College of the Redwoods
Mathematics Department

Math 120 — Intermediate Algebra
Exam #6A

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Quiz Questions

Read Carefully! *You have until Monday (11/26/07) to complete the quiz. The quiz is due at the beginning of class on Monday (11/26/07). Late quizzes are not accepted.*

This quiz is open notes, open book. This includes any supplementary texts or online documents. You must answer all of the exercises on your own. You are not allowed to work in groups or pairs on the quiz. You are not allowed to enlist the aid of a tutor or friend to help with the quiz. You are not allowed to read the exercises in the quiz, then seek help on similar questions. Once you open the quiz and read the questions, you may not seek any outside help of any kind.

I am not interested in reading pages and pages of calculations without accompanying narrative. It is essential that you include sound mathematical writing that both explains and justifies your solution or proof. Grammar and punctuation are important, as is the organization of your solution on the written page.

When working in the Mathlab, please do not work next to any other student who is also working on the quiz. For the sake of propriety, please separate yourselves when working on the quiz in the Mathlab.

Place the solution to each exercise on a separate *sheet of paper. On a good sheet of paper, write out (longhand) and sign the following honor pledge.*

> I promise that all work found herein is my own. I have received no help from tutors, colleagues, or other teachers. I also promise that I have refrained from sharing my work and ideas with other students in the class. I have also honored all of the quiz constraints listed in the directions.

Arrange your solutions in order, place these quiz page(s) on top of your solutions, then place the honor pledge on top of the quiz as a cover sheet. Staple. Good luck!

Exercise 1. Consider the rational function

$$f(x) = \frac{x+1}{x^2+2x-3}. \tag{1}$$

Perform each of the following tasks. Do all of your work on graph paper.

(a) State the domain of f.

(b) Set up a coordinate system on graph paper. Label and scale each axis.

(c) Plot the x-intercept of f and label it with its coordinates.

(d) Draw the vertical asymptotes of f as dashed lines and label them with their equations.

(e) Determine the behavior of the function near each vertical asymptote by calculating a point on the graph on each side of the vertical asymptote. Summarize your calculations in a table.

(f) Set up tables to examine the end-behavior of f. Use the result to determine the horizontal asymptote. Plot the asymptote as a dashed line and label it with its equation.

(g) Sketch the graph of f without the assistance of a calculator.