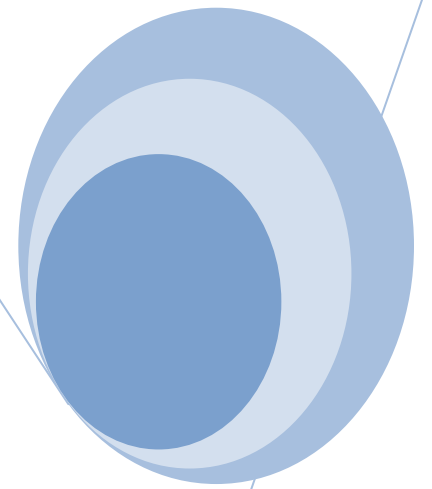
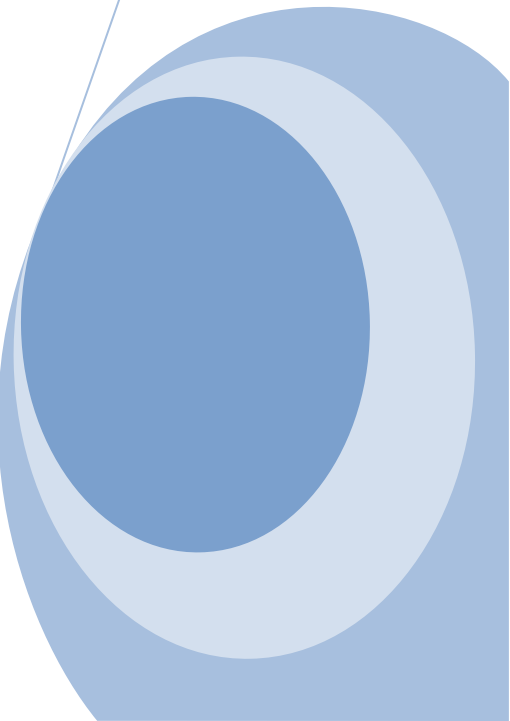


Algebra II Core

The purpose of this course is to develop the algebraic concepts and processes that can be used to solve a variety of real-world and mathematical problems. Upon successful completion of this course a student will understand operations with real numbers, linear equations and inequalities, relations & functions, pairs of linear equations & inequalities, polynomials, algebraic fractions, and exponents and radicals.



Semester I

Module 1 :
Conic Sections &
Functions

Module 2 :
Quadratic
Functions

Module 3:
Undoing Functions

Module 4:
Polynomial
Functions II

Module 5:
Rational
Expressions and
Equations

Module 6:
Radical Expressions
and Equations

Semester II

Module 7 :
Exponents and
Logarithms

Module 8 :
Exponential and
logarithmic Graphs

Module 9 :
Sequences and
Series

Module 10 :
Data Analysis

Module 11:
Probability

Module 12 :
Course Review

Algebra II Core

Assessment	Points	Weight
Exam	560	11%
Checkup Practice	1920	38%
Quiz	2520	51%

Total Points for Course: 5000

MODULE 1: CONIC SECTIONS & FUNCTIONS (675 Minutes | 360 Points).

Lesson	Objectives	State Standard	Assessments	Points
1.1.1 What is a Conic Section?	<ul style="list-style-type: none"> Identify a right circular cone, its vertex, and its nappes. Explore the ways to create a conic section using a scanner. Discover conic sections that are points or lines. Study curved conic sections, including circles, ellipses, hyperbolas, and parabolas 	MA.912.A.9.1 MA.912.A.9.2 MA.912.A.9.3	Checkup Practice	20
1.1.2 Geometry Of Conic Sections	<ul style="list-style-type: none"> Construct and define a circle, including its center and radius Explore the properties of an ellipse and the relationship between its foci and axes Interpret the relationships among the foci, transverse axes, and asymptotes of a hyperbola View the relationship between foci in hyperbolas and ellipses Recognize the relationships among the focus, the vertex, and the directrix in a parabola 	MA.912.A.9.1 MA.912.A.9.2 MA.912.A.9.3	Quiz	30
1.1.3 Circles	<ul style="list-style-type: none"> Use algebraic reasoning to create an equation (the distance formula) for the set of points making up a circle Derive standard equations for circles with their centers at any point on the xy-plane, including the origin Graph circles to explore their properties 	MA.912.A.9.1 MA.912.A.9.2 MA.912.A.9.3	Checkup Practice	20
1.1.4 Ellipses	<ul style="list-style-type: none"> Determine which slices of a conic section are ellipses View examples of the standard equation for an ellipse, and identify the terms in the equation Manipulate the shape and equation of an ellipse on a graph, stretching it both horizontally and vertically Identify the conditions that create a vertical or horizontal major axis Discover how the equation of an ellipse centered on any point is derived from the standard equation 	MA.912.A.9.1 MA.912.A.9.2 MA.912.A.9.3	Quiz	30
1.1.5 Hyperbolas	<ul style="list-style-type: none"> Recognize different kinds of hyperbolas and their corresponding equations 	MA.912.A.9.1	Checkup Practice	20

