Pathway2Careers™ Math Curriculum Instructional Scope and Sequence

TENNESSEE

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Purpose of the Pathway2Careers Instructional Scope and Sequence

The Pathway2Careers Instructional Scope and Sequence explains how the Pathway2Careers Math Curriculum is designed to align with math standards. The intentional and strategic design of the courses groups standards in a way that ensures natural progression and cohesion between previous math learning and Pathway2Careers Math Curriculum as well as between lessons within the Pathway2Careers Math Curriculum.

Pathway2Careers Math Curriculum Overview

The Pathway2Careers Math Curriculum was developed in alignment with math standards to address the natural progression of mathematical concepts. The overall intent of the curriculum is to provide students with a foundation, as well as motivation, for successfully using mathematics after the completion of their secondary school education.

Each course is divided into chapters, where each chapter groups key concepts into a coherent unit. Chapters are divided into lessons, each with a key area of focus, and organized by a logical progression. For all courses, two types of lessons are integrated to provide the mathematical content and the career focus—exploration lessons and application lessons. The intent and structure of each of these lesson types are consistently maintained throughout the four courses to provide students continuity as they progress through the entire curriculum.

- **Exploration Lessons**: These lessons develop mathematical concepts. Each exploration lesson begins with an introductory problem associated with an occupation. This problem is revisited in the exercises. Within the lesson, concepts are developed in sections titled Essentials and then supported by worked-out examples with related exercises. Each exploration lesson concludes with a practice set of exercises including exercises in standardized formats.

- **Application Lessons**: Each application lesson focuses on how a single occupation utilizes the mathematical concept(s) presented in the preceding exploration lessons. These lessons are designed to provide motivation for how mathematical concepts can be applied in real life. Each lesson is structured so the beginning of the lesson provides details on the

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occupation. Then examples with supporting exercises follow. Each application lesson also concludes with a practice set of exercises and set of exercises designed to prepare students for standardized assessment.

Definitions

When describing the Pathway2Careers Math Curriculum, the following terms will be used. These are terms are in alignment with state adopted standards. Note that these are defined in order from the smallest to the largest term.

Smallest

- **Standard:** Specific, clearly defined abilities, actions, or understandings that students should demonstrate to show proficiency. Pathways2Careers Math Lessons are aligned to specific standards.
- **Cluster:** A group of standards that are related under a relative main idea.
- **Domain:** A group of related clusters and standards under a main heading.
- **Conceptual Category**: The overarching mathematical themes that can carry from Kindergarten through High School. The conceptual categories contain domains, clusters, and standards.

Largest

★ *Denotes that the standard includes elements of Modeling which is a standard of mathematical practice that encourages and/or requires that the mathematics presented connect to everyday life, work, and decision-making.*

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Major, Supporting, and Additional Content

Defining Major, Supporting, and Additional Content

Pathway2Careers Math Curriculum contains both major, supporting, and additional content as outlined by the Partnership for Assessment of Readiness of College and Career (PARCC).

The major content is an indication of the emphasized content within the grade level to support college and career readiness. By focusing on key clusters and topics, teachers engage students in deeper learning and mathematical reasoning skills of the critical grade-level content.

While the supporting content does not have the same level of acute focus as the major content, it is still included in the curriculum to promote cohesion and progression. This content supports foundational mathematical understanding that is necessary to build upon when moving between procedural fluency, conceptual understanding, and application.

Additional content refers to advanced mathematical concepts that can be applied to higher level math courses such as calculus or advanced statistics. Including these concepts throughout the learning progression supports students in accessing the more advanced math.

Using Major, Supporting, and Additional Content

Math concepts are not independent of one another. While students progress through the Pathway2Careers Math Curriculum, ideas and concepts will connect with and build upon one another. As such, understanding concepts from one domain or cluster, will support understanding of another domain or cluster.

Lessons in the Pathway2Careers Math Curriculum may indicate the use of multiple standards in one lesson. This is due to the natural interplay of math concepts. Identifying the major, supporting, and additional content within the Pathway2Careers Math

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Curriculum supports teachers in their instructional planning while maintaining cohesion and progression across courses and ensuring the appropriate, grade-level standards are covered.

For the outline of each course, the major, supporting, and addition content will be indicated using the following key:

✓ Major Content • Supporting Content + Additional Content

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Learning Progressions

Pathway2Careers is organized by a learning progression framework from Kindergarten through High School. As math skills build on one another, concepts become more complex. The chart below shows the domains or overarching conceptual categories taught in a typical math curriculum from Kindergarten through High School. Pathway2Careers Math Curriculum covers the ideas highlighted with the orange boxes building on the foundational knowledge of previous grades.

HS	Number and Quantity		Algebra	Functions	Geometry	Statistics and Probability
8	The Number System		Expressions and Equations	Functions	Geometry	Statistics and Probability
7	*The Number System*	*Ratios and Proportional Relationships*	*Expressions and Equations*		*Geometry*	*Statistics and Probability*
6						
5	*Numbers and Operations-Fractions*	*Number and Operations in Base Ten*	*Operations and Algebraic Thinking*		*Geometry*	*Statistics and Probability*
4						
3						
2						
1						
K	*Counting and Cardinality*					

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Pathway2Careers Math Curriculum at a Glance

The following tables provide an overview of the material covered across the Pathway2Careers Math Curriculum: Pre-Algebra, Algebra I, Geometry, and Algebra II. Each table represents one conceptual category. The table is divided into the domains, clusters, and Pathway2Careers course.

For more detailed information about each course and its contents, including indications if the cluster is major, supporting, or additional content see the specific course overviews.

Expressions and Equations

Domain	Pre-Algebra	Algebra I	Geometry	Algebra II
Expressions and Equations	Work with radicals and integer exponents. 8.EE.A. Understand the connections between proportional relationships, lines, and linear equations. 8.EE.B. Analyze and solve linear equations and systems of two linear equations. 8.EE.C.			

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Number and Quantity

Domain	Pre-Algebra	Algebra I	Geometry	Algebra II
The Number System	Know that there are numbers that are not rational, and approximate them by rational numbers. 8.NS.A.			
The Real Number System				Extend the properties of exponents to rational exponents. A2.N.RN.A.
Quantities★		Reason quantitatively and use units to understand problems. A1.N.Q.A.	Reason quantitatively and use units to solve problems. G.N.Q.A.	Reason quantitatively and use units to understand problems. A2.N.Q.A.
Matrices				Perform operations on matrices and use matrices in applications. A2.N.M.A.

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Algebra

Domain	Pre-Algebra	Algebra I	Geometry	Algebra II
Seeing Structure in Expressions		Interpret the structure of expressions. A1.A.SSE.A.		Interpret the structure of expressions. A2.A.SSE.A.
Arithmetic with Polynomials and Rational Expressions		Perform arithmetic operations on polynomials. A1.A.APR.A.		Understand the relationship between zeros and factors of polynomials. A2.A.APR.A.
Creating Equations★		Create equations that describe numbers or relationships. A1.A.CED.A.		Create equations that describe numbers or relationships. A2.A.CED.A.
Reasoning with equations and inequalities		Understand solving equations as a process of reasoning and explain the reasoning. A1.A.REI.A. Solve equations and inequalities in one variable. A1.A.REI.B.		Understand solving equations as a process of reasoning and explain the reasoning. A2.A.REI.A. Solve systems of equations. A2.A.REI.B.

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		Solve systems of equations. A1.A.REI.C. Represent and solve equations and inequalities graphically. A1.A.REI.D.		

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Functions

Domain	Pre-Algebra	Algebra I	Geometry	Algebra II
Functions	Define, evaluate, and compare functions. 8.F.A. Use functions to model relationships between quantities. 8.F.B.			
Interpreting Functions		Understand the concept of a function and use function notation. A1.F.IF.A. Interpret functions that arise in applications in terms of the context. A1.F.IF.B. Analyze functions using different representations. A1.F.IF.C.		Interpret functions that arise in applications in terms of the context. A2.F.IF.A. Analyze functions using different representations. A2.F.IF.B.

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Building Functions		Build a function that models a relationship between two quantities. A1.F.BF.A. Build new functions from existing functions. A1.F.BF.B.		Build a function that models a relationship between two quantities. A2.F.BF.A. Build new functions from existing functions. A2.F.BF.B.
Linear, Quadratic, and Exponential Models ★		Construct and compare linear and exponential models and solve problems. A1.F.LE.A. Interpret expressions for functions in terms of the situation they model. A1.F.LE.B.		Construct and compare linear, quadratic, and exponential models and solve problems. A2.F.LE.A

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Geometry

Domain	Pre-Algebra	Algebra I	Geometry	Algebra II
Geometry	Understand and describe the effects of transformations on two-dimensional figures and use informal arguments to establish facts about angles. 8.G.A. Understand and apply the Pythagorean Theorem. 8.G.B. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. 8.G.C.			
Congruence			Experiment with transformations in the plane. G.CO.A.	

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			Understand congruence in terms of rigid motions. G.CO.B. Use geometric theorems to justify relationships. G.CO.C. Perform geometric constructions. G.CO.D.	
Similarity, Right Triangles, and Trigonometry			Understand similarity in terms of similarity transformations. G.SRT.A. Use similarity to solve problems and justify relationships. G.SRT.B. Define trigonometric ratios and solve problems involving triangles. G.SRT.C.	
Circles			Find areas of sectors of circles.	

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			G.C.A.	
Expressing Geometric Properties with Equations			Use coordinates to solve problems and justify simple geometric theorems algebraically. G.GPE.A.	
Geometric Measurement and Dimension			Explain volume and surface area formulas and use them to solve problems. G.GMD.A.	
Modeling with Geometry			Apply geometric concepts in modeling situations. G.MG.A.	

Statistics and Probability

Domain	Pre-Algebra	Algebra I	Geometry	Algebra II
Statistics and Probability	Investigate patterns of association in bivariate data. 8.SP.A.			
Interpreting Categorical		Summarize, represent, and interpret data on a single		Summarize, represent, and interpret data on a single

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and Quantitative Data ★		count or measurement variable. A1.S.ID.A. Summarize, represent, and interpret data on two categorical and quantitative variables. A1.S.ID.B. Interpret linear models. A1.S.ID.C.		count or measurement variable. A2.S.ID.A. Summarize, represent, and interpret data on two categorical and quantitative variables. A2.S.ID.B.
Making Inferences and Justifying Conclusions				Make inferences and justify conclusions from sample surveys, experiments, and observational studies. A2.S.IC.A.
Conditional Probability and the Rules of Probability			Understand independence and conditional probability and use them to create visual representations of data. G.S.CP.A. Use the rules of probability to compute probabilities of	Understand independence and conditional probability and use them to create visual representations of data. A2.S.CP.A. Understand and apply basic concepts of probability. A2.S.CP.B.

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			compound events in a uniform probability model. G.S.CP.B.	Use the rules of probability to compute probabilities of compound events in a uniform probability model. A2.S.CP.C.

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Pre-Algebra

Pre-Algebra Overview

This course is designed to address the content of the Grade 8 conceptual categories including *The Number System, Expressions and Equations, Functions, Geometry, and Statistics and Probability*, as well as any prerequisite skills that are needed for the development of the topics. Each lesson is aligned to a standard or standards or develops content in preparation for a standard. The curriculum was structured to focus on three critical areas:

(1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations;
(2) grasping the concept of a function and using functions to describe quantitative relationships;
(3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

The curriculum for this course develops these concepts over 10 chapters. The course begins with Chapter 1 introducing the concepts of transformations that students will develop further in Geometry. This also provides context for application in Chapter 2 which develops algebraic concepts with expressions and equations in one-variable. These lessons are foundational for Algebra 1. Chapter 3 introduces geometric concepts involving angles and lines that are further developed in Geometry.

Chapter 4 covers proportional relationships, which leads to Chapter 5 on functions with the emphasis on linear functions and then Chapter 6, introducing students to systems of linear equations. The concepts in Chapters 4, 5, and 6 are further developed in Algebra 1.

Chapter 7 uses the ideas developed about graphing lines to explore bivariate data with students looking at scatter plots, trend lines, and two-way frequency tables. Students will explore scatter plots and lines of fit in greater detail in Algebra 1. The course introduces exponents and scientific notation in Chapter 8 and square roots, irrational numbers, and the Pythagorean Theorem in Chapter 9, and then concludes in Chapter 10 with measurement and volume of two- and three-dimensional figures.

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Pre-Algebra Major, Supporting, and Additional Content

By defining the major and supporting content for each course, the Pathway2Careers Math Curriculum maintains cohesion and progression across courses and ensures the appropriate, grade-level standards are covered. The table below indicates the clusters as major, supporting, and addition content indicated with the following key:

✓ Major Content • Supporting Content + Additional Content

The Number System

- • Know that there are numbers that are not rational, and approximate them by rational numbers.

Expressions and Equations

- ✓ Work with radicals and integer exponents.
- ✓ Understand the connections between proportional relationships, lines and linear equations.
- ✓ Analyze and solve linear equations, linear inequalities, and systems of two linear equations.

Functions

- ✓ Define, evaluate and compare functions.
- • Use functions to model relationships between quantities.

Geometry

- ✓ Understand congruence and similarity using physical models, transparencies or geometry software.
- • Understand and apply the Pythagorean Theorem.
- + Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

Statistics and Probability

- • Investigate patterns of association in bivariate data.

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Pathway2Careers Pre-Algebra Tennessee Alignment

STRAND / STANDARD / COURSE	**TN.8.NS.**	**The Number System (NS)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.NS.A.**	**Know that there are numbers that are not rational, and approximate them by rational numbers.**
GUIDING QUESTION / LEARNING EXPECTATION	8.NS.A.1.	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually or terminates, and convert a decimal expansion which repeats eventually or terminates into a rational number. **Pathway2Careers Pre-Algebra** 9.4 Rational Numbers 9.5 Irrational Numbers
GUIDING QUESTION / LEARNING EXPECTATION	8.NS.A.2.	Use rational approximations of irrational numbers to compare the size of irrational numbers locating them approximately on a number line diagram. Estimate the value of irrational expressions such as π^2. For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations. **Pathway2Careers Pre-Algebra** 9.5 Irrational Numbers
STRAND / STANDARD / COURSE	**TN.8.EE.**	**Expressions and Equations (EE)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.EE.A.**	**Work with radicals and integer exponents.**
GUIDING QUESTION / LEARNING EXPECTATION	8.EE.A.1.	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 x 3^–5 = 3^–3 = 1/3^3 = 1/27.

