

Math 127
Exam 2 Review Sheet

Section 2.1: Equations

Key Topics:

- 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.

Section 2.2: Applied Problems

Key Topics:

- 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, simple interest problems, and combined work problems.

Section 2.3: Quadratic Equations

Key Topics:

- 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.

Section 2.4: Complex Numbers

Key Topics:

- Know the definition of i and the 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
- Be able to find complex (non-real) solutions to quadratic and other equations.

Section 2.5: Other Types of Equations

Key Topics:

- 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 2.6: Inequalities

Key Topics:

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

Section 2.6: More on Inequalities

Key Topics:

- Be able to solve quadratic and rational inequalities using sign analysis.

Review Problems: Chapter 2 # 4, 9, 10, 11, 12, 13, 20, 23, 26, 29, 37, 41, 47, 52, 55, 61, 63, 69, 73