CS 270 Assignment 2 (Recursive Arithmetic)

Due Thur Oct. 26 at 9am. No late assignments will be accepted.

Name 1:_____

Drexel Username 1:_____

Instructions: This assignment is to be done using DrRacket and is submitted in BBLearn.

Download, from the course website or piazza, the file assign2.rkt. This file is to be loaded into DrRacket and will be modified as you work on your solution. Rename the file assign2sol.rkt. When you are done you will submit the file assign2sol.rkt, which contains your solution, along with the file readme.txt, which should contain a brief summary of your solution along and any difficulties you encountered. Please indicate any questions you did not complete and roughly how long it took you to complete this part of the assignment.

This assignment continues our theme of recursion and recursive thinking. Students will implement recursive functions to perform various arithmetic tasks using (1) Peano arithmetic and (2) recursively defined binary numbers. Before beginning the assignment students should read Chapter 4 of the Little Schemer text which illustrates the use of recursion with numbers and the lecture materials on Numbers and Recursion which provide introductions to the two representations of numbers used in this assignment. As always post questions to piazza or go to office hours if you are unsure what to do or do not understand the material from the readings or lecture.

There are two parts to the assignment – a description of the questions is included in the file assign2.rkt. Note that questions have you complete Racket function definitions. Make sure you do not change the name of these functions. Initially the functions return a string saying “not implemented” and unit tests are commented out [placed in a comment block beginning with #| and ending with |#], so that you do not get errors when you load the file into Racket. As you work on a question, you should replace the initial definition and uncomment the appropriate unit tests. Additional comments for definition specifications use the one line comment notation indicated by a semi-colon. As you make changes, be sure to save your changes.