Homework 5: assigned 11/18, due 11/25 at 9 am Pacific time

1. Consider the divide and conquer algorithm for finding the closest pair of points.

Analyze the time complexity of the algorithm . Include and discuss a detailed discussion of

how to manage points in the x-dimension and how to manage (and search) points in the y-dimension.

(You should do this without consulting the book or your notes)

2.Exercise 4 on page 315

3.Exercise 6 on page 317

4. Exercise 9 on Page 320

5. Given n dice each with m faces, numbered from 1 to m, find the number of ways to get sum X. X is the summation of values on each face when all the dice are thrown. You need to use dynamic programming to solve this problem.

6. You are given a set of n types of rectangular 3-D boxes, where the i-th box has height h(i), width w(i) and depth d(i) (all real numbers). You want to create a stack of boxes which is as tall as possible, but you can only stack a box on top of another box if the dimensions of the 2-D base of the lower box are each strictly larger than those of the 2-D base of the higher box. Of course, you can rotate a box so that any side functions as its base. It is also allowable to use multiple instances of the same type of box.