Moon Safari (easy)

Air is a music duo from France.
You will be told the secret of the critically acclaimed album Moon Safari: mathematics.
The goal of your new task is to compute an ethereal sum.

$$\sum_{i=1}^{N} a^i i^r$$

Three trips on the moon are provided, Moon (easy), Moon1 (medium), Moon2 (hard) with different constraints.

Input

The first line contains an integer T, the number of test cases.
On the next T lines, you will be given three integers N, a and r.

Output

Output T lines, one for each test case, with $S_{N,a,r}$ = sum(a^i i^r, for i in [$1..N$]).

Since the answer can get very big, output it modulo 10^9+7.

Example

Input:
2
3 4 5
6 7 8

Output:
16068
329990641

Explanation

The first case is, with N=3, a=4, r=5, about the sum : 4^1 × 1^5 + 4^2 × 2^5 + 4^3 × 3^5 = 4 + 512 + 15552 = **16068**.
The second case is, with N=6, a=7, r=8, about the sum : 7^1 × 1^8 + 7^2 × 2^8 + 7^3 × 3^8 + 7^4 × 4^8 + 7^5 × 5^8 + 7^6 × 6^8 + 7^7 × 7^8 = 204329992069 ≡ **329990641** (mod 10^9+7).

Constraints

1 < T×N < 10^6
1 < a < 10^9
1 < r < 10^9

Information

This trip can be obviously done with a O(T×N×log(r)) method and some interpreted languages. Good luck and have fun ;-)