

## General Algebra Review and P.4: 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, tri-nomials, grouping, difference of squares, perfect squares, sum and difference of cubes formulas)
- Be able to simplify radical expressions (including rationalizing denominators).

## Section P.5: 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: Linear Equations in One Variable

- 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 apply an algebraic problem solving process to solve application problem involving linear equations.
- Be able to solve for one variable in terms of the others in an equation involving more than one variable.
- Be familiar with common applications like rate problems ( $d = rt$ ), mixing problems, and simple interest problems.

## Section 1.2: Quadratic Equations

- Know the definition of a quadratic equation and memorize the quadratic formula.
- Know how to use the discriminant ( $b^2 - 4ac$ ) to determine 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 apply an algebraic problem solving process to solve application problem involving quadratic equations.

## Section 1.3: Complex Numbers

- 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 equations.

## Section 1.4: Other Types of Equations

- Be able to solve rational and decimal equations by multiplying by the LCD.
- Be able to solve a variety of equations by utilizing: solving polynomial equations by factoring, simplifying and factoring rational exponents, using exponentiation to solve radical equations, and solving equations by using substitution.

For extra review problems beyond the practice problems handout, see pages 72-73 and 151-152 in your textbook. Note that there are a few sections in these Chapters that you are not yet responsible for knowing.