

Count Fox Sequences



A non-decreasing sequence is called a **Fox** sequence, iff the most frequent element in the sequence is unique.

e.g. The sequence `1, 1, 2, 3, 4` is a **Fox** sequence, because it follows the above definition. The most frequent element is 1. It occurs twice in the series, and is unique.

But the sequence `1, 1, 2, 2` is *not* a **Fox** sequence, because there are two most frequent elements - 1 and 2. It violates the uniqueness property.

Note: Sequence `2, 1, 1` is not a **Fox** sequence, because it is not a non-decreasing sequence.

You need to find the number of all possible **Fox** sequences of length n with elements having value between lo and hi inclusive.

As the number can grow very large, return the number modulo $(10^9 + 7)$.

Input Format

The first line will contain T , i.e., the number of test cases.

For each test case, there will be a single line containing three space separated integers n , lo , hi .

Output Format

For each test case, display a single value corresponding to the number of all possible **Fox** sequences.

Constraints

$$1 \leq T \leq 5$$

$$1 \leq lo, hi \leq 10^9$$

$$lo \leq hi$$

$$0 \leq |hi - lo| < 10^5$$

$$1 \leq n \leq 10^5$$

Sample Input

```
5
2 1 1
2 1 3
3 1 2
4 4 5
10 2 4
```

Sample Output

```
1
3
4
4
60
```

Explanation

For the first test case, `1 1` is the only possible **Fox** sequence.

For the second test case, `1 1`, `2 2`, and `3 3` are three possible **Fox** sequences.

For the third test case, `1 1 1`, `2 2 2`, `1 1 2`, and `1 2 2` are four possible **Fox** sequences.

Rest of the test cases are up to you to figure out.