7614 Recursive sequence

Farmer John likes to play mathematics games with his N cows. Recently, they are attracted by recursive sequences. In each turn, the cows would stand in a line, while John writes two positive numbers a and b on a blackboard. And then, the cows would say their identity number one by one. The first cow says the first number a and the second says the second number b. After that, the i-th cow says the sum of twice the $(i-2)$-th number, the $(i-1)$-th number, and i^4. Now, you need to write a program to calculate the number of the N-th cow in order to check if John's cows can make it right.

Input

The first line of input contains an integer t, the number of test cases. t test cases follow.

Each case contains only one line with three numbers N, a and b where $N, a, b < 2^{31}$ as described above.

Output

For each test case, output the number of the N-th cow. This number might be very large, so you need to output it *modulo* 2147493647.

Hint In the first case, the third number is $85 = 2 * 1 + 2 + 3^4$.

In the second case, the third number is $93 = 2 * 1 + 1 * 10 + 3^4$ and the fourth number is $369 = 2 * 10 + 93 + 4^4$.

Sample Input

```
2
3 1 2
4 1 10
```

Sample Output

```
85
369
```