

11010 Algebra for Calculus (3) Algebra for Calculus Learning Outcomes

Knowledge	Represent functions verbally, numerically, graphically and algebraically, including linear, quadratic, polynomial, rational, root/radical/power, piecewise-defined, exponential, and logarithmic, functions.
	Perform operations on functions and transformations on the graphs of functions.
	Analyze the algebraic structure and graph of a function, including those listed above to determine intercepts, domain, range, intervals on which the function is increasing, decreasing or constant, the vertex of a quadratic function, asymptotes, whether the function is one-to-one, whether the graph has symmetry (even/odd), etc., and given the graph of a function to determine possible algebraic definition.
	Find inverses of functions listed above and understand the relationship of the graph of a function to that of its inverse.
	Solve a variety of equations and inequalities, including polynomial, rational, exponential, and logarithmic, including those arising in application problems.
	Identify and express the conics (quadratic equations in two variables) in standard rectangular form, graph the conics, and solve applied problems involving conics.
Insight	Use functions, including those listed above, to model a variety of real-world problem solving applications.
	Understand the difference between an algebraic equation of one, two or more variables and a function, and the relationship among the solutions of an equation in one variable, the zeros of the corresponding function, and the coordinates of the x-intercepts of the graph of that function.
	Represent sequences verbally, numerically, graphically and algebraically, including both the general term and recursively.
Engagement	Consider and explain the role of mathematics in understanding business and social problems
	Improve their confidence in and attitude toward math because of the sense-making emphasis in the course.
	Participate actively in class discussions.

Responsibility Develop skills as a team player and decision making in a group setting.

Develop confidence and competence in communicating mathematical knowledge to peers.