CS 2233 Discrete Mathematical Structures – Fall 09

9/14/09

3. Homework
Due **9/23/09** before class

Please refer to the corresponding exercise sections in the textbook (Rosen, 6th edition). Annotate all your proofs with comments/text in order to receive full credit.

1.6 (page 85)
 (2 points) 38

1.7 (page 102)

 (a) (3 points) Use a proof by cases to show that

$$\max(x, \max(y, z)) = \max(\max(x, y), z) \quad,$$

   where $x, y, z \in \mathbb{R}$.

 (b) (1 point) 6

- Supplementary Exercises, Chapter 1 (page 106)

 (a) (2 points) 32. *(Hint: Do not use a direct proof.)*

2.1 (page 119)

 (a) (1 point) 2b
 (b) (1 point) 8 d,f
 (c) (1 point) Find the power set of $\{a, b, c, d\}$.
 (d) (2 points) 30

2.2 (page 130)

 (a) (2 points) Let $A = \{1, 4, 9, 16\}$ and $B = \{4, 16, 25, 36, 49\}$. Find $A \cup B$, $A \cap B$, $A \setminus B$, and $B \setminus A$.
 (b) (2 points) 12 *(Hint: Break the proof into two parts, one showing $\subseteq$ and the other $\supseteq$.)*
 (c) (2 points) 48 b