Homework #8

Last Name: _____

Name : _____

PSID: _____

TRANSITION TO ADVANCED MATHEMATICS
HOMEWORK#8 – DUE THURSDAY, 04/06

Problem 1. Exercise 3.3: Problem 2.

Problem 2. Exercise 3.3: Problem 3(b,d,f).

Problem 3. Exercise 3.3: Problem 6(a,c,d).

Problem 4. Exercise 3.4: Problem 1(b,e).

Problem 5. Exercise 3.4: Problem 2.

Problem 6. Exercise 3.4: Problem 5.

Problem 7. For each of the following ordered sets, consider the subset A. Find $\sup(A)$ (or state it does not exist), and find $\inf(A)$ (or state that it does not exist). Short answers are fine; no explanation is needed.

  (a) Let $\mathbb{R}$ have the usual ordering, and let $A = \{1/n : n \in \mathbb{N}\}$
  (b) Let $\mathbb{N}$ have the usual ordering, and let $A = \{2^n : n \in \mathbb{N}\}$
  (c) Let $\mathbb{R}$ have the usual ordering, and let $A = [1, 3)$
  (d) Let $\mathbb{N}$ have the usual ordering, and let $A = \{n \in \mathbb{N} : n \text{ is prime}\}$
  (e) Let $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and

  $$B = \left\{ \{1, 2, 3\}, \{1, 3, 4\}, \{1, 6, 7, 3\}, \{8, 1, 4, 3, 9\}, \{1, 2, 7, 3\} \right\} \subseteq \mathcal{P}(A).$$

  Using the partial order $\subseteq$ for $\mathcal{P}(A)$, find $\sup(B)$ and $\inf(B)$.