2. Map<Coord, int>::insert causes a compilation error, because there is no “==“ or a “<“ operator defined for the Coord class. Thus, there is no way to compare the Coords and insert them into the Map. This causes the behavior to fail since we did not overload these operators ourselves.

3e. In test case 3, when k = 2, the program adds MAGIC 5 times to the vector. However, the iterator is now invalid since the program has not updated li.end() to be the last MAGIC in the vector and instead li.end() is the old end before the 5 MAGIC’s were added. Therefore, the iterator will have undefined behavior and causes the errors.

4b. We couldn’t solve this problem if it only had 1 parameter, because without the string type path variable, there is no way to store previous iterations of the path. Even if we were to create a string type path in the function, it would be reset to its default value every time the function is called recursively.

5a. The time complexity of this algorithm is O(N^3). There are 3 nested for loops, each which have N iterations, since they all start from 0 and end at N. Thus, the total number of operations is N\*N\*N = N^3.

5b. The time complexity of this algorithm is O(N^3). There are 3 nested for loops. The first one iterates N times. The second one is limited by the value of I, which is in the first for loops, thus, the 2nd for loop runs (i + 1) times until reaching i’s limit which is N. Thus the second for loop runs N times. The last for loop iterates N times. Thus together, N \* N \* N = O(N^3).

6a. In terms of the nodes visited, the time complexity is O(N^2). Inside the for loop, the function calls the get function, which also has a for loop inside it. Thus for loop inside reassign iterates N times, and the get function has a foot loop that iterates N times, so there would be N \* N = O(N^2) operations.

6b. Because this functions visits each node at max twice, there are roughly 2N visits for N nodes, and hence O(N) is the time complexity. This is better than the implementation in part A since A is O(N^2), a much larger curve than O(N).