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		Pathway2Careers Pre-Algebra 8.1 Exponents 8.2 Multiplication Properties of Exponents 8.3 Quotient of Powers Property 8.4 Zero and Negative Exponents 8.5 Apply Properties of Exponents in Software Development 8.6 Apply Properties of Exponents Using Orders of Magnitude 8.7 Apply Properties of Exponents in Ecology
GUIDING QUESTION / LEARNING EXPECTATION	8.EE.A.2.	Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational. **Pathway2Careers Pre-Algebra** 9.1 Find Square Roots 9.2 Apply Finding Square Roots 9.3 Find Cube Roots 9.5 Irrational Numbers
GUIDING QUESTION / LEARNING EXPECTATION	8.EE.A.3.	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 x 10^8 and the population of the world as 7 x 10^9, and determine that the world population is more than 20 times larger. **Pathway2Careers Pre-Algebra** 8.10 Apply Scientific Notation in Earth Science 8.11 Apply Scientific Notation in Forensic Science 8.12 Estimating Quantities 8.8 Scientific Notation 8.9 Compute with Scientific Notation

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GUIDING QUESTION / LEARNING EXPECTATION	8.EE.A.4.	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology. **Pathway2Careers Pre-Algebra** 8.10 Apply Scientific Notation in Earth Science 8.11 Apply Scientific Notation in Forensic Science 8.12 Estimating Quantities 8.8 Scientific Notation 8.9 Compute with Scientific Notation
STRAND / STANDARD / COURSE	**TN.8.EE.**	**Expressions and Equations (EE)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.EE.B.**	**Understand the connections between proportional relationships, lines, and linear equations.**
GUIDING QUESTION / LEARNING EXPECTATION	8.EE.B.5.	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed. **Pathway2Careers Pre-Algebra** 4.10 Apply Comparisons of Proportional Relationships 4.7 Graph Proportional Relationships 4.8 Apply Graphs of Proportional Relationships 4.9 Compare Proportional Relationships 5.12 Compare Functions
GUIDING QUESTION / LEARNING EXPECTATION	8.EE.B.6.	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; know and derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

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		Pathway2Careers Pre-Algebra 1.12 Similar Figures 1.13 Perimeters and Area of Similar Figures 4.1 Write and Solve Proportions 4.2 Slope of a Line 4.3 Use the Slope of a Line 4.4 Write Equations for Proportional Relationships 4.5 Apply Equations for Proportional Relationships 4.6 Solve Percent Problems 5.11 Interpret Intercepts of Graphs of Linear Equations 5.3 Linear Equations in Two Variables 5.4 Apply Linear Equations in Two Variables 5.5 Interpret Rate of Change and Initial Value 5.6 Apply Rate of Change and Initial Value 5.7 Write Equations for Linear Functions 5.8 Apply Equations Written for Linear Functions 5.9 Identify Parallel and Perpendicular Lines
STRAND / STANDARD / COURSE	**TN.8.EE.**	**Expressions and Equations (EE)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.EE.C.**	**Analyze and solve linear equations and systems of two linear equations.**
GUIDING QUESTION / LEARNING EXPECTATION	8.EE.C.7.	Solve linear equations in one variable.
LEARNING EXPECTATION	8.EE.C.7.a.	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers). **Pathway2Careers Pre-Algebra** 2.1 Operations with Rational Numbers 2.10 Solve Break-Even Problems

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		2.11 Rewrite Formulas 2.12 Solve One-Step Inequalities 2.13 Solve Two-Step Inequalities 2.14 Apply Solving Inequalities 2.2 Simplify Expressions 2.3 Variables and Equations 2.4 Solve One-Step Equations 2.5 Apply Solving One-Step Equations 2.6 Solve Two-Step Equations 2.7 Apply Solving Two-Step Equations 2.8 Solve Multi-Step Equations 2.9 Solve Equations with Variables on Both Sides
LEARNING EXPECTATION	8.EE.C.7.b.	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. **Pathway2Careers Pre-Algebra** 2.1 Operations with Rational Numbers 2.10 Solve Break-Even Problems 2.11 Rewrite Formulas 2.12 Solve One-Step Inequalities 2.13 Solve Two-Step Inequalities 2.14 Apply Solving Inequalities 2.2 Simplify Expressions 2.3 Variables and Equations 2.4 Solve One-Step Equations 2.5 Apply Solving One-Step Equations 2.6 Solve Two-Step Equations 2.7 Apply Solving Two-Step Equations 2.8 Solve Multi-Step Equations 2.9 Solve Equations with Variables on Both Sides

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STRAND / STANDARD / COURSE	**TN.8.EE.**	**Expressions and Equations (EE)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.EE.C.**	**Analyze and solve linear equations and systems of two linear equations.**
GUIDING QUESTION / LEARNING EXPECTATION	8.EE.C.8.	Analyze and solve systems of two linear equations.
LEARNING EXPECTATION	8.EE.C.8.a.	Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. **Pathway2Careers Pre-Algebra** 6.1 Solve Systems of Linear Equations by Graphing 6.10 Solve Special Types of Systems of Linear Equations 6.2 Apply Solving Linear Systems by Graphing
LEARNING EXPECTATION	8.EE.C.8.b.	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6. **Pathway2Careers Pre-Algebra** 6.1 Solve Systems of Linear Equations by Graphing 6.10 Solve Special Types of Systems of Linear Equations 6.2 Apply Solving Linear Systems by Graphing 6.3 Solve Systems of Linear Equations by Substitution 6.4 Apply Solving Linear Systems by Substitution 6.5 Solve Systems of Linear Equations by Adding or Subtracting 6.6 Solve Systems of Linear Equations by Multiplying First 6.7 Apply Solving Linear Systems by Elimination 6.8 Solve Manufacturing Tolerance Problems 6.9 Solve Mixture Problems
LEARNING EXPECTATION	8.EE.C.8.c.	Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through

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		the first pair of points intersects the line through the second pair. **Pathway2Careers Pre-Algebra** 6.2 Apply Solving Linear Systems by Graphing 6.4 Apply Solving Linear Systems by Substitution 6.7 Apply Solving Linear Systems by Elimination 6.8 Solve Manufacturing Tolerance Problems 6.9 Solve Mixture Problems
STRAND / STANDARD / COURSE	**TN.8.F.**	**Functions (F)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.F.A.**	**Define, evaluate, and compare functions.**
GUIDING QUESTION / LEARNING EXPECTATION	8.F.A.1.	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in 8th grade.) **Pathway2Careers Pre-Algebra** 5.1 Relations and Functions 5.10 Graph Linear Equations in Two Variables 5.11 Interpret Intercepts of Graphs of Linear Equations 5.2 Representations of Functions
GUIDING QUESTION / LEARNING EXPECTATION	8.F.A.2.	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and another linear function represented by an algebraic expression, determine which function has the greater rate of change. **Pathway2Careers Pre-Algebra** 4.10 Apply Comparisons of Proportional Relationships 4.7 Graph Proportional Relationships 4.8 Apply Graphs of Proportional Relationships

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		4.9 Compare Proportional Relationships 5.12 Compare Functions
GUIDING QUESTION / LEARNING EXPECTATION	8.F.A.3.	Know and interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line. **Pathway2Careers Pre-Algebra** 5.3 Linear Equations in Two Variables
STRAND / STANDARD / COURSE	**TN.8.F.**	**Functions (F)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.F.B.**	**Use functions to model relationships between quantities.**
GUIDING QUESTION / LEARNING EXPECTATION	8.F.B.4.	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values. **Pathway2Careers Pre-Algebra** 4.1 Write and Solve Proportions 4.2 Slope of a Line 4.3 Use the Slope of a Line 4.4 Write Equations for Proportional Relationships 4.5 Apply Equations for Proportional Relationships 4.6 Solve Percent Problems 5.11 Interpret Intercepts of Graphs of Linear Equations 5.3 Linear Equations in Two Variables 5.4 Apply Linear Equations in Two Variables 5.5 Interpret Rate of Change and Initial Value 5.6 Apply Rate of Change and Initial Value

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		5.7 Write Equations for Linear Functions 5.8 Apply Equations Written for Linear Functions 5.9 Identify Parallel and Perpendicular Lines
GUIDING QUESTION / LEARNING EXPECTATION	8.F.B.5.	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally. **Pathway2Careers Pre-Algebra** 5.13 Nonlinear Functions 5.14 Apply Nonlinear Functions
STRAND / STANDARD / COURSE	**TN.8.G.**	**Geometry (G)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.G.A.**	**Understand and describe the effects of transformations on two-dimensional figures and use informal arguments to establish facts about angles.**
GUIDING QUESTION / LEARNING EXPECTATION	8.G.A.1.	Verify experimentally the properties of rotations, reflections, and translations:
LEARNING EXPECTATION	8.G.A.1.a.	Lines are taken to lines, and line segments to line segments of the same length. **Pathway2Careers Pre-Algebra** 1.3 Reflections 1.8 Congruent Figures
LEARNING EXPECTATION	8.G.A.1.b.	Angles are taken to angles of the same measure. **Pathway2Careers Pre-Algebra** 1.3 Reflections 1.8 Congruent Figures
LEARNING EXPECTATION	8.G.A.1.c.	Parallel lines are taken to parallel lines.

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		Pathway2Careers Pre-Algebra 1.3 Reflections 1.8 Congruent Figures
STRAND / STANDARD / COURSE	**TN.8.G.**	**Geometry (G)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.G.A.**	**Understand and describe the effects of transformations on two-dimensional figures and use informal arguments to establish facts about angles.**
GUIDING QUESTION / LEARNING EXPECTATION	8.G.A.2.	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. **Pathway2Careers Pre-Algebra** 1.1 Translations 1.10 Dilations 1.11 Apply Dilations 1.2 Apply Translations 1.3 Reflections 1.4 Apply Reflections 1.5 Rotations 1.6 Apply Rotations
GUIDING QUESTION / LEARNING EXPECTATION	8.G.A.3.	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so. **Pathway2Careers Pre-Algebra** 3.1 Parallel Lines and Transversals 3.2 Apply Properties of Parallel Lines 3.3 Angle Relationships in Triangles 3.4 Apply Angle Relationships in Triangles

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		3.5 Angle-Angle Similarity 3.6 Apply Similar Triangles
STRAND / STANDARD / COURSE	**TN.8.G.**	**Geometry (G)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.G.B.**	**Understand and apply the Pythagorean Theorem.**
GUIDING QUESTION / LEARNING EXPECTATION	8.G.B.4.	Explain a proof of the Pythagorean Theorem and its converse. **Pathway2Careers Pre-Algebra** 9.6 The Pythagorean Theorem 9.9 The Converse of the Pythagorean Theorem
GUIDING QUESTION / LEARNING EXPECTATION	8.G.B.5.	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. **Pathway2Careers Pre-Algebra** 9.10 Apply the Converse of the Pythagorean Theorem 9.6 The Pythagorean Theorem 9.7 Apply the Pythagorean Theorem
GUIDING QUESTION / LEARNING EXPECTATION	8.G.B.6.	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. **Pathway2Careers Pre-Algebra** 9.8 Find Distances Using the Pythagorean Theorem
STRAND / STANDARD / COURSE	**TN.8.G.**	**Geometry (G)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.G.C.**	**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
GUIDING QUESTION / LEARNING EXPECTATION	8.G.C.7.	Know and understand the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.

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		Pathway2Careers Pre-Algebra 10.1 Find Circumference and Area of Circles 10.10 Apply Volume of Composite Solids 10.2 Apply Area of Circles 10.3 Find Volume of Cylinders 10.4 Apply Volume of Cylinders 10.5 Find Volume of Cones 10.6 Apply Volume of Cones 10.7 Find Volume of Spheres 10.8 Apply Volume of Spheres 10.9 Find Volumes of Composite Solids
STRAND / STANDARD / COURSE	**TN.8.SP.**	**Statistics and Probability (SP)**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.SP.A.**	**Investigate patterns of association in bivariate data.**
GUIDING QUESTION / LEARNING EXPECTATION	8.SP.A.1.	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. **Pathway2Careers Pre-Algebra** 7.1 Scatter Plots 7.2 Apply Scatter Plots 7.3 Interpret Trend Lines 7.4 Draw and Use Trend Lines 7.5 Apply Trend Lines
GUIDING QUESTION / LEARNING EXPECTATION	8.SP.A.2.	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line and informally assess the model fit by judging the closeness of the data points to the line. **Pathway2Careers Pre-Algebra** 7.1 Scatter Plots

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		7.2 Apply Scatter Plots 7.3 Interpret Trend Lines 7.4 Draw and Use Trend Lines 7.5 Apply Trend Lines
GUIDING QUESTION / LEARNING EXPECTATION	8.SP.A.3.	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height. **Pathway2Careers Pre-Algebra** 5.12 Compare Functions 5.5 Interpret Rate of Change and Initial Value 5.6 Apply Rate of Change and Initial Value 5.8 Apply Equations Written for Linear Functions 7.3 Interpret Trend Lines 7.4 Draw and Use Trend Lines 7.5 Apply Trend Lines

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Algebra I

Algebra I Overview

The curriculum for Algebra I is designed to follow a typical first-year high school algebra class and addresses various standards in the high school content categories for *Number and Quantity, Algebra, Functions, and Statistics and Probability*. A lesson may cover multiple standards, especially if the standard is written to encourage modeling.

The course is divided into 12 chapters. Chapter 1 begins by reviewing and introducing various concepts about real numbers and algebraic expressions to provide a foundation for the rest of the course. Chapters 2 and 3 have students further develop ideas from the previous course to solve linear equations and inequalities.

In the Algebra I course, there are three primary types of functions that students look at—linear functions, exponential functions, and quadratic functions. In Chapter 4, the concepts of functions and linear functions are further developed, and students revisit the analysis of bivariate data in the coordinate plane by making scatter plots and lines of fit. This sequence of development follows how algebraic concepts were introduced in the Pre-Algebra course. In Chapter 5, students then look in greater depth on how to write and solve systems of linear equations in two variables.

