

# College Algebra

**GOALS: Students will review skills and further their understanding in:**

1. The basic properties and definitions of Algebra
2. Solving equations and inequalities in two variables
3. Solving systems of linear equations and inequalities
4. Simplifying rational expressions and solving rational functions
5. Simplifying and solving rational exponents and roots
6. Working with quadratic functions
7. The basic properties and functions of trigonometry
8. Preparing and understanding the SAT

**OBJECTIVES: Students will be able to:** (*Objective numbers refer to Algebra with Trigonometry for College Students, McKeague, Fifth Edition*)

## **Goal 1. The basic concepts of Algebra**

- 1.1 Use the order of operations
- 1.2 Use the properties of real numbers
- 1.3 Work with exponents
- 1.4 Evaluate polynomials through sums, differences, and products.
- 1.5 Factor polynomials

## **Goal 2. Solving equations and inequalities in two variables**

- 2.1 Be able to use a coordinate system
- 2.2 Find the slope of a line and identify parallel and perpendicular lines from their slopes
- 2.3 Use intercepts and slopes to sketch a graph of a line
- 2.4 Solve equations of lines graphically
- 2.5 Transform linear equations to standard form and slope-intercept form.
- 2.6 Find point-slope form of the equation of a line.
- 2.7 Solve and graph inequalities
- 2.8 Identify functions and relations
- 2.9 Add, subtract, multiply and divide two functions

## **Goal 3. Solving systems of linear equations and inequalities**

- 3.1 Solve a system of linear equations
- 3.2 Use algebraic methods to solve a linear system
- 3.3 Solve a system of linear equations in three variables.
- 3.4 Solve a system of equations using determinants and Cramer's
- 3.5 Graph a system of linear equations

**Goal 4. Simplifying rational expressions and solving rational functions**

- 4.1 Use the basic properties and reduce to lowest terms
- 4.2 Divide polynomials
- 4.3 Multiply and divide rational expressions
- 4.4 Add and subtract rational expressions
- 4.5 Work with complex fractions
- 4.6 Solve equations involving rational expressions

**Goal 5. Simplifying and solving rational exponents and roots**

- 5.1 Simplify rational exponents
- 5.2 Evaluate and simplify polynomial expressions with exponents
- 5.3 Simplify radical expressions
- 5.4 Add and subtract radical expressions
- 5.5 Multiply and divide radical expressions
- 5.6 Solving equations with radicals
- 5.7 Simplify and solve equations with complex numbers

**Goal 6. Working with quadratic functions**

- 6.1 Complete the square to solve for a variable
- 6.2 Use the quadratic formula

**Goal 7. The basic properties and functions of trigonometry**

- 7.1 Convert degrees to radians
- 7.2 Evaluate and recognize special triangles
- 7.3 Evaluate trigonometric functions
- 7.4 Use their calculator to evaluate trigonometric functions, radicals and rational exponents

**Goal 8. Preparing and understanding the SAT**

- 8.1 Use strategies to approach SAT questions
- 8.2 Understand all of the terminology used by the SAT test.
- 8.3 Improve their SAT test scores.