# 5494. Count All Possible Routes

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| **User Accepted:** | 0 |
| **User Tried:** | 0 |
| **Total Accepted:** | 0 |
| **Total Submissions:** | 0 |
| **Difficulty:** | Hard |

You are given an array of **distinct** positive integers locations where `locations[i]` represents the position of city `i`. You are also given integers `start`, `finish` and `fuel` representing the starting city, ending city, and the initial amount of fuel you have, respectively.

At each step, if you are at city `i`, you can pick any city `j` such that `j != i` and `0 <= j < locations.length` and move to city `j`. Moving from city `i` to city `j` reduces the amount of fuel you have by `|locations[i] - locations[j]|`. Please notice that `|x|` denotes the absolute value of `x`.

Notice that `fuel` **cannot** become negative at any point in time, and that you are **allowed** to visit any city more than once (including `start` and `finish`).

Return *the count of all possible routes from* `start` *to* `finish`.

Since the answer may be too large, return it modulo `10^9 + 7`.

**Example 1:**

```
Input: locations = [2,3,6,8,4], start = 1, finish = 3, fuel = 5
Output: 4
Explanation: The following are all possible routes, each uses 5 units of fuel:
1 -> 3
1 -> 2 -> 3
1 -> 4 -> 3
1 -> 4 -> 2 -> 3
```

**Example 2:**

```
Input: locations = [4,3,1], start = 1, finish = 0, fuel = 6
Output: 5
Explanation: The following are all possible routes:
1 -> 0, used fuel = 1
1 -> 2 -> 0, used fuel = 5
1 -> 2 -> 1 -> 0, used fuel = 5
1 -> 0 -> 1 -> 0, used fuel = 3
1 -> 0 -> 1 -> 0 -> 1 -> 0, used fuel = 5
```

**Example 3:**

```
Input: locations = [5,2,1], start = 0, finish = 2, fuel = 3
Output: 0
Explanation: It's impossible to get from 0 to 2 using only 3 units of fuel since the short
```

**Example 4:**

```
Input: locations = [2,1,5], start = 0, finish = 0, fuel = 3
Output: 2
Explanation: There are two possible routes, 0 and 0 -> 1 -> 0.
```

**Example 5:**

```
Input: locations = [1,2,3], start = 0, finish = 2, fuel = 40
Output: 615088286
Explanation: The total number of possible routes is 2615088300. Taking this number modulo
```

**Constraints:**

- `2 <= locations.length <= 100`
- `1 <= locations[i] <= 10^9`
- All integers in `locations` are **distinct**.
- `0 <= start, finish < locations.length`
- `1 <= fuel <= 200`

JavaScript

```
/**
 * @param {number[]} locations
 * @param {number} start
 * @param {number} finish
 * @param {number} fuel
 * @return {number}
 */
var countRoutes = function(locations, start, finish, fuel) {

};
```