

The assignment is due at the beginning of class on October 3, 2011.

Problem 1 (10 points) Show that limits are unique: Suppose that the sequence (a_n) converges to both a and b . Show that $a = b$.

Problem 2 (10 points) Exercise 2.4.1.

Problem 3 (10 points) Exercise 2.4.3.

Problem 4 (10 points) Let X be a non-empty set that is bounded from above. Show that there is a sequence (x_n) of elements in X that converges to $\sup X$.

Problem 5 (10 points) Suppose that every increasing sequence of real numbers that is bounded from above is convergent. Show that this property implies the Completeness Axiom.