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Volume

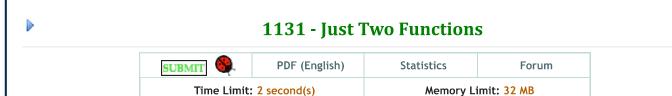
Contest

Training

**Community Credits** 

Server Time: Thu Aug 3, 2017 9:30 pm

Welcome Nitai Banik (logout)



Let

$$f_n = a_1 * f_{n-1} + b_1 * f_{n-2} + c_1 * g_{n-3}$$

$$g_n = a_2 * g_{n-1} + b_2 * g_{n-2} + c_2 * f_{n-3}$$

Find  $f_n$  % M and  $g_n$  % M. (% stands for the modulo operation.)

## Input

Input starts with an integer  $T (\leq 50)$ , denoting the number of test cases.

Each case starts with a blank line. Next line contains three integers  $a_1$   $b_1$   $c_1$  ( $0 \le a_1$ ,  $b_1$ ,  $c_1 < 25000$ ). Next line contains three integers  $a_2$   $b_2$   $c_2$  ( $0 \le a_2$ ,  $b_2$ ,  $c_2 < 25000$ ). Next line contains three integers  $f_0$   $f_1$   $f_2$  ( $0 \le f_0$ ,  $f_1$ ,  $f_2 < 25000$ ). Next line contains three integers  $g_0$   $g_1$   $g_2$  ( $0 \le g_0$ ,  $g_1$ ,  $g_2 < 25000$ ). The next line contains an integer  $f_0$  ( $f_1$ )  $f_2$  ( $f_2$ )  $f_3$  ( $f_3$ )  $f_4$  ( $f_3$ )  $f_4$  ( $f_4$ )  $f_5$  ( $f_5$ )  $f_6$  ( $f_6$ )  $f_7$  ( $f_7$ )  $f_8$  ( $f_8$ )  $f_9$  ( $f_9$ )  $f_$ 

Next line contains an integer q ( $1 \le q \le 100$ ) denoting the number of queries. Next line contains q space separated integers denoting n. Each of these integers is non-negative and less than  $2^{31}$ .

## Output

For each case, print the case number in a line. Then for each query, you have to print one line containing  $f_n$  % M and  $g_n$  % M.

Sample Input	Output for Sample Input
2	Case 1:
	1 0
1 1 0	1 0
0 0 0	2 0
0 1 1	3 0
0 0 0	5 0
20000	8 0
10	13 0
1 2 3 4 5 6 7 8 9 10	21 0
	34 0
1 1 1	55 0
1 1 1	Case 2:
2 2 2	2 2
2 2 2	10 10
20000	34 34

Developed and Maintained by JANE ALAM JAN

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