HW

2) The call to Map<Coord, int>::insert causes compilation errors because insert calls doInsertOrUpdate. This function checks if the two types defined by the template are equal. Double and int are simple to compare because they’re single values. Coord is a struct with several values and no operator= function. The compiler does not know how to compare Coord and int, so this results in a compilation error.

4) a) The time complexity is O(N^3). In the worst case scenario, the for loop increments its body N times. Since the body has a nested for loop that runs to N, in the worst case scenario, this body would be run N times. So at this point, O(N^2). Since this loop has its own nested loop that runs to N, O(N^3).

4b) The time complexity is O(N^3). In the worst case scenario, the for loop increments its body N times. The body of this for loop has a nested loop that runs to i, the iterator in the outer loop. When this is the case, the number of iterations becomes N/2. So at this point, O(N\*(N/2)). Since this loop has its own nested loop that runs to N and coefficients are not important, O(N^3).

5) The time complexity is O(N^2). In the worst case scenario, the for loop increments its body N times. This for loop always either calls insert() or erase(). These functions each have a time complexity of O(N). Cumulatively, the function is O(N^2).