Students are introduced to exponential functions of growth and decay functions in Chapter 6. Having established the features of linear and exponential functions, students are then introduced in Chapter 7 to sequences with arithmetic and geometric sequences being discrete examples of linear and exponential functions.

Chapters 8 and 9 develop concepts of polynomials, particularly quadratics, and quadratic functions. The course further develops concepts of other types of functions, transforming functions, and comparing functions in Chapter 10. Chapter 11 explores square and cube root and introduces simple radical equations and functions. These concepts would be further developed in the third year of a traditional high school mathematics program

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Chapter 12 expands on concepts of statistics and data analysis of bivariate data, which was previously introduced in middle school mathematics.

Algebra I Major, Supporting, and Additional Content

By defining the major and supporting content for each course, the Pathway2Careers Math Curriculum maintains cohesion and progression across courses and ensures the appropriate, grade-level standards are covered. The table below indicates the clusters as major, supporting, and addition content indicated with the following key:

✓ Major Content • Supporting Content + Additional Content

The Real Number System

+ Extend the properties of exponents to rational exponents.
+ Use properties of rational and irrational numbers.

Quantities ★

• Reason quantitatively and use units to understand problems.

Seeing Structure in Expressions

✓ Interpret the structure of expressions.
• Write expressions in equivalent forms to solve problems.

Arithmetic with Polynomials and Rational Expressions

✓ Perform arithmetic operations on polynomials.
• Understand the relationship between zeros and factors of polynomials.

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Reasoning with Equations and Inequalities

- ✓ Understand solving equations as a process of reasoning and explain the reasoning.
- ✓ Solve equations and inequalities in one variable.
- + Solve systems of equations.
- ✓ Represent and solve equations and inequalities graphically.

Interpreting Functions

- ✓ Understand the concept of a function and use function notation.
- ✓ Interpret functions that arise in applications in terms of the context.
- • Analyze functions using different representations.

Building Functions

- • Build a function that models a relationship between two quantities.
- + Build new functions from existing functions.

Linear, Quadratic, and Exponential Models ★

- • Construct and compare linear, quadratic, and exponential models and solve problems.
- • Interpret expressions for functions in terms of the situation they model.

Congruence

- + Prove geometric theorem.

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Education with Destination

Interpreting Categorical and Quantitative Data

+ Summarize, represent, and interpret data on a single count or measurement variable.
• Summarize, represent, and interpret data on two categorical and quantitative variables.
✓ Interpret linear models.

Pathway2Careers Algebra I Tennessee Standard Alignment

Conceptual Category/Domain	**A1.N.Q.**	**Number and Quantity – Quantities (N.Q)**
Cluster	**A1.N.Q.A.**	**Reason quantitatively and use units to understand problems.**
Content Standard	**A1.N.Q.A.1.**	**Use units as a way to understand real-world problems.**
Content Standard	A1.N.Q.A.1.a.	Choose and interpret the scale and the origin in graphs and data displays. **Pathway2Careers Algebra I** 1.2 Dimensional Analysis 1.3 Unit Analysis 1.5 Precision and Accuracy 2.7 Solving Literal Equations and Formulas
Content Standard	A1.N.Q.A.1.b.	Use appropriate quantities in formulas, converting units as necessary. **Pathway2Careers Algebra I** 1.2 Dimensional Analysis 1.5 Precision and Accuracy
Content Standard	A1.N.Q.A.1.c.	Define and justify appropriate quantities within a context for the purpose of modeling. **Pathway2Careers Algebra I** 1.1 Real Numbers

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		1.2 Dimensional Analysis 1.3 Unit Analysis 1.4 Modeling with Quantities 1.5 Precision and Accuracy 2.7 Solving Literal Equations and Formulas 11.1 Radical Expressions
Content Standard	A1.N.Q.A.1.d.	Choose an appropriate level of accuracy when reporting quantities. **Pathway2Careers Algebra I** 1.2 Dimensional Analysis 1.5 Precision and Accuracy
Conceptual Category/Domain	**A1.A.SSE.**	**Algebra – Seeing Structure in Expressions (A.SSE)**
Cluster	**A1.A.SSE.A.**	**Interpret the structure of expressions.**
Content Standard	**A1.A.SSE.A.1.**	**Interpret expressions that represent a quantity in terms of its context.**
Content Standard	A1.A.SSE.A.1.a.	Interpret parts of an expression, such as terms, factors, and coefficients. **Pathway2Careers Algebra I** 1.6 Algebraic Expressions 1.7 Writing and Simplifying Algebraic Expressions 1.8 Structure of Expressions 6.5 Exponential Growth and Exponential Decay Functions 8.1 Modeling with Polynomials 8.2 Adding and Subtracting Polynomials 8.3 Multiplying Monomial and Binomials 8.4 Multiplying Polynomials 8.5 Special Products of Polynomials
Content Standard	A1.A.SSE.A.1.b.	Interpret complicated expressions by viewing one or more of their parts as a single entity. **Pathway2Careers Algebra I**

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		1.6 Algebraic Expressions 1.7 Writing and Simplifying Algebraic Expressions 1.8 Structure of Expressions 6.5 Exponential Growth and Exponential Decay Functions 8.1 Modeling with Polynomials 8.2 Adding and Subtracting Polynomials 8.3 Multiplying Monomial and Binomials 8.4 Multiplying Polynomials 8.5 Special Products of Polynomials
Conceptual Category/Domain	**A1.A.APR.**	**Algebra – Arithmetic with Polynomials and Rational Expressions (A.APR)**
Cluster	**A1.A.APR.A.**	**Perform arithmetic operations on polynomials.**
Content Standard	A1.A.APR.A.1.	Add, subtract, and multiply polynomials. Use these operations to demonstrate that polynomials form a closed system that adhere to the same properties of operations as the integers. **Pathway2Careers Algebra I** 8.2 Adding and Subtracting Polynomials 8.3 Multiplying Monomial and Binomials 8.4 Multiplying Polynomials 8.5 Special Products of Polynomials 8.6 Operations with Polynomials 8.8 Factoring the Difference of Squares 8.9 Factoring Using Grouping
Conceptual Category/Domain	**A1.A.CED.**	**Algebra – Creating Equations (A.CED)**
Cluster	**A1.A.CED.A.**	**Create equations that describe numbers or relationships.**
Content Standard	A1.A.CED.A.1.	Create equations and inequalities in one variable and use them to solve problems in a real-world context. **Pathway2Careers Algebra I**

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10.6 Translations of Graphs of Functions
11.4 Applying Square Root Functions
2.2 Writing Linear Equations
2.4 Solving Linear Equations with a Variable on One Side
2.5 Solving Linear Equations with a Variable on Both Sides
2.6 Introduction to Literal Equations and Formulas
3.1 Inequalities in One Variable
3.2 Writing Linear Inequalities in One Variable
3.3 Solving Linear Inequalities in One Variable
3.4 Solving and Graphing Compound Inequalities - And
3.5 Solving and Graphing Compound Inequalities - Or
3.6 Using Compound Inequalities
3.7 Absolute Value Inequalities in One Variable
3.8 Writing and Solving Absolute Value Inequalities
3.9 Solving Inequalities Graphically
4.10 Using Graphs of Linear Functions
4.7 Graphs of Linear Functions
5.1 Solving Systems of Linear Equations by Graphing
5.10 Graphing Systems of Linear Inequalities
5.11 Applying Systems of Linear Inequalities
5.2 Applying Systems of Linear Equations
5.3 Solving Linear Equations in One Variable by Graphing
5.4 Solving Systems of Linear Equations by Substitution
5.5 Solving Systems of Linear Equations by Elimination
5.6 Writing and Solving Systems of Linear Equations
5.7 Special Systems of Linear Equations
5.8 Graphing Linear Inequalities in Two Variables
5.9 Writing and Using Linear Inequalities in Two Variables
6.8 Solving Exponential Equations
6.9 Applying Exponential Equations
7.1 Understanding Sequences
7.2 Explicitly-Defined Arithmetic Sequences

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		7.3 Recursively-Defined Arithmetic Sequences 7.4 Applying Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences 7.7 Applying Geometric Sequences 7.8 Applying Recursively-Defined Sequences 9.6 Solve Quadratic Equations by Factoring 9.7 Solve Quadratic Equations by Completing the Square
Content Standard	A1.A.CED.A.2.	Create equations in two variables to represent relationships between quantities and use them to solve problems in a real-world context. Graph equations with two variables on coordinate axes with labels and scales, and use the graphs to make predictions. **Pathway2Careers Algebra I** 10.1 Graphing of Absolute Value Functions 10.2 Graphing Step Functions 10.3 Applying Step Functions 10.4 Graphing Piecewise-Defined Functions 10.5 Applying Piecewise-Defined Functions 10.6 Translations of Graphs of Functions 10.7 Stretches and Shrinks of Graphs of Functions 10.8 Reflections of Graphs of Functions 10.9 Operations on Functions 11.2 Describing and Graphing Square Root Functions 11.3 Writing Square Root Functions 11.4 Applying Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.6 Describing and Graphing Cube Root Functions 2.2 Writing Linear Equations 2.4 Solving Linear Equations with a Variable on One Side 2.5 Solving Linear Equations with a Variable on Both Sides 2.6 Introduction to Literal Equations and Formulas 3.1 Inequalities in One Variable

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3.2 Writing Linear Inequalities in One Variable
3.3 Solving Linear Inequalities in One Variable
3.4 Solving and Graphing Compound Inequalities - And
3.5 Solving and Graphing Compound Inequalities - Or
3.6 Using Compound Inequalities
3.7 Absolute Value Inequalities in One Variable
3.8 Writing and Solving Absolute Value Inequalities
3.9 Solving Inequalities Graphically
4.10 Using Graphs of Linear Functions
4.11 Scatter Plots and Lines of Fit
4.2 Features of Functions
4.3 Identifying Linear Functions
4.4 Rate of Change
4.5 Standard Form and Slope-Intercept Form
4.6 Equations of Parallel and Perpendicular Lines
4.7 Graphs of Linear Functions
5.1 Solving Systems of Linear Equations by Graphing
5.10 Graphing Systems of Linear Inequalities
5.11 Applying Systems of Linear Inequalities
5.2 Applying Systems of Linear Equations
5.3 Solving Linear Equations in One Variable by Graphing
5.4 Solving Systems of Linear Equations by Substitution
5.5 Solving Systems of Linear Equations by Elimination
5.6 Writing and Solving Systems of Linear Equations
5.7 Special Systems of Linear Equations
5.8 Graphing Linear Inequalities in Two Variables
5.9 Writing and Using Linear Inequalities in Two Variables
6.3 Exponential Functions
6.4 Graphing Exponential Functions
6.5 Exponential Growth and Exponential Decay Functions
6.8 Solving Exponential Equations
6.9 Applying Exponential Equations

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		7.1 Understanding Sequences 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.4 Applying Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences 7.7 Applying Geometric Sequences 7.8 Applying Recursively-Defined Sequences 9.1 Graphing Quadratic Functions in Standard Form 9.10 Comparing Quadratic Functions 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form 9.3 Applying the Vertex Form of Quadratic Functions 9.4 Applying Graphs of Quadratic Functions 9.5 Solving Quadratic Equations by Graphing and Taking the Square Root 9.6 Solve Quadratic Equations by Factoring 9.7 Solve Quadratic Equations by Completing the Square
Content Standard	A1.A.CED.A.3.	Create individual and systems of equations and/or inequalities to represent constraints in a contextual situation, and interpret solutions as viable or non-viable. **Pathway2Careers Algebra I** 10.1 Graphing of Absolute Value Functions 10.2 Graphing Step Functions 10.4 Graphing Piecewise-Defined Functions 10.6 Translations of Graphs of Functions 11.2 Describing and Graphing Square Root Functions 11.3 Writing Square Root Functions 11.4 Applying Square Root Functions 11.6 Describing and Graphing Cube Root Functions 2.2 Writing Linear Equations 2.4 Solving Linear Equations with a Variable on One Side 2.5 Solving Linear Equations with a Variable on Both Sides 2.6 Introduction to Literal Equations and Formulas

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3.1 Inequalities in One Variable
3.2 Writing Linear Inequalities in One Variable
3.3 Solving Linear Inequalities in One Variable
3.4 Solving and Graphing Compound Inequalities - And
3.5 Solving and Graphing Compound Inequalities - Or
3.6 Using Compound Inequalities
3.7 Absolute Value Inequalities in One Variable
3.8 Writing and Solving Absolute Value Inequalities
3.9 Solving Inequalities Graphically
4.10 Using Graphs of Linear Functions
4.11 Scatter Plots and Lines of Fit
4.2 Features of Functions
4.3 Identifying Linear Functions
4.4 Rate of Change
4.5 Standard Form and Slope-Intercept Form
4.6 Equations of Parallel and Perpendicular Lines
4.7 Graphs of Linear Functions
5.1 Solving Systems of Linear Equations by Graphing
5.10 Graphing Systems of Linear Inequalities
5.11 Applying Systems of Linear Inequalities
5.2 Applying Systems of Linear Equations
5.3 Solving Linear Equations in One Variable by Graphing
5.4 Solving Systems of Linear Equations by Substitution
5.5 Solving Systems of Linear Equations by Elimination
5.6 Writing and Solving Systems of Linear Equations
5.7 Special Systems of Linear Equations
5.8 Graphing Linear Inequalities in Two Variables
5.9 Writing and Using Linear Inequalities in Two Variables
6.3 Exponential Functions
6.5 Exponential Growth and Exponential Decay Functions
6.8 Solving Exponential Equations
6.9 Applying Exponential Equations

