Math 220 – Homework 7

Due Friday 03/27 at the beginning of class

Total points: 190

PART A

Problems from the textbook:

- Section 4.2

problem	2*	5(a,b,d,e)*	6*	7(a)*	8*	9*	10*	12*
points	10	40	10	10	20	20	20	30

PART B

1. [10 points] Let A, B, and C be nonempty sets. Prove that if $A \subseteq B$, then $A \cup C \subseteq B \cup C$.

2. [10 points] For a real number r, define S_r to be the interval $[r - 1, r + 2]$. Let $A = \{1, 3, 4\}$. Write the sets $\bigcup_{\alpha \in A} S_\alpha$ and $\bigcap_{\alpha \in A} S_\alpha$ in a simpler form (as either an interval or a finite set of points). Show all steps leading to your final answer.

3. [10 points] Let $K = \{a, b, c\}$, $L = \{b, d, e\}$, $M = \{b, e, f\}$ and $S = \{K, L, M\}$. Write the sets $\bigcup_{X \in S} X$ and $\bigcap_{X \in S} X$ in a simpler form (as either an interval or a finite set of points). Show all steps leading to your final answer.