**Review for Test 3**

**Math 098: Intermediate Algebra for Calculus**

**Format**

* The exam will be 3-5 pages in length, 10-15 questions, and will last 50 minutes.
* It is a paper and pencil exam.
* You will need to show your work.
* You may use a graphing calculator.
* You must be able to answer warm up questions and paraphrase mathematical quotes:

**Basic Content.**

* You are responsible for sections 6.2, 6.3, 6.4, 7.1, and 7.2.
* In addition to the material covered in the class, you are responsible for all of the basic facts you have learned since kindergarten. These include the facts that Barack Obama was the President of the United States of America, , and that 1/0 is undefined.

**In Studying . . .**

* You should be able to work through every question from a workalong.
* You should be able to solve every homework question.
* You should be able to solve every quiz question.
* You should be able to complete the “Math 98, Prep for Test 3” review assignment.

**Ideas that may help with test prep …**

* Review the most recent material first.
* Consider recopying your notes.
* Summarize your notes. Make note cards for important formulas and definitions. Set them aside once the definitions are known.
* Rework examples from class and homework questions (in this order).
* Look to the review exercises for additional practice (in the textbook).
* Practice like you will play – You know it, no notes, and with the clock running.
* Study with a friend to have more fun.
* Look to online resources such as the class videos and the Khan Academy to fill in holes.
* Show up at least five minutes early for the exam.
* Get a good night sleep … eat a healthy breakfast … and do something slightly active before the test to get your blood and brain moving.

**Chapter 6: Rational Expressions, Equations, and Functions**

* To add/subtract, make sure you have a common denominator
* To simplify complex rational expressions
  + Method 1: multiply by a special one formed from the LCD of the full expression.
  + Method 2: combine terms until left with the quotient of two rational expressions. The invert and multiply.
* Expressions are undefined when the denominator is zero.
* To solve rational equations, multiply both sides of the equation by the LCD. Make sure to check for extraneous solutions.

**Chapter 7: Rational Exponents and Radicals**

* Understand basic roots including how to evaluate them by hand and using a calculator.
* Find the domain and range of a radical function (the latter part using the graph).
* Understand the relationship between rational exponents and roots.
* Note: You can check your work on the calculator, but must justify answers algebraically (unless otherwise noted).

**Review questions**:

Consider . Find all values of *a* for which .

Simplify 

Simplify 

Write with positive exponents: 

Simplify 

Simplify . For what values is the expression undefined?

Consider the function .

1. Find the domain (express your answer in interval notation).
2. Give the equation(s) of the vertical asymptote(s)
3. Are there any holes? Justify your answer.

Determine the domain of . Use the graph to find the range.

Solve 

Algebraically find the domain of  and then use the graph to find the range. Sketch the graph in the box to justify your range.

|  |  |  |
| --- | --- | --- |
|  | Graph | Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Write an equivalent expression to  with positive exponents.

If , evaluate , , and 