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		7.1 Understanding Sequences 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.4 Applying Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences 7.7 Applying Geometric Sequences 7.8 Applying Recursively-Defined Sequences 9.6 Solve Quadratic Equations by Factoring 9.7 Solve Quadratic Equations by Completing the Square
Content Standard	A1.A.CED.A.4.	Rearrange formulas to isolate a quantity of interest using algebraic reasoning. **Pathway2Careers Algebra I** 2.6 Introduction to Literal Equations and Formulas 2.7 Solving Literal Equations and Formulas
Conceptual Category/Domain	**A1.A.REI.**	**Algebra – Reasoning with Equations and Inequalities (A.REI)**
Cluster	**A1.A.REI.A.**	**Understand solving equations as a process of reasoning and explain the reasoning.**
Content Standard	A1.A.REI.A.1.	Understand solving equations as a process of reasoning and explain the reasoning. Construct a viable argument to justify a solution method. **Pathway2Careers Algebra I** 2.1 Solving One- and Two-Step Equations 2.3 Solving Multi-Step Equations 2.4 Solving Linear Equations with a Variable on One Side 2.5 Solving Linear Equations with a Variable on Both Sides 2.6 Introduction to Literal Equations and Formulas 2.7 Solving Literal Equations and Formulas 6.8 Solving Exponential Equations 6.9 Applying Exponential Equations 8.12 Solving Polynomial Equations

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Conceptual Category/Domain	**A1.A.REI.**	**Algebra – Reasoning with Equations and Inequalities (A.REI)**
Cluster	**A1.A.REI.B.**	**Solve equations and inequalities in one variable.**
Content Standard	**A1.A.REI.B.2.**	**Solve linear and absolute value equations and inequalities in one variable.**
Content Standard	A1.A.REI.B.2.a.	Solve linear equations and inequalities, including compound inequalities, in one variable. Represent solutions algebraically and graphically. **Pathway2Careers Algebra I** 2.1 Solving One- and Two-Step Equations 2.2 Writing Linear Equations 2.3 Solving Multi-Step Equations 2.4 Solving Linear Equations with a Variable on One Side 2.5 Solving Linear Equations with a Variable on Both Sides 2.6 Introduction to Literal Equations and Formulas 2.7 Solving Literal Equations and Formulas 3.1 Inequalities in One Variable 3.2 Writing Linear Inequalities in One Variable 3.3 Solving Linear Inequalities in One Variable 3.4 Solving and Graphing Compound Inequalities - And 3.5 Solving and Graphing Compound Inequalities - Or 3.6 Using Compound Inequalities 3.7 Absolute Value Inequalities in One Variable 3.8 Writing and Solving Absolute Value Inequalities 3.9 Solving Inequalities Graphically 6.8 Solving Exponential Equations 6.9 Applying Exponential Equations 8.12 Solving Polynomial Equations
Content Standard	A1.A.REI.B.2.b.	Solve absolute value equations and inequalities in one variable. Represent solutions algebraically and graphically.

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		Pathway2Careers Algebra I 2.1 Solving One- and Two-Step Equations 2.2 Writing Linear Equations 2.3 Solving Multi-Step Equations 2.4 Solving Linear Equations with a Variable on One Side 2.5 Solving Linear Equations with a Variable on Both Sides 2.6 Introduction to Literal Equations and Formulas 3.1 Inequalities in One Variable 3.2 Writing Linear Inequalities in One Variable 3.3 Solving Linear Inequalities in One Variable 3.4 Solving and Graphing Compound Inequalities - And 3.5 Solving and Graphing Compound Inequalities - Or 3.6 Using Compound Inequalities 3.7 Absolute Value Inequalities in One Variable 3.8 Writing and Solving Absolute Value Inequalities 3.9 Solving Inequalities Graphically
Conceptual Category/Domain	**A1.A.REI.**	**Algebra – Reasoning with Equations and Inequalities (A.REI)**
Cluster	**A1.A.REI.B.**	**Solve equations and inequalities in one variable.**
Content Standard	**A1.A.REI.B.3.**	**Solve quadratic equations and inequalities in one variable.**
Content Standard	A1.A.REI.B.3.a.	Solve quadratic equations by inspection (e.g., for x^2 = 49), taking square roots, knowing and applying the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when a quadratic equation has solutions that are not real numbers. **Pathway2Careers Algebra I** 8.10 Factoring Quadratic Expressions in Form x^2 + bx + c 8.11 Factoring Quadratic Expressions in Form ax^2 + bx + c 8.12 Solving Polynomial Equations 8.6 Operations with Polynomials 8.7 Factoring Using the GCF 8.8 Factoring the Difference of Squares

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		8.9 Factoring Using Grouping 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form 9.3 Applying the Vertex Form of Quadratic Functions 9.4 Applying Graphs of Quadratic Functions 9.5 Solving Quadratic Equations by Graphing and Taking the Square Root 9.6 Solve Quadratic Equations by Factoring 9.7 Solve Quadratic Equations by Completing the Square 9.8 Solve Quadratic Equations by Quadratic Formula 9.9 Using Quadratic Equations to Solve Problems
Content Standard	A1.A.REI.B.3.b.	Solve quadratic inequalities using the graph of the related quadratic equation. **Pathway2Careers Algebra I** 9.11 Solving Linear-Quadratic Systems Graphically
Conceptual Category/Domain	**A1.A.REI.**	**Algebra – Reasoning with Equations and Inequalities (A.REI)**
Cluster	**A1.A.REI.C.**	**Solve systems of equations.**
Content Standard	A1.A.REI.C.4.	Write and solve a system of linear equations in real-world context. **Pathway2Careers Algebra I** 3.6 Using Compound Inequalities 3.8 Writing and Solving Absolute Value Inequalities 3.9 Solving Inequalities Graphically 4.10 Using Graphs of Linear Functions 5.1 Solving Systems of Linear Equations by Graphing 5.10 Graphing Systems of Linear Inequalities 5.11 Applying Systems of Linear Inequalities 5.2 Applying Systems of Linear Equations 5.3 Solving Linear Equations in One Variable by Graphing 5.4 Solving Systems of Linear Equations by Substitution 5.5 Solving Systems of Linear Equations by Elimination 5.6 Writing and Solving Systems of Linear Equations

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		5.7 Special Systems of Linear Equations 5.8 Graphing Linear Inequalities in Two Variables 5.9 Writing and Using Linear Inequalities in Two Variables
Conceptual Category/Domain	**A1.A.REI.**	**Algebra – Reasoning with Equations and Inequalities (A.REI)**
Cluster	**A1.A.REI.D.**	**Represent and solve equations and inequalities graphically.**
Content Standard	A1.A.REI.D.5.	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). **Pathway2Careers Algebra I** 10.1 Graphing of Absolute Value Functions 10.2 Graphing Step Functions 10.3 Applying Step Functions 10.4 Graphing Piecewise-Defined Functions 10.5 Applying Piecewise-Defined Functions 10.6 Translations of Graphs of Functions 10.7 Stretches and Shrinks of Graphs of Functions 10.8 Reflections of Graphs of Functions 10.9 Operations on Functions 11.2 Describing and Graphing Square Root Functions 11.3 Writing Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.6 Describing and Graphing Cube Root Functions 4.10 Using Graphs of Linear Functions 4.11 Scatter Plots and Lines of Fit 4.2 Features of Functions 4.3 Identifying Linear Functions 4.4 Rate of Change 4.5 Standard Form and Slope-Intercept Form 4.6 Equations of Parallel and Perpendicular Lines 4.7 Graphs of Linear Functions

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		5.1 Solving Systems of Linear Equations by Graphing 5.2 Applying Systems of Linear Equations 5.3 Solving Linear Equations in One Variable by Graphing 6.3 Exponential Functions 6.4 Graphing Exponential Functions 9.1 Graphing Quadratic Functions in Standard Form 9.10 Comparing Quadratic Functions 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form
Content Standard	A1.A.REI.D.6.	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x). Find approximate solutions by graphing the functions or making a table of values, using technology when appropriate. **Pathway2Careers Algebra I** 11.7 Solving Radical Equations 5.3 Solving Linear Equations in One Variable by Graphing 6.8 Solving Exponential Equations 9.11 Solving Linear-Quadratic Systems Graphically 9.12 Solving Linear-Quadratic Systems Algebraically 9.13 Applying Linear-Quadratic Systems 9.5 Solving Quadratic Equations by Graphing and Taking the Square Root
Content Standard	A1.A.REI.D.7.	Graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. **Pathway2Careers Algebra I** 5.10 Graphing Systems of Linear Inequalities 5.11 Applying Systems of Linear Inequalities 5.8 Graphing Linear Inequalities in Two Variables 5.9 Writing and Using Linear Inequalities in Two Variables

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Conceptual Category/Domain	**A1.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A1.F.IF.A.**	**Understand the concept of function and use function notation.**
Content Standard	A1.F.IF.A.1.	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x). **Pathway2Careers Algebra I** 4.1 Relations and Functions 6.4 Graphing Exponential Functions 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences

Conceptual Category/Domain	**A1.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A1.F.IF.A.**	**Understand the concept of function and use function notation.**
Content Standard	**A1.F.IF.A.2.**	**Use function notation.**
Content Standard	A1.F.IF.A.2.a.	Use function notation to evaluate functions for inputs in their domains, including functions of two variables. **Pathway2Careers Algebra I** 4.1 Relations and Functions 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences
Content Standard	A1.F.IF.A.2.b.	Interpret statements that use function notation in terms of a context.

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		Pathway2Careers Algebra I 4.1 Relations and Functions 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences
Conceptual Category/Domain	**A1.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A1.F.IF.A.**	**Understand the concept of function and use function notation.**
Content Standard	A1.F.IF.A.3.	Understand geometric formulas as functions. **Pathway2Careers Algebra I** 4.11 Scatter Plots and Lines of Fit 4.5 Standard Form and Slope-Intercept Form
Conceptual Category/Domain	**A1.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A1.F.IF.B.**	**Interpret functions that arise in applications in terms of the context.**
Content Standard	A1.F.IF.B.4.	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. **Pathway2Careers Algebra I** 10.1 Graphing of Absolute Value Functions 10.2 Graphing Step Functions 10.3 Applying Step Functions 10.4 Graphing Piecewise-Defined Functions 10.5 Applying Piecewise-Defined Functions 10.6 Translations of Graphs of Functions 10.7 Stretches and Shrinks of Graphs of Functions 10.8 Reflections of Graphs of Functions

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		10.9 Operations on Functions 11.2 Describing and Graphing Square Root Functions 11.3 Writing Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.6 Describing and Graphing Cube Root Functions 11.8 Inverses of Functions 11.9 Inverses of Linear Functions 11.10 Inverses of Radical Functions 11.11 Inverses of Quadratic Functions 11.12 Applying Inverse Functions 4.10 Using Graphs of Linear Functions 4.11 Scatter Plots and Lines of Fit 4.12 Applying Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit 4.2 Features of Functions 4.3 Identifying Linear Functions 4.4 Rate of Change 4.5 Standard Form and Slope-Intercept Form 4.6 Equations of Parallel and Perpendicular Lines 4.7 Graphs of Linear Functions 5.1 Solving Systems of Linear Equations by Graphing 5.2 Applying Systems of Linear Equations 5.3 Solving Linear Equations in One Variable by Graphing 6.3 Exponential Functions 6.4 Graphing Exponential Functions 9.1 Graphing Quadratic Functions in Standard Form 9.10 Comparing Quadratic Functions 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form
Content Standard	A1.F.IF.B.5.	Relate the domain of a function to its graph and, where applicable, to the context of the function it models.

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		Pathway2Careers Algebra I 10.3 Applying Step Functions 10.5 Applying Piecewise-Defined Functions 11.2 Describing and Graphing Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.6 Describing and Graphing Cube Root Functions 11.10 Inverses of Radical Functions 11.11 Inverses of Quadratic Functions 11.12 Applying Inverse Functions 4.2 Features of Functions 4.3 Identifying Linear Functions 6.3 Exponential Functions 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form
Content Standard	A1.F.IF.B.6.	Calculate and interpret the average rate of change of a function (presented algebraically or as a table) over a specified interval. Estimate and interpret the rate of change from a graph. **Pathway2Careers Algebra I** 10.10 Comparing Linear, Exponential, and Quadratic Models 10.11 Applying Comparisons of Linear, Exponential, and Quadratic Models 4.10 Using Graphs of Linear Functions 4.8 Rate of Change of Linear Functions

Conceptual Category/Domain	**A1.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A1.F.IF.C.**	**Analyze functions using different representations.**
Content Standard	A1.F.IF.C.7.	Graph functions expressed algebraically and show key features of the graph by hand and using technology.

