Math 127
Exam 2 Review Sheet

Section 1.2: Linear and Rational Equations

• Know the definition of an equation, a root or solution of an equation, the solution set of an equation, and equivalent equations.
• Be able to identify whether a given equation is an identity, a conditional equation, or an inconsistent equation.
• Be able to solve linear equations and equations that are linear in form.
• Be able to solve rational and decimal equations by multiplying by the LCD.

Section 1.3: Models and Applications

• Know the 7 step process for solving application problems.
• Be able to apply the problem solving process in order to solve a given application problem
• Be familiar with common applications like rate problems, mixing problems, and simple interest problems.

Section 1.4: Complex Numbers

• Know the definition of i and he definition of complex numbers
• Be able to perform operations on complex numbers including: equality of complex numbers, addition/subtraction, multiplication, division of complex numbers, and computing powers of i

Section 1.5: Quadratic Equations

• Know the definition of a quadratic equation and memorize the quadratic formula.
• Know how to use the discriminant (b^2-4ac) to classify the number and type of solutions to a quadratic equation.
• Be able to solve quadratic equations by factoring, by completing the square, and using the quadratic formula.
• Be able to use algebra to put a given equation into quadratic form.
• Be able to find complex (non-real) solutions to quadratic equations.

Section 1.6: Other Types of Equations

• Be able to solve a variety of equations by utilizing: case analysis of absolute value equations, factoring by grouping, simplifying and factoring rational exponents, using exponentiation to solve radical equations, and quadratic substitution.
• Be able to solve for a given variable in equations involving fractions, rational exponents, and radicals.

Section 1.7: Inequalities

• Understand interval notation and graphing solutions to inequalities on a number line.
• Be able to solve linear inequalities and absolute value inequalities.

Section 2.1 and 2.2: Functions and Their Graphs

• Understand the definition of a function and how to determine whether or not a given relation is a function.
• Understand evaluating functions and other computations with functions.
• Understand graphs of functions and how to find the domain and range of a function from its graph.
• Be able to find the intercepts of a function from its graph.
• Be able to recognize when the graph of a function is increasing, decreasing, or constant.
• Understand how to draw the graph of a function by plotting.
• Know the definition (both graphical and algebraic) of symmetry with respect to the y-axis (even) and origin (odd), and be able to test to see if a given function has one of these types of symmetry.
• Be able to graph and evaluate piecewise defined functions.

Review Problems: Chapter 1 # 3, 4, 7, 12, 17, 21, 29, 31, 39, 42, 43, 45, 47, 50, 54, 58, 62, 65, 67, 69, 73, 79, 86, 89, 92, 95, 98, 99, 104, 111, 116, 117, 120

Review Problems: Chapter 2 # 1, 3, 5, 8, 9, 12, 14, 17, 20, 22, 23, 25, 26, 27, 28