, \text{ if}(n > 2)$$
$$= 0, \text{ if}(n \leq 2)$$

Input

Input starts with an integer T (≤ 100), denoting the number of test cases.

Each case contains four integers n ($0 \leq n \leq 10^8$), a b c ($1 \leq a, b, c \leq 10000$).

Output

For each case, print the case number and $f(n)$ modulo 10007 .

Sample Input	Output for Sample Input
2 10 1 2 3 5 1 3 9	Case 1: 162 Case 2: 27