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		Pathway2Careers Algebra I 10.1 Graphing of Absolute Value Functions 10.2 Graphing Step Functions 10.3 Applying Step Functions 10.4 Graphing Piecewise-Defined Functions 10.5 Applying Piecewise-Defined Functions 11.2 Describing and Graphing Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.6 Describing and Graphing Cube Root Functions 4.12 Applying Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit 4.2 Features of Functions 4.3 Identifying Linear Functions 6.3 Exponential Functions 6.4 Graphing Exponential Functions 9.1 Graphing Quadratic Functions in Standard Form 9.10 Comparing Quadratic Functions 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form
Conceptual Category/Domain	**A1.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A1.F.IF.C.**	**Analyze functions using different representations.**
Content Standard	**A1.F.IF.C.8.**	**Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.**
Content Standard	A1.F.IF.C.8.a.	Rewrite quadratic functions to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a real-world context. **Pathway2Careers Algebra I** 8.12 Solving Polynomial Equations 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form 9.3 Applying the Vertex Form of Quadratic Functions 9.4 Applying Graphs of Quadratic Functions

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		9.7 Solve Quadratic Equations by Completing the Square 9.8 Solve Quadratic Equations by Quadratic Formula 9.9 Using Quadratic Equations to Solve Problems
Conceptual Category/Domain	**A1.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A1.F.IF.C.**	**Analyze functions using different representations.**
Content Standard	**A1.F.IF.C.9.**	**Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions.**
Content Standard	A1.F.IF.C.9.a.	Compare properties of two different functions. Functions may be of different types and/or represented in different ways. **Pathway2Careers Algebra I** 10.10 Comparing Linear, Exponential, and Quadratic Models 10.11 Applying Comparisons of Linear, Exponential, and Quadratic Models 4.9 Representations of Linear Functions 6.10 Comparing Exponential Functions 9.10 Comparing Quadratic Functions
Content Standard	A1.F.IF.C.9.b.	Compare properties of the same function on two different intervals or represented in two different ways. **Pathway2Careers Algebra I** 10.10 Comparing Linear, Exponential, and Quadratic Models 10.11 Applying Comparisons of Linear, Exponential, and Quadratic Models 4.4 Rate of Change 4.9 Representations of Linear Functions
Conceptual Category/Domain	**A1.F.BF.**	**Functions – Building Functions (F.BF)**
Cluster	**A1.F.BF.A.**	**Build a function that models a relationship between two quantities.**
Content Standard	**A1.F.BF.A.1.**	**Build a function that describes a relationship between two quantities.**

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Content Standard	A1.F.BF.A.1.a.	Determine steps for calculation, a recursive process, or an explicit expression from a context. **<u>Pathway2Careers Algebra I</u>** 10.6 Translations of Graphs of Functions 4.7 Graphs of Linear Functions 7.1 Understanding Sequences 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.4 Applying Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences 7.7 Applying Geometric Sequences 7.8 Applying Recursively-Defined Sequences
Conceptual Category/Domain	**A1.F.BF.**	**Functions – Building Functions (F.BF)**
Cluster	**A1.F.BF.B.**	**Build new functions from existing functions.**
Content Standard	A1.F.BF.B.2.	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 graphs. **<u>Pathway2Careers Algebra I</u>** 10.6 Translations of Graphs of Functions 10.7 Stretches and Shrinks of Graphs of Functions 10.8 Reflections of Graphs of Functions 10.9 Operations on Functions 11.2 Describing and Graphing Square Root Functions 11.6 Describing and Graphing Cube Root Functions 7.8 Applying Recursively-Defined Sequences
Conceptual Category/Domain	**A1.F.LE.**	**Functions – Linear and Exponential Models (F.LE)**
Cluster	**A1.F.LE.A.**	**Construct and compare linear and exponential models and solve problems.**

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Content Standard	**A1.F.LE.A.1.**	**Distinguish between situations that can be modeled with linear functions and with exponential functions.**
Content Standard	A1.F.LE.A.1.a.	Know that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. **Pathway2Careers Algebra I** 10.10 Comparing Linear, Exponential, and Quadratic Models 4.4 Rate of Change 6.1 Properties of Exponents 6.2 Understanding Radical and Rational Exponents 6.10 Comparing Exponential Functions 6.5 Exponential Growth and Exponential Decay Functions 6.6 Applying Exponential Growth 6.7 Applying Exponential Decay 6.9 Applying Exponential Equations 7.1 Understanding Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.6 Recursively-Defined Geometric Sequences
Content Standard	A1.F.LE.A.1.b.	Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. **Pathway2Careers Algebra I** 10.10 Comparing Linear, Exponential, and Quadratic Models 4.3 Identifying Linear Functions 4.4 Rate of Change 4.9 Representations of Linear Functions
Content Standard	A1.F.LE.A.1.c.	Recognize situations in which a quantity grows or decays by a constant factor per unit interval relative to another. **Pathway2Careers Algebra I** 10.10 Comparing Linear, Exponential, and Quadratic Models

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		6.3 Exponential Functions 6.4 Graphing Exponential Functions 6.5 Exponential Growth and Exponential Decay Functions 6.6 Applying Exponential Growth 6.7 Applying Exponential Decay 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences
Conceptual Category/Domain	**A1.F.LE.**	**Functions – Linear and Exponential Models (F.LE)**
Cluster	**A1.F.LE.A.**	**Construct and compare linear and exponential models and solve problems.**
Content Standard	A1.F.LE.A.2.	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a table, a description of a relationship, or input-output pairs. **Pathway2Careers Algebra I** 10.6 Translations of Graphs of Functions 3.6 Using Compound Inequalities 3.8 Writing and Solving Absolute Value Inequalities 3.9 Solving Inequalities Graphically 4.10 Using Graphs of Linear Functions 4.6 Equations of Parallel and Perpendicular Lines 4.7 Graphs of Linear Functions 5.1 Solving Systems of Linear Equations by Graphing 5.10 Graphing Systems of Linear Inequalities 5.11 Applying Systems of Linear Inequalities 5.2 Applying Systems of Linear Equations 5.3 Solving Linear Equations in One Variable by Graphing 5.4 Solving Systems of Linear Equations by Substitution 5.5 Solving Systems of Linear Equations by Elimination 5.6 Writing and Solving Systems of Linear Equations 5.7 Special Systems of Linear Equations 5.8 Graphing Linear Inequalities in Two Variables

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		5.9 Writing and Using Linear Inequalities in Two Variables 6.3 Exponential Functions 6.5 Exponential Growth and Exponential Decay Functions 7.1 Understanding Sequences 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.4 Applying Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences 7.7 Applying Geometric Sequences 7.8 Applying Recursively-Defined Sequences
Conceptual Category/Domain	**A1.F.LE.**	**Functions – Linear and Exponential Models (F.LE)**
Cluster	**A1.F.LE.B.**	**Interpret expressions for functions in terms of the situation they model.**
Content Standard	A1.F.LE.B.3.	Interpret the parameters in a linear or exponential function in terms of a context. **<u>Pathway2Careers Algebra I</u>** 10.1 Graphing of Absolute Value Functions 10.2 Graphing Step Functions 10.3 Applying Step Functions 10.4 Graphing Piecewise-Defined Functions 10.5 Applying Piecewise-Defined Functions 11.2 Describing and Graphing Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.6 Describing and Graphing Cube Root Functions 11.8 Inverses of Functions 11.9 Inverses of Linear Functions 4.12 Applying Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit 4.2 Features of Functions 4.3 Identifying Linear Functions

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		6.3 Exponential Functions 6.4 Graphing Exponential Functions 9.1 Graphing Quadratic Functions in Standard Form 9.10 Comparing Quadratic Functions 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form
Conceptual Category/Domain	**A1.S.ID.**	**Statistics and Probability – Interpreting Categorical and Quantitative Data (S.ID)**
Cluster	**A1.S.ID.A.**	**Summarize, represent, and interpret data on a single count or measurement variable.**
Content Standard	A1.S.ID.A.1.	Use measures of center to solve real-world and mathematical problems. **Pathway2Careers Algebra I** 12.1 Measures of Center 12.3 Applying Measures of Center and Spread
Content Standard	A1.S.ID.A.2.	Use statistics appropriate to the shape of the data distribution to compare center (mean, median, and/or mode) and spread (range, interquartile range) of two or more different data sets. **Pathway2Careers Algebra I** 12.5 Distributions of Data 12.7 Representing Data with Histograms 12.8 Applying Histograms 12.9 Analyzing Data 12.10 Two-Way Frequency Tables 12.11 Applying Two-Way Frequency Tables
Content Standard	A1.S.ID.A.3.	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points. **Pathway2Careers Algebra I** 12.1 Measures of Center 12.2 Measures of Spread 12.3 Applying Measures of Center and Spread

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		12.4 Representing Data with Box Plots 12.5 Distributions of Data 12.6 Applying Box Plots 12.7 Representing Data with Histograms 12.8 Applying Histograms 12.9 Analyzing Data
Conceptual Category/Domain	**A1.S.ID.**	**Statistics and Probability – Interpreting Categorical and Quantitative Data (S.ID)**
Cluster	**A1.S.ID.B.**	**Summarize, represent, and interpret data on two categorical and quantitative variables.**
Content Standard	A1.S.ID.B.4.	Represent data from two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. **Pathway2Careers Algebra I** 4.11 Scatter Plots and Lines of Fit 4.12 Applying Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit
Conceptual Category/Domain	**A1.S.ID.**	**Statistics and Probability – Interpreting Categorical and Quantitative Data (S.ID)**
Cluster	**A1.S.ID.C.**	**Interpret linear models.**
Content Standard	A1.S.ID.C.5.	Interpret the rate of change and the constant term of a linear model in the context of data. **Pathway2Careers Algebra I** 4.11 Scatter Plots and Lines of Fit 4.12 Applying Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit
Content Standard	A1.S.ID.C.6.	Use technology to compute the correlation coefficient of a linear model; interpret the correlation coefficient in the context of the data. **Pathway2Careers Algebra I**

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		4.11 Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit
Content Standard	A1.S.ID.C.7.	Explain the differences between correlation and causation. Recognize situations where an additional factor may be affecting correlated data. **Pathway2Careers Algebra I** 4.11 Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit

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Geometry

Geometry Overview

The curriculum for Geometry is designed to follow a typical high school geometry class and includes probability. It addresses standards in the high school conceptual categories for *Geometry, Functions (trigonometry), and Statistics & Probability*. Each lesson is aligned to a standard or standards or develops content in preparation for a standard. Throughout the course, students are provided opportunities to write proofs and make constructions.

The course is divided into 13 chapters. Chapter 1 begins by introducing and reviewing various geometric concepts to provide a foundation for the rest of the course. While Chapter 2 is not directly aligned with specific geometry standards, it provides the foundation for students to write and understand proofs of geometric concepts.

Chapter 3 expands upon and formalizes the concepts students were introduced to in the Pre-Algebra course about parallel lines, and Chapter 4 does the same with the concept of transformations. The concepts of parallel lines and transformations are necessary for understanding and proving the concepts of Chapter 5, which focuses on triangles and triangle congruence. Further concepts involving triangles are introduced and developed in Chapter 6.

Students look at other polygons, such as quadrilaterals, in Chapter 7, and the curriculum explores concepts on similarity in Chapter 8. Chapter 9 introduces students to trigonometry through the study of right triangles. Chapter 10 explores geometric properties involving circles.

In Chapters 11 and 12, students will expand upon the measurements of two- and three-dimensional figures which they were introduced to in Pre-Algebra.

The course concludes with an introduction to the rules of probability in Chapter 13.

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Geometry Major, Supporting, and Additional Content

By defining the major and supporting content for each course, the Pathway2Careers Math Curriculum maintains cohesion and progression across courses and ensures the appropriate, grade-level standards are covered. The table below indicates the clusters as major, supporting, and addition content indicated with the following key:

✓ Major Content • Supporting Content + Additional Content

Congruence

- • Experiment with transformations in the plane.
- ✓ Understand congruence in terms of rigid motions.
- ✓ Prove geometric theorems.
- • Make geometric constructions.

Similarity, Right Triangles, and Trigonometry

- ✓ Understand similarity in terms of similarity transformations.
- ✓ Prove theorems involving similarity.
- ✓ Define trigonometric ratios and solve problems involving right triangles.
- + Apply trigonometry to general triangles.

Circles

- + Understand and apply theorems about circles.
- + Find arc lengths and areas of sectors of circles.

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Education with Destination

Expressing Geometric Properties with Equations

- + Translate between the geometric description and the equation for a conic section.
- ✓ Use coordinates to prove simple geometric theorems algebraically.

Geometric Measurement and Dimension

- + Explain volume formulas and use them to solve problems.
- + Visualize relationships between two-dimensional and three-dimensional objects.

Modeling with Geometry

- ✓ Apply geometric concepts in modeling situations.

Conditional Probability and the Rules of Probability

- + Understand independence and conditional probability and use them to interpret data.
- + Use the rules of probability to compute probabilities of compound events in a uniform probability model.

Pathway2Careers Geometry Tennessee Standard Alignment

Conceptual Category/Domain	**G.N.Q.**	**Number and Quantity – Quantities (N.Q)**
Cluster	**G.N.Q.A.**	**Reason quantitatively and use units to understand problems.**
Content Standard	**G.N.Q.A.1.**	**Use units as a way to understand real-world problems.**
Content Standard	G.N.Q.A.1.a.	Use appropriate quantities in formulas, converting units as necessary.

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		Pathway2Careers Geometry 10.7 Angle Relationships in Circles 10.8 Segment Relationships in Circles 11.1 Find Areas of Triangles using Trigonometry 11.2 Area of Parallelograms, Trapezoids, and Regular Polygons 11.3 Areas of Composite Figures 11.4 Circumference and Arc Length 11.5 Apply Circumference and Arc Length 11.6 Areas of Circles and Sectors 11.7 Apply Areas of Circles and Sectors 12.10 Volumes of Cylinders and Cones 12.11 Volumes of Spheres 12.12 Apply volumes of Spheres, Cylinders, and Cones 12.3 Surface Areas of Prisms and Pyramids 12.4 Apply Surface Areas of Prisms and Pyramids. 12.5 Surface Areas of Cylinders and Cones 12.6 Surfaces Areas of Spheres 12.8 Volume of Prisms and Pyramids 12.9 Apply Volumes of Prisms and Pyramids 8.1 Similar Polygons 8.5 Use Proportionality Theorems
Content Standard	G.N.Q.A.1.b.	Define and justify appropriate quantities within a context for the purpose of modeling. **Pathway2Careers Geometry** 10.7 Angle Relationships in Circles 10.8 Segment Relationships in Circles 11.1 Find Areas of Triangles using Trigonometry 11.2 Area of Parallelograms, Trapezoids, and Regular Polygons 11.3 Areas of Composite Figures 11.4 Circumference and Arc Length 11.5 Apply Circumference and Arc Length 11.6 Areas of Circles and Sectors

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		11.7 Apply Areas of Circles and Sectors 12.10 Volumes of Cylinders and Cones 12.11 Volumes of Spheres 12.12 Apply volumes of Spheres, Cylinders, and Cones 12.3 Surface Areas of Prisms and Pyramids 12.4 Apply Surface Areas of Prisms and Pyramids. 12.5 Surface Areas of Cylinders and Cones 12.6 Surfaces Areas of Spheres 12.8 Volume of Prisms and Pyramids 12.9 Apply Volumes of Prisms and Pyramids 8.1 Similar Polygons 8.5 Use Proportionality Theorems
Content Standard	G.N.Q.A.1.c.	Choose an appropriate level of accuracy when reporting quantities. **Pathway2Careers Geometry** 1.7 Solve Design Problems Using Areas of Figures 1.8 Midpoint and Distance in the Coordinate Plane 1.9 Perimeter in the Coordinate Plane 11.1 Find Areas of Triangles using Trigonometry 11.2 Area of Parallelograms, Trapezoids, and Regular Polygons 11.3 Areas of Composite Figures 11.4 Circumference and Arc Length 11.5 Apply Circumference and Arc Length 11.6 Areas of Circles and Sectors 11.7 Apply Areas of Circles and Sectors 12.10 Volumes of Cylinders and Cones 12.11 Volumes of Spheres 12.12 Apply volumes of Spheres, Cylinders, and Cones 12.3 Surface Areas of Prisms and Pyramids 12.4 Apply Surface Areas of Prisms and Pyramids. 12.5 Surface Areas of Cylinders and Cones 12.6 Surfaces Areas of Spheres

