

Math 127
Exam 1 Review Sheet

Section P.1: Algebraic Expressions, Mathematical Models, and Real Numbers

Key Topics:

- Be able to simplify and evaluate algebraic expressions.
- Memorize the definitions of standard sets of numbers (Natural, Whole, Integers, Rational, Irrational, and Real numbers).
- Understand set both set builder and roster notation and be able to carry out the set operations: union and intersection.
- Memorize the names of key properties of real numbers (commutative, associative, distributive, identity elements, additive inverses (opposites), and multiplicative inverses (reciprocals)).
- Understand how to carry out real number operations on fractions.
- Understand inequalities and absolute value.

Section P.2: Exponents and Scientific Notation

- Know and be able to use scientific notation. Also be able to carry out mathematical operations on numbers written in scientific notation.
- Understand and be able to apply the properties of whole number and negative exponents.
- Be able to simplify expressions involving whole number exponents and negative exponents.

Section P.3: Radicals and Rational Exponents

- Understand radical notation, including when a radical is undefined.
- Be able to simplify radical expressions (including rationalizing denominators).
- Be able to add, subtract, multiply, and divide radicals.
- Understand the connection between radical notation and rational exponent notation and be able to translate between these notations.
- Understand and be able to simplify expressions involving rational exponents.
- Be able to evaluate real numbers either in radicals or rational exponent expressions.

Section P.4: Polynomials and P.5 Factoring Polynomials

- Understand the definition of a polynomial.
- Be able to carry out operations on polynomials (addition, subtraction, multiplication, division by a monomial).
- Be able to factor polynomials (greatest common factor, trinomials, grouping, difference of squares, perfect squares, cube formulas)

Section P.6: Rational Expressions

- Understand the definition of a rational expressions and be able to find the domain of a rational expression.
- Be able perform operations on rational expressions (sums, differences, products, and quotients).
- Be able to simplify rational expressions and complex fractions.

Section 1.1: Graphing

Key Topics:

- Understand the Cartesian Coordinates and be able to plot points given by ordered pairs.
- Be able to sketch the graph of an equation of two variables by plotting points.
- Understand and be able to find or identify the x and y -intercepts of a graph.

Review Problems: pp. 86-78 # 1, 3, 6, 7, 8, 11, 16, 18, 21, 26, 31, 34, 37, 41, 48, 50, 53, 62, 67, 71, 74, 79, 80, 83, 88, 91, 96, 99, 104, 107, 110, 114, 117, 120

Review Problems: p. 191 # 1, 2, 6, 9, 11