Algebra II

Course Outline

Topics	Overview & Purpose	Education Standard
Absolute Value Equations and Inequalities	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	A-CED.A.1
Using Linear Models	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A-CED.A.2
Linear Functions and Slope-Intercept Form & More About Linear Equations	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A-CED.A.2
Families of Functions	Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	F-BF.B.3
Absolute Value Functions and Graphs	Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	F-BF.B.3

Two-Variable Inequalities	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A-CED.A.2
Solving Systems Using Tables and Graphs	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A-CED.A.2
Solving Systems Algebraically	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A-CED.A.2
Systems of Inequalities	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	A-CED.A.3
Systems with Three Variables	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A-CED.A.2
Concept Byte: Piecewise Functions	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	F-IF.C.7b
Quadratic Functions and Transformations	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	F-IF.B.4