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		12.8 Volume of Prisms and Pyramids 12.9 Apply Volumes of Prisms and Pyramids
Conceptual Category/Domain	**G.CO.**	**Geometry – Congruence (G.CO)**
Cluster	**G.CO.A.**	**Experiment with transformations in the plane.**
Content Standard	G.CO.A.1.	Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not, by hand for basic transformations and using technology for more complex cases. **Pathway2Careers Geometry** 4.1 Translations 4.10 Dilations 4.11 Apply Dilations 4.12 Transformations and Similarity 4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.4 Triangle Congruence 5.5 Prove Triangle Congruence by SAS and SSS 5.7 Prove Triangle Congruence by ASA and AAS
Content Standard	G.CO.A.2.	Given a rectangle, parallelogram, trapezoid, or regular polygon, determine the transformations that carry the shape onto itself and describe them in terms of the symmetry of the figure. **Pathway2Careers Geometry** 4.1 Translations

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		4.10 Dilations 4.11 Apply Dilations 4.12 Transformations and Similarity 4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.7 Investigate Symmetry 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.4 Triangle Congruence
Content Standard	G.CO.A.3.	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. **Pathway2Careers Geometry** 1.4 Describe Pairs of Angles 1.5 Solve Problems Using Pairs of Angles 4.1 Translations 4.10 Dilations 4.11 Apply Dilations 4.12 Transformations and Similarity 4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.4 Triangle Congruence

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Content Standard	G.CO.A.4.	Given a geometric figure, draw the image of the figure after a sequence of one or more rigid motions, by hand and using technology. Identify a sequence of rigid motions that will carry a given figure onto another. **Pathway2Careers Geometry** 4.1 Translations 4.10 Dilations 4.11 Apply Dilations 4.12 Transformations and Similarity 4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.4 Triangle Congruence

Conceptual Category/Domain	**G.CO.**	**Geometry – Congruence (G.CO)**
Cluster	**G.CO.B.**	**Understand congruence in terms of rigid motions.**
Content Standard	G.CO.B.5.	Given two figures, use the definition of congruence in terms of rigid motions to determine informally if they are congruent. **Pathway2Careers Geometry** 4.1 Translations 4.10 Dilations 4.11 Apply Dilations

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		4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.4 Triangle Congruence 5.5 Prove Triangle Congruence by SAS and SSS 5.7 Prove Triangle Congruence by ASA and AAS
Content Standard	G.CO.B.6.	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. **Pathway2Careers Geometry** 4.1 Translations 4.10 Dilations 4.11 Apply Dilations 4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.4 Triangle Congruence 5.5 Prove Triangle Congruence by SAS and SSS 5.7 Prove Triangle Congruence by ASA and AAS
Content Standard	G.CO.B.7.	Explain how the criteria for triangle congruence (ASA, SAS, AAS, SSS, and HL) follow from the definition of congruence in terms of rigid motions.

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Pathway2Careers Geometry
5.10 Use Congruent Triangles
5.11 Equilateral and Isosceles Triangles
5.5 Prove Triangle Congruence by SAS and SSS
5.6 Apply SSS and SAS Triangle Congruence
5.7 Prove Triangle Congruence by ASA and AAS
5.8 Prove Triangle Congruence by HL
5.9 Apply ASA and AAS Triangle Congruence
6.1 Perpendicular Angle Bisectors
8.1 Similar Polygons
8.2 Prove Triangles Similar by AA
8.3 Prove Triangles Similar by SSS and SAS
8.4 Use Similar Triangles
8.5 Use Proportionality Theorems
8.6 Apply Proportionality Theorems
9.4 Similar Right Triangles
9.5 Use Similar Right Triangles

Conceptual Category/Domain	**G.CO.**	**Geometry – Congruence (G.CO)**
Cluster	**G.CO.C.**	**Use geometric theorems to justify relationships.**
Content Standard	G.CO.C.8.	Use definitions and theorems about lines and angles to solve problems and to justify relationships in geometric figures. **Pathway2Careers Geometry** 1.1 Points, Lines, and Planes 1.4 Describe Pairs of Angles

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		1.5 Solve Problems Using Pairs of Angles 1.6 Classify Polygons 2.1 Use Inductive Reasoning 2.2 Write Conditional Statements 2.3 Use Deductive Reasoning 2.4 Biconditional Statements and Definitions 2.5 Write Algebraic Proofs 2.6 Write Proofs about Segments 2.7 Write Proofs about Angles 2.8 Use Theorems about Angles 3.2 Parallel Lines and Transversals 3.3 Use Properties of Parallel Lines 3.4 Prove Lines are Parallel 3.5 Show Lines are Parallel 3.6 Prove Theorems about Perpendicular Lines 3.7 Use Properties of Perpendicular Lines 6.1 Perpendicular Angle Bisectors 7.6 Properties of Trapezoids and Kites 12.13 Solids of Revolution
Content Standard	G.CO.C.9.	Use definitions and theorems about triangles to solve problems and to justify relationships in geometric figures. **Pathway2Careers Geometry** 2.1 Use Inductive Reasoning 2.2 Write Conditional Statements 2.3 Use Deductive Reasoning 2.4 Biconditional Statements and Definitions 2.5 Write Algebraic Proofs 5.11 Equilateral and Isosceles Triangles 5.2 Angles in Triangles 5.3 Apply Angle Relationships in Triangles

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		6.2 Bisectors of Triangles 6.3 Medians and Altitudes of Triangles 6.4 Apply Special Segments in Triangles 6.5 The Triangle Midsegment Theorem 6.6 Inequalities in One Triangle 6.7 Inequalities in Two Triangles 6.8 Apply Inequalities in One Triangle and Two Triangles 8.2 Prove Triangles Similar by AA 8.3 Prove Triangles Similar by SSS and SAS 8.5 Use Proportionality Theorems 9.4 Similar Right Triangles
Content Standard	G.CO.C.10.	Use definitions and theorems about parallelograms to solve problems and to justify relationships in geometric figures. **Pathway2Careers Geometry** 1.6 Classify Polygons 2.1 Use Inductive Reasoning 2.2 Write Conditional Statements 2.3 Use Deductive Reasoning 2.4 Biconditional Statements and Definitions 2.5 Write Algebraic Proofs 7.2 Properties of Parallelograms 7.3 Conditions for Parallelograms 7.4 Apply Properties of and Conditions for Parallelograms 7.5 Properties of Special Parallelograms 7.7 Identify Special Quadrilaterals 7.8 Identify Special Quadrilaterals in the Coordinate Plane

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Conceptual Category/Domain	**G.CO.**	**Geometry – Congruence (G.CO)**
Cluster	**G.CO.D.**	**Perform geometric constructions.**
Content Standard	G.CO.D.11.	Perform formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). **Pathway2Careers Geometry** 1.2 Measure and Construct Segments 1.3 Measure and Construct Angles 3.4 Prove Lines are Parallel 3.6 Prove Theorems about Perpendicular Lines 12.13 Solids of Revolution
Content Standard	G.CO.D.12.	Use geometric constructions to solve geometric problems in context, by hand and using technology. **Pathway2Careers Geometry** 1.2 Measure and Construct Segments 1.3 Measure and Construct Angles 3.4 Prove Lines are Parallel 3.6 Prove Theorems about Perpendicular Lines

Conceptual Category/Domain	**G.SRT.**	**Geometry – Similarity, Right Triangles, and Trigonometry (G.SRT)**
Cluster	**G.SRT.A.**	**Understand similarity in terms of similarity transformations.**
Content Standard	G.SRT.A.1.	Use properties of dilations given by a center and a scale factor to solve problems and to justify relationships in geometric figures. **Pathway2Careers Geometry** 4.1 Translations 4.10 Dilations 4.11 Apply Dilations 4.2 Apply Translations 4.3 Reflections

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		4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.8 Compositions of Transformations 4.9 Transformations and Congruence
Content Standard	G.SRT.A.2.	Define similarity in terms of transformations. Use transformations to determine whether two figures are similar. **<u>Pathway2Careers Geometry</u>** 4.1 Translations 4.10 Dilations 4.11 Apply Dilations 4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.4 Triangle Congruence 5.5 Prove Triangle Congruence by SAS and SSS 5.7 Prove Triangle Congruence by ASA and AAS

Conceptual Category/Domain	**G.SRT.**	**Geometry – Similarity, Right Triangles, and Trigonometry (G.SRT)**
Cluster	**G.SRT.B.**	**Use similarity to solve problems and justify relationships.**
Content Standard	G.SRT.B.3.	Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.

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Pathway2Careers Geometry
4.12 Transformations and Similarity
5.10 Use Congruent Triangles
5.11 Equilateral and Isosceles Triangles
5.5 Prove Triangle Congruence by SAS and SSS
5.6 Apply SSS and SAS Triangle Congruence
5.7 Prove Triangle Congruence by ASA and AAS
5.8 Prove Triangle Congruence by HL
5.9 Apply ASA and AAS Triangle Congruence
6.1 Perpendicular Angle Bisectors
8.1 Similar Polygons
8.2 Prove Triangles Similar by AA
8.3 Prove Triangles Similar by SSS and SAS
8.4 Use Similar Triangles
8.5 Use Proportionality Theorems
8.6 Apply Proportionality Theorems
9.4 Similar Right Triangles
9.5 Use Similar Right Triangles

Conceptual Category/Domain	**G.SRT.**	**Geometry – Similarity, Right Triangles, and Trigonometry (G.SRT)**
Cluster	**G.SRT.C.**	**Define trigonometric ratios and solve problems involving triangles.**
Content Standard	**G.SRT.C.4.**	**Use side ratios in right triangles to define trigonometric ratios.**
Content Standard	G.SRT.C.4.a.	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

Pathway2Careers Geometry
9.1 The Pythagorean Theorem
9.2 Apply the Pythagorean Theorem
9.3 Special Right Triangles

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		9.6 The Tangent Ratio 9.7 The Sine and Cosine Ratios 9.8 Apply Trigonometric Ratios in Right Triangles
Content Standard	G.SRT.C.4.b.	Explain and use the relationship between the sine and cosine of complementary angles. **Pathway2Careers Geometry** 9.7 The Sine and Cosine Ratios
Conceptual Category/Domain	**G.SRT.**	**Geometry – Similarity, Right Triangles, and Trigonometry (G.SRT)**
Cluster	**G.SRT.C.**	**Define trigonometric ratios and solve problems involving triangles.**
Content Standard	**G.SRT.C.5.**	**Solve triangles.**
Content Standard	G.SRT.C.5.a.	Know and use the Pythagorean Theorem and trigonometric ratios (sine, cosine, tangent, and their inverses) to solve right triangles in a real-world context. **Pathway2Careers Geometry** 9.1 The Pythagorean Theorem 9.2 Apply the Pythagorean Theorem 9.3 Special Right Triangles 9.6 The Tangent Ratio 9.7 The Sine and Cosine Ratios 9.8 Apply Trigonometric Ratios in Right Triangles
Content Standard	G.SRT.C.5.b.	Know and use relationships within special right triangles to solve problems in a real-world context. **Pathway2Careers Geometry** 9.3 Special Right Triangles
Content Standard	G.SRT.C.5.c.	Use the Law of Sines and Law of Cosines to solve non-right triangles in a real-world context.

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		Pathway2Careers Geometry 9.10 Apply Law of Sines and Law of Cosines 9.9 Law of Sines and Law of Cosines
Conceptual Category/Domain	**G.C.**	**Geometry – Circles (G.C)**
Cluster	**G.C.A.**	**Find areas of sectors of circles.**
Content Standard	G.C.A.1.	Use proportional relationships between the area of a circle and the area of a sector within the circle to solve problems in a real-world context. **Pathway2Careers Geometry** 10.1 Lines and Segments that Intersect Circles 10.2 Finding Arc Measures 10.9 Apply Segment Relationships in Circles 11.4 Circumference and Arc Length 11.6 Areas of Circles and Sectors
Conceptual Category/Domain	**G.GPE.**	**Geometry – Expressing Geometric Properties with Equations (G.GPE)**
Cluster	**G.GPE.A.**	**Use coordinates to solve problems and justify simple geometric theorems algebraically.**
Content Standard	G.GPE.A.1.	Use coordinates to justify geometric relationships algebraically and to solve problems. **Pathway2Careers Geometry** 1.10 Area in the Coordinate Plane 1.9 Perimeter in the Coordinate Plane 10.1 Lines and Segments that Intersect Circles 10.4 Inscribed Angles 10.5 Inscribed Polygons 10.6 Apply Central Angles and Inscribed Angles 10.9 Apply Segment Relationships in Circles 10.11 Apply Circles in the Coordinate Plane 10.12 Equation of a Parabola

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		10.10 Circles in the Coordinate Plane 3.1 Pairs of Lines and Angles 3.10 Lines in the Coordinate Plane 3.8 Find and Use Slopes of Lines 3.9 Use the slope Criteria for Parallel and Perpendicular Lines 5.1 Classifying Triangles 7.8 Identify Special Quadrilaterals in the Coordinate Plane 8.3 Prove Triangles Similar by SSS and SAS
Content Standard	G.GPE.A.2.	Use the slope criteria for parallel and perpendicular lines to solve problems and to justify relationships in geometric figures. **Pathway2Careers Geometry** 3.1 Pairs of Lines and Angles 3.10 Lines in the Coordinate Plane 3.8 Find and Use Slopes of Lines 3.9 Use the slope Criteria for Parallel and Perpendicular Lines 5.1 Classifying Triangles 8.3 Prove Triangles Similar by SSS and SAS 10.3 Using Chords 10.4 Inscribed Angles 10.5 Inscribed Polygons
Content Standard	G.GPE.A.3.	Understand the relationship between the Pythagorean Theorem and the distance formula and use an efficient method to solve problems on the coordinate plane. **Pathway2Careers Geometry** 9.1 The Pythagorean Theorem 9.2 Apply the Pythagorean Theorem 9.3 Special Right Triangles 9.6 The Tangent Ratio 9.7 The Sine and Cosine Ratios 9.8 Apply Trigonometric Ratios in Right Triangles

