

Quiz 2

BASIC CALCULUS I

Name: _____

Date: _____

Time Begun: _____

Time Ended: _____

Math 110

Friday, September 14, 2007

Prof. Ron Buckmire

Topic covered: Functions, Compositions and Inverses

The idea behind this quiz is to assess your understanding of functions, their properties and their graphs.

Reality Check:

EXPECTED SCORE : _____/10

ACTUAL SCORE : _____/10

Instructions:

1. Once you open the quiz, **you have 30 minutes to complete it.**
2. You may not use the book, any of your class notes, or a graphing calculator. You must work alone and not communicate with any student any information about your answers or the quiz itself.
3. If you use your own paper, please staple it to the quiz before coming to class. If you don't have a stapler, buy one.
4. After completing the quiz, sign the pledge below stating on your honor that you have adhered to these rules.
5. Your solutions must have enough details such that an impartial observer can read your work and determine HOW you came up with your solution.
6. **This quiz is due on Monday, September 17**, at the beginning of class. **NO LATE QUIZZES WILL BE ACCEPTED.**

Pledge: I, _____, pledge my honor as a human being and Occidental student, that I have followed all the rules above to the letter and in spirit.

SHOW ALL YOUR WORK AND EXPLAIN ALL YOUR ANSWERS

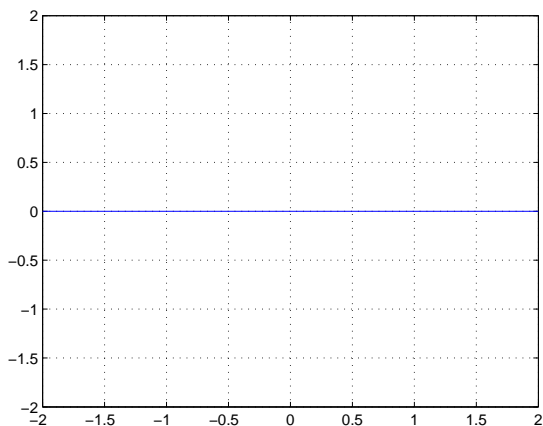
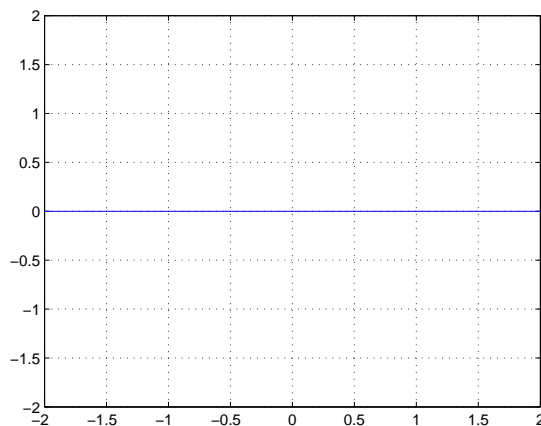
Consider the two functions $f(x) = \sqrt{x}, x \geq 0$ and $g(x) = x^4, -\infty < x < \infty$.

(a) (3 points) Is $f(x)$ invertible? If not, why not? If it is invertible, say why. Is $f(x)$ even, odd or neither? EXPLAIN YOUR ANSWERS.

(b) (3 points) Is $g(x)$ invertible? If not, why not? If it is invertible, say why. Is $g(x)$ even, odd or neither? EXPLAIN YOUR ANSWERS.

(c) (2 points) Compute $(g \circ f)(x)$ and $(f \circ g)(x)$ and give their domains. Are these functions different (NOTE: two functions are the same only if both FORMULAS AND both DOMAINS are identical!)

(d) (2 points) Sketch the graphs of $(g \circ f)(x)$ and $(f \circ g)(x)$ on the axes below.

Graph of $g \circ f$ Graph of $f \circ g$