

# B . Coronavirus Outbreak

## Description

Since the Coronavirus outbreak back in 2019, millions of life has been taken. Numerous approaches have been made to contaminate the spread of virus, as well as the explosion of interest in research field. By it's nature, virus is spread by the contact of individuals. Modeling the spread of infection can be used to predict the trend of the future.

Assume the accumulated number of infected individuals can be modeled into function  $f(x)$ :

$$f(x) = r_t f(x - 1) + b$$

$$f(0) = 1$$

Where  $x$  is the  $x$ -th day in the future.  $r_t$  is effective reproductive number (有效再生數), representing how many individuals one person can spread the disease to.  $b$  is the backlog number (or retrospective adjustment, 校正回歸), representing the number of **increase/decrease** if the screening process is clogged.

Given  $r_t$ ,  $b$ . Please calculate the accumulated number of infected on any given day.

## Input

There are three integers in the first line, representing  $n$ ,  $r_t$ ,  $b$ . Following by  $n$  lines, each line with a integer  $x$ , representing the  $x$ -th day of the simulation.

## Output

Please print the accumulated number of infected on  $x$ -th day.

### Sample 1 Input

```
3 1 2
1
2
3
```

### Sample 1 Output

```
3
5
7
```

### Sample 2 Input

```
5 6 -4
2
8
3
6
10
```

## Sample 2 Output

8  
335924  
44  
9332  
12093236

### Constraint

- $1 \leq n \leq 100,000$
- $0 \leq x \leq 100,000$
- $1 \leq r_t \leq 200$
- $-100 \leq b \leq 100$
- $0 \leq f(x) < 2^{256}$
- You **cannot** use `BigInteger` or `BigDecimal` class, and your source code **cannot** contain `BigInteger` or `BigDecimal` as keyword/identifier/comment if you use Java for submission.

### Hints

Take a closer look at the constraints.

- $2^{64} = 18,446,744,073,709,551,615 \approx 10^{19.26}$  (20 digits in decimal)
- $2^{256} =$   
115,792,089,237,316,195,423,570,985,008,687,907,853,269,984,665,640,564,039,45  
7,584,007,913,129,639,936  $\approx 10^{77.06}$  (78 digits in decimal)