MODULE 1: CONIC SECTIONS & FUNCTIONS (675 Minutes | 360 Points).

Lesson	Objectives	State Standard	Assessments	Points
1.2.1 Hyperbolas Continued...	<ul style="list-style-type: none"> Distinguish between the equations of hyperbolas and ellipses For different kinds of hyperbolas, describe the rules for the relationships between the transverse axes and the asymptotes Graph hyperbolas on any point of the xy-plane, including the origin Derive a standard equation for any hyperbola 	MA.912.A.9.1 MA.912.A.9.2 MA.912.A.9.3	Quiz	30
1.2.2 Parabolas	<ul style="list-style-type: none"> Define and explore the different kinds of parabolas and their corresponding equations Differentiate between the standard equations of parabolas that open up or down and parabolas that open left or right Derive standard equations of parabolas when their vertices are not at the origin Compare standard equations of parabolas to quadratic equations Use the graphing tool to construct parabolas of differing shape and direction 	MA.912.A.9.1 MA.912.A.9.2 MA.912.A.9.3	Checkup Practice	20
1.2.3 Nonlinear Systems Of Equations	<ul style="list-style-type: none"> Identify the curved graphs of circles, ellipses, hyperbolas, and parabolas as nonlinear equations Discover the definition of a nonlinear system of equations and its possible solution sets Explore the substitution method for solving nonlinear systems of equations Apply the substitution method and the quadratic formula to a real-world problem involving a nonlinear system of equations 	MA.912.A.9.1 MA.912.A.9.2 MA.912.A.9.3 MA.912.A.7.7	Quiz	30
1.2.4 Nonlinear Inequalities	<ul style="list-style-type: none"> Compare examples of nonlinear equations and inequalities Identify points that satisfy an example of a nonlinear inequality On a graph, define the part of a nonlinear inequality that is a nonlinear equation Discover the three steps for graphing a nonlinear inequality Determine the solution set for a nonlinear system of inequalities 	MA.912.A.7.7	Checkup Practice	20
1.2.5 Review Conic Sections	–	–	Quiz	30

MODULE 1: CONIC SECTIONS & FUNCTIONS (675 Minutes | 360 Points).

Lesson	Objectives	State Standard	Assessments	Points
1.3.1 How many Outputs?	<ul style="list-style-type: none"> Organize input and output variables into independent and dependent variables Explore real-world situations in which a single input returns more than one output Graph equations to represent the range of possible outputs 	MA.912.A.2.3	Checkup Practice	20
1.3.2 Functions and Relations	<ul style="list-style-type: none"> Discover the uses for a mapping diagram of a function Map inputs to outputs in a diagram Differentiate between functions and relations through mapping diagrams Contrast functions and relations using their graphs Use the vertical line test to determine whether a given graph represents a function 	MA.912.A.2.10	Quiz	30
1.3.3 Domain and Range	<ul style="list-style-type: none"> Place domains and ranges in their proper positions in ordered-pair notation and in mapping diagrams Estimate the domains and ranges of functions Calculate the domains and ranges of functions Remain aware of vertical asymptotes and input values that yield undefined output 	MA.912.A.2.4	Checkup Practice	20
1.3.4 Composition Of Functions	<ul style="list-style-type: none"> Compose complicated functions from simpler ones Compare the results of applying functions in different orders Discover the function notation for compositions Identify the independent variable and the sequence of dependent functions in a composition 	MA.912.A.2.8	Quiz	30
1.3.5 Solving Problems with Composition	<ul style="list-style-type: none"> Explore a real-world situation in which function composition is required to find a solution Determine the chain of dependence relationships Express the situation in function notation Calculate the possible domains and ranges for the composition Solve the composition and express the solution in terms that satisfy the original situation 	MA.912.A.2.13	Checkup Practice	20

