Assignment 8 (10/15)

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Problem 1

(a) Prove that $\lim\limits_{x \to c} |x| = |c|$.

(b) Prove that $\lim\limits_{x \to 3^-} |x| = 3$.

(c) Let $\lim\limits_{x \to c} f(x) = L$. Prove that $\lim\limits_{x \to c} |f(x)| = |L|$.

[HINT: Use problem 1.3.53.]

Problem 2

Problem 2.2.$(59(a), 61, 62)$.

Problem 3

Problem 2.3.$(4, 45, 46, 52, 54)$.

Problem 4

Let $h(x) = \max\{f(x), g(x)\}$. If $\lim\limits_{x \to c} f(x) = L$ and $\lim\limits_{x \to c} g(x) = M$, then find $\lim\limits_{x \to c} h(x)$.

[HINT: Use problem 2.3.52.]