

## **Math0123 Intermediate Algebra – Objectives**

Upon successful completion of this course a student will be able to:

Identify and solve linear equations in one variable

Solve word problems that result in linear equations

Solve linear and compound inequalities in one variable, giving results graphically and in interval notation

Solve absolute value equations and inequalities, giving results graphically and in interval notation

Describe the attributes of the Cartesian coordinate system by finding points, axes etc.

Graph a linear equation in two variables

Determine solutions to linear equations in two variables

Find the x and y intercepts for a linear equation in two variables and determine their meaning in real world problems

Graph and determine equations for horizontal and vertical lines

Determine the slope of a line between two points

Determine the slope of parallel and perpendicular lines

Interpret the meaning of the slope in real world applications

Determine the slope on y-intercept of a line from a linear equation

Graph a line given the slope and y-intercept

Determine the equation of a line using the slope and a point

Determine the equation of a line given its orientation with respect to another line

Graph a linear function and interpret results from real world situations

Find the domain and range of relations and functions

Determine the difference between a relation and a function

Use the vertical line test for a function

Sketch the graphs of basic functions

Simplify expressions with exponents

Write numbers in scientific notation from standard notation and vice versa

Perform multiplication and division of numbers in scientific notation

Identify a polynomial

Add, subtract, multiply and divide polynomials

Determine the greatest common factor for a group of polynomials

Factor a sequence of terms by grouping

Factor a quadratic polynomial relative to integers (if not prime)

Factor binomials

Solve equations using the zero product rule

Identify a rational function and determine the domain

Add, subtract, multiply and divide rational functions

Simplify complex fractions

Solve rational equations

Define the square root function, define the nth root function

Evaluate expressions with rational exponents

Simplify rational expressions with integer and rational exponents

Multiply radicals

Divide radicals and rationalize the answers where necessary

Solve equations involving radicals

Define the basis of complex numbers

Add, subtract, multiply and divide complex numbers

Reduce a complex number with an exponent greater than 1

Solve quadratic equations with or without complex solutions using

Square root method

Completing the square

Quadratic formula