Loyola University Chicago
Math 161, Section 001, Fall 2010

Sample Quiz 2

Name (print): _____ **Signature:** _____

You have 30 minutes. Show your work. Notes not allowed! Problems are on both sides of this sheet.

Problem 1. (4 pts) Find the following limits:

a. $\lim_{x \to 2^-} \dfrac{|x-2|}{x-2}$

b. $\lim_{x \to 2^+} \dfrac{|x-2|}{x-2}$

Problem 2. (5 pts) Find the equations of all vertical and all horizontal asymptotes of

$$f(x) = \frac{3x^2 + 2}{x^2 + 3 + 4x}$$

Problem 3. (4 pts) Find the following limit. Your answer may depend on x.

$$\lim_{h\to 0} \frac{\sqrt{1+x^2+h}-\sqrt{1+x^2}}{h}$$

Problem 4. (3 pts) For what value or values of c is the following function continuous:

$$f(t) = \begin{cases} t^2 - 10 & \text{for} \quad t \leq c \\ 4 + 5t & \text{for} \quad t > c \end{cases}$$

Problem 5. (4 pts) Find the following limit. Your answer may depend on a.

$$\lim_{x\to\infty} \frac{3ax^2+ax+2}{3x+1} - ax - 4$$