MATH M03: Intermediate Algebra

Course Objectives (COR)

- Solve linear and literal equations for a specified variable.
- Solve absolute value equations and absolute value inequalities.
- Determine if a relation is a function using the vertical line test and identify the domain.
- Graph linear equations and test whether two lines are parallel, perpendicular, or neither.
- Write the equation of a line in point-slope form, slope-intercept form, and standard form.
- Solve a system of equations in three variables by substitution or by the elimination method and solve applications.
- Factor polynomials including the sum and difference of cubes.
- Evaluate polynomial functions and solve polynomial equations by factoring and using the zero factor property.
- Simplify rational expressions, perform operations with rational expressions, simplify complex fractions, and determine the domain of a simple rational function.
- Divide by a polynomial using long division.
- Solve equations containing rational expressions and applications.
- Simplify rational exponent expressions using the properties of exponents and convert to radical notation.
- Put radical expressions into simplest radical form, perform operations with radicals, solve equations containing radical expressions, and determine domain of a simple radical function.
- Add, subtract, multiply and divide complex numbers.
- Solve quadratic equations by each of the following methods where applicable: factoring, the square root method, completing the square, and the quadratic formula.
- Solve equations that are in quadratic form and solve quadratic equations involving radicals and substitution.
- Solve non-linear inequalities in one variable.
- Graph quadratic functions showing the vertex and intercepts.
- Find the sum, difference, product, quotient, and composition of two functions.
- Identify one-to-one functions and use the horizontal line test to determine whether or not a function is one-to-one, and find the inverse of a one-to-one function.
- Describe the relationship between the function and its inverse geometrically and algebraically.
- Graph exponential and logarithmic functions, and convert equations from exponential form to logarithmic form and vice versa.
- Use logarithmic properties to rewrite logarithmic expressions, and solve logarithmic and exponential equations and related applications.
Course Learning Outcomes (CLO)

- Students completing this course will be able to solve a quadratic equation of the type $ax^2 + bx + c = 0$.
- Students completing this course will be able to simplify an expression with negative rational exponents.
- Students completing this course will be able to solve a simple rational equation.
- Students completing this course will be able to multiply and simplify an expression involving square roots.