CSCE 222 [Sections 502, 503] Discrete Structures for Computing
Spring 2017 – Hyunyoung Lee

Problem Set 3

Due dates: Electronic submission of *yourLastName-yourFirstName-hw3.tex* and *yourLastName-yourFirstName-hw3.pdf* files of this homework is due on **Friday, 2/10/2017 before 11:00 a.m.** on `http://ecampus.tamu.edu`. You will see two separate links to turn in the .tex file and the .pdf file separately. Please do not archive or compress the files. A signed paper copy of the pdf file is due on **Friday, 2/10/2017** *at the beginning of class.* **If any of the three submissions are missing, your work will not be graded.**

Name: Joseph Martinsen **Section: 503**

Resources. (All people, books, articles, web pages, etc. that have been consulted when producing your answers to this homework.)

On my honor, as an Aggie, I have neither given nor received any unauthorized aid on any portion of the academic work included in this assignment. Furthermore, I have disclosed all resources (people, books, web sites, etc.) that have been used to prepare this homework.

Signature: _____

Problem 1. Section 2.1, Exercise 24, page 126. *Explain.*

Solution.

Problem 2. Show that a set which is a subset of every set must be the empty set.

Solution.

Problem 3. Let A and B be sets. Show that $P(A) = P(B)$ implies $A = B$.

Solution.

Problem 4. (**20 Points**) Section 2.2, Exercise 16, page 136.

Solution.

Problem 5. Show that $A \cap (B - C) = (A \cap B) - C$. [Hint: Start out by expanding the definition of $(B - C)$.]

Solution.

Problem 6. Section 2.3, Exercise 12, page 153. *Explain.*

Solution.

Problem 7. Section 2.3, Exercise 14 a), b), c) and d), page 153. *Explain.*

Solution.

Problem 8. Section 2.3, Exercise 50, page 154.

Solution.

Problem 9. Section 2.3, Exercise 58, page 154. *Explain.*

Solution.

Problem 10. (**Extra credit 10 points**) Prove that

$$\left\lceil \left\lceil \frac{x}{2} \right\rceil /2 \right\rceil = \left\lceil \frac{x}{4} \right\rceil$$

holds for all real numbers x.

Solution.

Checklist:
- ☐ Did you type in your name and section?
- ☐ Did you disclose all resources that you have used? (This includes all people, books, websites, etc. that you have consulted.)
- ☐ Did you sign that you followed the Aggie Honor Code?
- ☐ Did you solve all problems?
- ☐ Did you submit the .tex and .pdf files of your homework to the correct link on eCampus?
- ☐ Did you submit a signed hardcopy of the pdf file in class?