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Conceptual Category/Domain	**G.GMD.**	**Geometry – Geometric Measurement and Dimension (G.GMD)**
Cluster	**G.GMD.A.**	**Explain volume and surface area formulas and use them to solve problems.**
Content Standard	G.GMD.A.1.	Understand and explain the formulas for the volume and surface area of a cylinder, cone, prism, and pyramid. **Pathway2Careers Geometry** 12.1 Cross Sections of Solids 12.2 Visualizing Solids 12.12 Apply volumes of Spheres, Cylinders, and Cones 12.9 Apply Volumes of Prisms and Pyramids
Content Standard	G.GMD.A.2.	Use volume and surface area formulas for cylinders, cones, prisms, pyramids, and spheres to solve problems in a real-world context. **Pathway2Careers Geometry** 12.1 Cross Sections of Solids 12.2 Visualizing Solids 12.12 Apply volumes of Spheres, Cylinders, and Cones 12.9 Apply Volumes of Prisms and Pyramids

Conceptual Category/Domain	**G.MG.**	**Geometry – Modeling with Geometry (G.MG)**
Cluster	**G.MG.A.**	**Apply geometric concepts in modeling situations.**
Content Standard	G.MG.A.1.	Use geometric shapes, their measures, and their properties to model objects found in a real-world context for the purpose of approximating solutions to problems. **Pathway2Careers Geometry** 11.5 Apply Circumference and Arc Length 11.7 Apply Areas of Circles and Sectors 12.4 Apply Surface Areas of Prisms and Pyramids. 12.7 Apply Surface Areas of Cylinders, Cones, and Spheres

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		12.9 Apply Volumes of Prisms and Pyramids 4.11 Apply Dilations 7.1 Angles of Polygons
Conceptual Category/Domain	**G.S.CP.**	**Statistics and Probability – Conditional Probability and the Rules of Probability (S.CP)**
Cluster	**G.S.CP.A.**	**Understand independence and conditional probability and use them to create visual representations of data.**
Content Standard	**G.S.CP.A.1.**	**Use set notation to represent contextual situations.**
Content Standard	G.S.CP.A.1.a.	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or", "and", "not"). **Pathway2Careers Geometry** 13.1 Probability and Set Theory 13.4 Apply Probabilities of Disjoint and Overlapping Events 13.5 Conditional Probability 13.6 Apply Conditional Probabilities 13.8 Applying Probabilities of Independent Events
Content Standard	G.S.CP.A.1.b.	Flexibly move between visual models (Venn diagrams, frequency tables, etc.) and set notation. **Pathway2Careers Geometry** 13.4 Apply Probabilities of Disjoint and Overlapping Events 13.6 Apply Conditional Probabilities 13.8 Applying Probabilities of Independent Events

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Conceptual Category/Domain	**G.S.CP.**	**Statistics and Probability – Conditional Probability and the Rules of Probability (S.CP)**
Cluster	**G.S.CP.B.**	**Use the rules of probability to compute probabilities of compound events in a uniform probability model.**
Content Standard	G.S.CP.B.2.	Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the given context. **Pathway2Careers Geometry** 13.1 Probability and Set Theory 13.10 Applying Probabilities of Dependent Events 13.4 Apply Probabilities of Disjoint and Overlapping Events 13.5 Conditional Probability 13.6 Apply Conditional Probabilities 13.7 Independent Events 13.8 Applying Probabilities of Independent Events 13.9 Dependent Events
Conceptual Category/Domain	**G.S.CP.**	**Statistics and Probability – Conditional Probability and the Rules of Probability (S.CP)**
Cluster	**G.S.CP.B.**	**Use the rules of probability to compute probabilities of compound events in a uniform probability model.**
Content Standard	**G.S.CP.B.3.**	**Understand and apply the Addition Rule.**
Content Standard	G.S.CP.B.3.a.	Explain the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B) in terms of visual models (Venn diagrams, frequency tables, etc.). **Pathway2Careers Geometry** 13.3 Disjoint and Overlapping Events
Content Standard	G.S.CP.B.3.b.	Apply the Addition Rule to solve problems and interpret the answer in terms of the given context. **Pathway2Careers Geometry** 13.3 Disjoint and Overlapping Events
Conceptual Category/Domain	**G.S.CP.**	**Statistics and Probability – Conditional Probability and the Rules of Probability (S.CP)**

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Cluster	G.S.CP.C.	Apply geometric concepts to situations involving probability.
Content Standard	G.S.CP.C.4.	Calculate probabilities using geometric figures. **<u>Pathway2Careers Geometry</u>** 13.1 Probability and Set Theory 13.10 Applying Probabilities of Dependent Events 13.2 Find Probabilities Using Permutations and Combinations 13.4 Apply Probabilities of Disjoint and Overlapping Events 13.6 Apply Conditional Probabilities 13.8 Applying Probabilities of Independent Events

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Algebra II

Algebra II Overview

The curriculum for Algebra II course is designed to follow a typical second-year high school algebra class and may be placed directly after Algebra I or after Geometry in the course sequence. The course addresses various standards in the high school content categories for *Number and Quantity, Algebra, Functions, and Statistics and Probability* as well any prerequisite skills needed for the development of the topics. Each lesson is aligned to at least one standard and most also develop content taught in previous courses in preparation for the content of the standard(s).

In Algebra II, students build on their previous work with linear, quadratic, and exponential functions and then expand on those abilities to model and solve equations by applying complex numbers to quadratic functions and solving exponential equations using the properties of logarithms in addition to finding the inverses of various functions. The introduction of absolute value and piecewise functions, radical functions, rational functions, and conic sections, increases understanding the applications of functions in the real world.

Students extend their understanding of systems of equations with the introduction of matrices and grow in their understanding of modeling mathematics by applying vectors, trigonometric equations, and the unit circle. They use prior learning of sequences and series, basic probability, measures of data to find sums, to learn about discrete probability, and to apply the normal distribute in addition to learning new symbolism to represent mathematical concepts.

The course(s) concludes with three enrichment chapters designed to engage students and encourage them to look beyond the curriculum for mathematic learning opportunities.

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Algebra II vs. Algebra IIa and Algebra IIb

Because Algebra II is challenging coursework, Pathway2Careers supports flexibility in how Algebra II is delivered. Schools may choose to assign Algebra II as a one-year course or as a two-year course (with Algebra IIa in the first year and Algebra IIb in the second year).

Delivering Algebra II as a two-year course with Algebra IIa and Algebra IIb, the curriculum uses the major and supporting content of the standards. Enrichment lessons are included to support a deeper dive into the content as students work towards conceptual understanding and application of mathematical concepts.

For Algebra II as a one-year course, the table of contents and pacing guides denote which lessons are considered supporting or enrichment content. While these lessons are still available to assign and teach, teachers may choose to omit or abbreviate these lessons based on their students' needs and timing.

The split course structure of Algebra IIa and Algebra IIb is maintained in a full year course to support teachers in their instructional planning. This way, teachers view the intended instructional sequence of the supporting or enrichment lessons as they fit logically within the course.

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Algebra II Major, Supporting, and Additional Content

By defining the major and supporting content for each course, the Pathway2Careers Math Curriculum maintains cohesion and progression across courses and ensures the appropriate, grade-level standards are covered. The table below indicates the clusters as major, supporting, and addition content indicated with the following key:

✓ Major Content • Supporting Content + Additional Content

The Real Number System

✓ Extend the properties of exponents to rational exponents.

The Complex Number System

+ Perform arithmetic operations with complex numbers.
+ Represent complex numbers and their operations on the complex plane.
+ Use complex numbers in polynomial identities and equations.

Vector & Matrix Quantities

+ Represent and model with vector quantities.
+ Perform operations on vectors.
+ Perform operations on matrices and use matrices in applications.

Seeing Structure in Expressions

✓ Interpret the structure of expressions.
✓ Write expressions in equivalent forms to solve problems.

Arithmetic with Polynomials and Rational Expressions

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- ✓ Understand the relationship between zeros and factors of polynomials.
- + Use polynomial identities to solve problems.
- • Rewrite rational expressions.

Creating Equations ★

- • Create equations that describe numbers or relationships.

Reasoning with Equations and Inequalities

- ✓ Understand solving equations as a process of reasoning and explain the reasoning.
- • Solve equations and inequalities in one variable.
- + Solve systems of equations.
- ✓ Represent and solve equations and inequalities graphically.

Interpreting Functions

- • Understand the concept of a function and use function notation.
- ✓ Interpret functions that arise in applications in terms of the context.
- • Analyze functions using different representations.

Building Functions

- ✓ Build a function that models a relationship between two quantities.
- + Build new functions from existing functions.

Linear, Quadratic, and Exponential Models ★

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- Construct and compare linear, quadratic, and exponential models and solve problems.
- + Interpret expressions for functions in terms of the situation they model.

Trigonometric Functions

- + Extend the domain of trigonometric functions using the unit circle.
- + Model periodic phenomena with trigonometric functions.
- + Prove and apply trigonometric identities.

Congruence

- + Prove geometric theorem.

Similarity, Right Triangles, and Trigonometry

- + Define trigonometric ratios and solve problems involving right triangles.
- + Apply trigonometry to general triangles.

Interpreting categorical and quantitative data

- + Translate between the geometric description and the equation for a conic section.

Similarity, Right Triangles, and Trigonometry

- + Summarize, represent, and interpret data on a single count or measurement variable.
- Summarize, represent, and interpret data on two categorical and quantitative variables.

Making Inferences and Justifying Conclusions

- Understand and evaluate random processes underlying statistical experiments.

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✓ Make inferences and justify conclusions from sample surveys, experiments and observational studies.

Conditional Probability and the Rules of Probability

+ Understand independence and conditional probability and use them to interpret data.

Use Probability to Make Decisions

+ Calculate expected values and use them to solve problems.
+ Use probability to evaluate outcomes of decisions.

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Pathway2Careers Algebra II Tennessee Alignment

Note that the Algebra II lessons numbers contain an “a” or “b”. These refer to Algebra IIa and Algebra IIb respectively.

For example:

1.1a = Algebra IIa 1.1
1.1b = Algebra IIb 1.1

Conceptual Category/Domain	**A2.N.RN.**	**Number and Quantity – The Real Number System (N.RN)**
Cluster	**A2.N.RN.A.**	**Extend the properties of exponents to rational exponents.**
Content Standard	**A2.N.RN.A.1.**	**Extend the properties of integer exponents to rational exponents.**
Content Standard	A2.N.RN.A.1.a.	Develop the meaning of rational exponents by applying the properties of integer exponents. **Pathway2Careers Algebra II** 1.6a Exponents and Radicals 1.7a Applying Exponents and Radicals 1.8a Scientific Notation 7.1a Intro to Polynomials 8.2a Properties of Rational Exponents
Content Standard	A2.N.RN.A.1.b.	Explain why x^1/n can be written as the nth root of x. **Pathway2Careers Algebra II** 1.6a Exponents and Radicals 1.7a Applying Exponents and Radicals 4.2b Applying Exponential Growth and Decay 7.1a Intro to Polynomials 8.1a Roots 8.2a Properties of Rational Exponents

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Content Standard	A2.N.RN.A.1.c.	Rewrite expressions involving radicals and rational exponents using the properties of exponents. **Pathway2Careers Algebra II** 1.6a Exponents and Radicals 1.7a Applying Exponents and Radicals 4.2b Applying Exponential Growth and Decay 7.1a Intro to Polynomials 8.1a Roots 8.2a Properties of Rational Exponents 8.5a Graphing Radical Functions
Conceptual Category/Domain	**A2.N.Q.**	**Number and Quantity – Quantities (N.Q)**
Cluster	**A2.N.Q.A.**	**Reason quantitatively and use units to understand problems.**
Content Standard	**A2.N.Q.A.1.**	**Use units as a way to understand real-world problems.**
Content Standard	A2.N.Q.A.1.a.	Choose and interpret the scale and the origin in graphs and data displays. **Pathway2Careers Algebra II** 5.7b Radians 10.4a Applying the Normal Distribution 8.3b Applying Arithmetic Series and Sequences 8.5b Applying Geometric Series and Sequences 8.7a Applying Radical Functions
Content Standard	A2.N.Q.A.1.b.	Use appropriate quantities in formulas, converting units as necessary. **Pathway2Careers Algebra II** 2.4a Applying Slope, Intercepts, and Linear Graphs 2.6a Applying Writing Linear Equations 2.8a Applying Parallel & Perpendicular Lines 5.7b Radians
Content Standard	A2.N.Q.A.1.c.	Define and justify appropriate quantities within a context for the purpose of modeling.

