11010 Algebra for Calculus (3)

Algebra for Calculus Learning Outcomes

Knowledge

Master algebraic techniques and manipulations necessary for problem solving in this course and in calculus. Solve a variety of equations and inequalities, including polynomial, rational, exponential, and logarithmic, including those arising in application problems.

Comprehension

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.

Application

Use functions, including those listed above, to model a variety of real-world problem solving applications.

Analysis

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.

Synthesis

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.

Evaluation

Consider and explain the role of mathematics in understanding business and social problems.
Develop confidence and competence in communicating mathematical knowledge to peers.

Class Activities

Small group problem-solving, individual problem solving, mini-lectures, group and individual quizzes, individual exams

Out of class Activities

Read the textbook and/or watch videos, answer questions about the readings or videos, online homework assignments, small group problem sets