2145. Count the Hidden Sequences

Description

You are given a **0-indexed** array of `n` integers `differences`, which describes the **differences** between each pair of **consecutive** integers of a **hidden** sequence of length `(n + 1)`. More formally, call the hidden sequence `hidden`, then we have that `differences[i] = hidden[i + 1] - hidden[i]`.

You are further given two integers `lower` and `upper` that describe the **inclusive** range of values `[lower, upper]` that the hidden sequence can contain.

- For example, given `differences = [1, -3, 4]`, `lower = 1`, `upper = 6`, the hidden sequence is a sequence of length `4` whose elements are in between `1` and `6` (**inclusive**).
  - `[3, 4, 1, 5]` and `[4, 5, 2, 6]` are possible hidden sequences.
  - `[5, 6, 3, 7]` is not possible since it contains an element greater than `6`.
  - `[1, 2, 3, 4]` is not possible since the differences are not correct.

Return *the number of **possible** hidden sequences there are.* If there are no possible sequences, return `0`.

Example 1:

```
Input: differences = [1,-3,4], lower = 1, upper = 6
Output: 2
Explanation: The possible hidden sequences are:
- [3, 4, 1, 5]
- [4, 5, 2, 6]
Thus, we return 2.
```

Example 2:

```
Input: differences = [3,-4,5,1,-2], lower = -4, upper = 5
Output: 4
Explanation: The possible hidden sequences are:
- [-3, 0, -4, 1, 2, 0]
- [-2, 1, -3, 2, 3, 1]
- [-1, 2, -2, 3, 4, 2]
- [0, 3, -1, 4, 5, 3]
Thus, we return 4.
```

Example 3:

```
Input: differences = [4,-7,2], lower = 3, upper = 6
Output: 0
Explanation: There are no possible hidden sequences. Thus, we return 0.
```

Constraints:

- `n == differences.length`
- `1 <= n <= 10^5`
- `-10^5 <= differences[i] <= 10^5`
- `-10^5 <= lower <= upper <= 10^5`