

CS 476 Homework #2 Due 10:45am on 2/6

Note: Answers to the exercises listed below should be handed to the instructor *in hardcopy* and in *typewritten form* (latex formatting preferred) by the deadline mentioned above.

1. Give your solution to the following elementary set theory exercises in *Set Theory and Algebra in Computer Science – A Gentle Introduction to Mathematical Modeling*.

- 51
- 55
- 57
- 61

2. Give your solution to **Exercise 2.1** in Lecture 2 as a Maude functional module containing correct definitions of all the functions mentioned in that exercise. You can use `NAT-MIXFIX` in pg. 6 of Lecture 2 (you can just copy and paste it in your file) as a basis for defining the above functions by importing it into the function module you define using the `protecting` importation keyword. You should:

- include some test cases for each function you define and execute such test cases with the `red` command;
- include the text of your module and the results of evaluating the test cases in your homework solution;
- also email the file containing your module and test cases to Michael Abir (abir2@illinois.edu).

Note. As explained in Section 9.1 of “All About Maude,” when you import the `BOOL` module, you also get for free the `if-then-else-fi` operator. Using `if-then-else-fi` can make the definition of some of the functions in **Exercise 2.1** easier.