

The Easiest Sequence Of the World!!

I just found the easiest and funny sequence ever !

Your task is simple. Just write a program to find the Nth term of this sequence!!

The sequence is as follows::

3, 8, 12, 17, 22, 28, 35....

Input

First line contains t = number of test cases

and then next t lines follow n .

$1 \leq n \leq 10^{11}$

Note-- Value of n is modified to encourage better solutions!

Output

Just the output the n th term modulo 123456789

Example

Input:

3
1
2
3

Output:

3
8
12