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		Pathway2Careers Algebra II 2.4a Applying Slope, Intercepts, and Linear Graphs 2.6a Applying Writing Linear Equations 2.8a Applying Parallel & Perpendicular Lines 5.7b Radians
Content Standard	A2.N.Q.A.1.d.	Choose an appropriate level of accuracy when reporting quantities. **Pathway2Careers Algebra II** 1.2a Isolating a Variable 1.3a Writing Equations 2.2a Functions, Relations and Inverses 2.3a Slopes, Intercepts, and Linear Graphs 2.8a Applying Parallel & Perpendicular Lines 3.3a Applying Solving Linear Systems of Three Equations 3.6a Applying Systems of Two Linear Inequalities 3.7a Using Systems of Inequalities to Find the Feasible Region
Conceptual Category/Domain	**A2.N.M.**	**Number and Quantity – Matrices (N.M)**
Cluster	**A2.N.M.A.**	**Perform operations on matrices and use matrices in applications.**
Content Standard	A2.N.M.A.1.	Use matrices to represent data in a real-world context. Interpret rows, columns, and dimensions of matrices in terms of the context. **Pathway2Careers Algebra II** 4.1a Matrices and Systems of Equations 4.2a Matrix Operations 6.1b Magnitude and Direction of Vectors 6.2b Applying Magnitude and Direction of Vectors 6.3b Vector Components 6.4b Operations with Vectors 6.5b Scalars 6.6b Applying Scalars
Conceptual Category/Domain	**A2.N.M.**	**Number and Quantity – Matrices (N.M)**

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Cluster	A2.N.M.A.	Perform operations on matrices and use matrices in applications.
Content Standard	**A2.N.M.A.2.**	**Perform operations on matrices in a real-world context.**
Content Standard	A2.N.M.A.2.a.	Multiply a matrix by a scalar to produce a new matrix. **Pathway2Careers Algebra II** 4.1a Matrices and Systems of Equations 4.2a Matrix Operations 6.5b Scalars 6.6b Applying Scalars
Content Standard	A2.N.M.A.2.b.	Add and/or subtract matrices by hand and using technology. **Pathway2Careers Algebra II** 4.2a Matrix Operations 4.3a Matrix Multiplication 4.4a Applying Matrix Multiplication 4.6a Inverse Matrices
Content Standard	A2.N.M.A.2.c.	Multiply matrices of appropriate dimensions, by hand in simple cases and using technology for more complicated cases. **Pathway2Careers Algebra II** 4.2a Matrix Operations 4.3a Matrix Multiplication 4.4a Applying Matrix Multiplication 4.6a Inverse Matrices
Content Standard	A2.N.M.A.2.d.	Describe the roles that zero matrices and identity matrices play in matrix addition and multiplication, recognizing that they are similar to the roles of 0 and 1 in the real number system. **Pathway2Careers Algebra II** 4.2a Matrix Operations 4.3a Matrix Multiplication

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		4.4a Applying Matrix Multiplication 4.5a Determinants and Cramer's Rule 4.6a Inverse Matrices
Conceptual Category/Domain	**A2.N.M.**	**Number and Quantity – Matrices (N.M)**
Cluster	**A2.N.M.A.**	**Perform operations on matrices and use matrices in applications.**
Content Standard	A2.N.M.A.3.	Create and use augmented matrices to solve systems of linear equations in real-world contexts, by hand and using technology. **Pathway2Careers Algebra II** 3.5a Systems of Two Linear Inequalities 3.6a Applying Systems of Two Linear Inequalities 3.7a Using Systems of Inequalities to Find the Feasible Region 4.1a Matrices and Systems of Equations 4.5a Determinants and Cramer's Rule 4.6a Inverse Matrices 4.7a Applying Inverse Matrices
Conceptual Category/Domain	**A2.A.SSE.**	**Algebra – Seeing Structure in Expressions (A.SSE)**
Cluster	**A2.A.SSE.A.**	**Interpret the structure of expressions.**
Content Standard	**A2.A.SSE.A.1.**	**Interpret expressions that represent a quantity in terms of its context.**
Content Standard	A2.A.SSE.A.1.a.	Interpret parts of an expression, such as terms, factors, and coefficients. **Pathway2Careers Algebra II** 1.1a Solving Equations in One Variable 1.2a Isolating a Variable 1.3a Writing Equations 5.1a Graphing in Vertex Form 5.2a Graphing In Standard Form 6.1a Graphing Absolute Value Functions 6.4a Graphing Absolute Value Inequalities 6.5a Applying Graphing Absolute Value Inequalities

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Content Standard	A2.A.SSE.A.1.b.	Interpret complicated expressions by viewing one or more of their parts as a single entity. **Pathway2Careers Algebra II** 1.1a Solving Equations in One Variable 1.2a Isolating a Variable 1.3a Writing Equations 5.1a Graphing in Vertex Form 5.2a Graphing In Standard Form 6.1a Graphing Absolute Value Functions
Conceptual Category/Domain	**A2.A.APR.**	**Algebra – Arithmetic with Polynomials and Rational Expressions (A.APR)**
Cluster	**A2.A.APR.A.**	**Understand the relationship between zeros and factors of polynomials.**
Content Standard	A2.A.APR.A.1.	Know and apply the Factor Theorem: For a polynomial p(x) and a number a, p(a) = 0 if and only if (x – a) is a factor of p(x). **Pathway2Careers Algebra II** 5.4a Finding Zeros Using the Quadratic Formula 5.5a Applying Properties of Quadratics 7.2a Long Division, the Factor Theorem, and the Remainder Theorem 7.3a Synthetic Division 7.4a Applying Polynomial Division 7.5a Solving Polynomial Equations by Factoring
Content Standard	A2.A.APR.A.2.	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial. **Pathway2Careers Algebra II** 1.1b Multiplying and Dividing Rational Expressions 1.2b Adding and Subtracting Rational Expressions 1.3b Solving Rational Equations 1.4b Applying Solving Rational Equations

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		7.2a Long Division, the Factor Theorem, and the Remainder Theorem 7.5a Solving Polynomial Equations by Factoring 7.6a Graphs of Polynomial Functions
Conceptual Category/Domain	**A2.A.CED.**	**Algebra – Creating Equations (A.CED)**
Cluster	**A2.A.CED.A.**	**Create equations that describe numbers or relationships.**
Content Standard	A2.A.CED.A.1.	Create equations and inequalities in one variable and use them to solve problems in a real-world context. **<u>Pathway2Careers Algebra II</u>** 1.1a Solving Equations in One Variable 1.2a Isolating a Variable 1.3a Writing Equations 1.4a Absolute Value 1.5a Applying Absolute Value 1.5b Using Polynomial Division to Solve Rational Equations 1.6b Applying Using Polynomial Division to Solve Rational Equations 2.1b Parabolas 2.2b Circles 2.5a Writing Linear Equations 2.6a Applying Writing Linear Equations 2.9a Inequalities and Their Graphs 2.10a Compound Inequalities 7.5a Solving Polynomial Equations by Factoring 8.6a Solving Radical Equations 8.7a Applying Radical Functions
Content Standard	A2.A.CED.A.2.	Create equations in two variables to represent relationships between quantities and use them to solve problems in a real-world context. Graph equations with two variables on coordinate axes with labels and scales, and use the graphs to make predictions. **<u>Pathway2Careers Algebra II</u>** 1.1a Solving Equations in One Variable

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		1.2a Isolating a Variable 1.3a Writing Equations 1.4a Absolute Value 1.5a Applying Absolute Value 1.5b Using Polynomial Division to Solve Rational Equations 1.6b Applying Using Polynomial Division to Solve Rational Equations 2.3a Slopes, Intercepts, and Linear Graphs 2.4a Applying Slope, Intercepts, and Linear Graphs 2.5a Writing Linear Equations 2.6a Applying Writing Linear Equations 4.1b Exponential Growth and Decay 4.2b Applying Exponential Growth and Decay 5.9b Using the Unit Circle 7.5a Solving Polynomial Equations by Factoring 7.6a Graphs of Polynomial Functions 7.7a Applying Graphs of Polynomial Functions 8.6a Solving Radical Equations 8.7a Applying Radical Functions
Content Standard	A2.A.CED.A.3.	Rearrange formulas to isolate a quantity of interest using algebraic reasoning. **Pathway2Careers Algebra II** 1.2a Isolating a Variable 1.3a Writing Equations 5.2b Inverse Sine, Cosine, and Tangent in Right Triangles 5.3b The Law of Sines and the Law of Cosines 5.4b Solving Triangles 5.5b Applying Solving Triangles 7.1b Intro to Trigonometric Identities 7.2b Sum and Difference Identities 7.3b Angle Identities 7.4b Proof of the Identities 7.5b Trigonometric Equations

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		7.6b Applying Trigonometric Equations
Conceptual Category/Domain	**A2.A.REI.**	**Algebra – Reasoning with Equations and Inequalities (A.REI)**
Cluster	**A2.A.REI.A.**	**Understand solving equations as a process of reasoning and explain the reasoning.**
Content Standard	A2.A.REI.A.1.	Understand solving equations as a process of reasoning and explain the reasoning. Construct a viable argument to justify a solution method. **Pathway2Careers Algebra II** 1.1a Solving Equations in One Variable 1.2a Isolating a Variable
Content Standard	A2.A.REI.A.2.	Solve radical equations in one variable, and identify extraneous solutions when they exist. **Pathway2Careers Algebra II** 1.3b Solving Rational Expressions 1.4b Applying Solving Rational Expressions 8.6a Solving Radical Equations 8.7a Applying Radical Functions

Conceptual Category/Domain	**A2.A.REI.**	**Algebra – Reasoning with Equations and Inequalities (A.REI)**
Cluster	**A2.A.REI.B.**	**Solve systems of equations.**
Content Standard	A2.A.REI.B.3.	Write and solve a system of linear equations in a real-world context. **Pathway2Careers Algebra II** 3.1a Solving Linear Systems of Two Equations 3.2a Solving Linear Systems of Three Equations 3.3a Applying Solving Linear Systems of Three Equations
Content Standard	A2.A.REI.B.4.	Solve a system consisting of a linear equation and a quadratic equation in two variables algebraically, graphically, and using technology.

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		Pathway2Careers Algebra II 3.2a Solving Linear Systems of Three Equations 3.3a Applying Solving Linear Systems of Three Equations 3.4a Using Systems of Linear Equations
Conceptual Category/Domain	**A2.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A2.F.IF.A.**	**Interpret functions that arise in applications in terms of the context.**
Content Standard	A2.F.IF.A.1.	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. **Pathway2Careers Algebra II** 2.1b Parabolas 2.2b Circles 2.6b Translating Conics 2.3a Slopes, Intercepts, and Linear Graphs 2.4a Applying Slope, Intercepts, and Linear Graphs 4.7b Solving Exponential and Logarithmic Equations 4.8b Applying Solving Exponential and Logarithmic Equations 5.2b Inverse Sine, Cosine, and Tangent in Right Triangles 5.3b The Law of Sines and the Law of Cosines 5.4b Solving Triangles 5.5b Applying Solving Triangles 5.6b More Applying Solving Triangles 5.9b Using the Unit Circle
Content Standard	A2.F.IF.A.2.	Calculate and interpret the average rate of change of a function (presented algebraically or as a table) over a specified interval. Estimate and interpret the rate of change from a graph. **Pathway2Careers Algebra II** 10.2a Measures of Variation

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		2.3a Slopes, Intercepts, and Linear Graphs 2.4a Applying Slope, Intercepts, and Linear Graphs 2.6a Applying Writing Linear Equations
Content Standard	A2.F.IF.A.3.	Understand geometric formulas as functions. **<u>Pathway2Careers Algebra II</u>** 2.2b Circles 3.6b Applying Moduli and Arguments 3.7b Distance and Midpoint 5.10b Applying the Unit Circle 5.1b Sine, Cosines, and Tangent in Right Triangles 5.8b The Unit Circle 5.9b Using the Unit Circle
Conceptual Category/Domain	**A2.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A2.F.IF.B.**	**Analyze functions using different representations.**
Content Standard	A2.F.IF.B.4.	Graph functions expressed algebraically and show key features of the graph by hand and using technology. **<u>Pathway2Careers Algebra II</u>** 4.7b Solving Exponential and Logarithmic Equations 4.8b Applying Solving Exponential and Logarithmic Equations 5.9b Using the Unit Circle
Conceptual Category/Domain	**A2.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A2.F.IF.B.**	**Analyze functions using different representations.**
Content Standard	**A2.F.IF.B.5.**	**Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.**
Content Standard	A2.F.IF.B.5.a.	Rewrite quadratic functions to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a real-world context.

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		Pathway2Careers Algebra II 2.1b Parabolas 5.1a Graphing in Vertex Form 5.2a Graphing In Standard Form 5.3a Applying Graphing in Standard Form 5.4a Finding Zeros Using the Quadratic Formula 5.5a Applying Properties of Quadratics 5.6a Solving Quadratic Functions by Factoring
Content Standard	A2.F.IF.B.5.b.	Know and use the properties of exponents to interpret expressions for exponential functions in terms of a real-world context. **Pathway2Careers Algebra II** 4.1b Exponential Growth and Decay 4.2b Applying Exponential Growth and Decay
Conceptual Category/Domain	**A2.F.IF.**	**Functions – Interpreting Functions (F.IF)**
Cluster	**A2.F.IF.B.**	**Analyze functions using different representations.**
Content Standard	**A2.F.IF.B.6.**	**Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions.**
Content Standard	A2.F.IF.B.6.a.	Compare properties of two different functions. Functions may be of different types and/or represented in different ways. **Pathway2Careers Algebra II** 1.7b Graphing Rational Functions 2.7a Parallel & Perpendicular Lines 2.7b Applying Translating Conics 6.6a Piecewise Functions 6.7a Applying Piecewise Functions 7.6a Graphs of Polynomial Functions
Content Standard	A2.F.IF.B.6.b.	Compare properties of the same function on two different intervals or represented in two different ways.

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		Pathway2Careers Algebra II 2.3b Ellipses 2.4b Hyperbolas 2.5b Applying Conic Sections 7.6a Graphs of Polynomial Functions
Conceptual Category/Domain	**A2.F.BF.**	**Functions – Building Functions (F.BF)**
Cluster	**A2.F.BF.A.**	**Build a function that models a relationship between two quantities.**
Content Standard	**A2.F.BF.A.1.**	**Build a function that describes a relationship between two quantities.**
Content Standard	A2.F.BF.A.1.a.	Combine standard function types using arithmetic operations. **Pathway2Careers Algebra II** 1.1a Solving Equations in One Variable 2.1a Function Notation 3.1a Solving Linear Systems of Two Equations 3.2a Solving Linear Systems of Three Equations 3.1b Properties of Complex Numbers 3.2b Operations with Complex Numbers 3.3b Applying Operations with Complex Numbers 3.4b Completing the Square Using Complex Numbers 3.5b Graphing in the Complex Plane 3.8b Using Notation with Complex Numbers 3.9b Applying Using Notation with Complex Numbers 8.3a Composite Functions 8.4a Applying Composite Functions
Content Standard	A2.F.BF.A.1.b.	Combine standard function types using composition. **Pathway2Careers Algebra II** 6.2a Composite Functions 6.3a Applying Composite Functions 8.3a Composite Functions 8.4a Applying Composite Functions

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Conceptual Category/Domain	**A2.F.BF.**	**Functions – Building Functions (F.BF)**
Cluster	**A2.F.BF.A.**	**Build a function that models a relationship between two quantities.**
Content Standard	A2.F.BF.A.2.	Define sequences as functions, including recursive definitions, whose domain is a subset of the integers. Write explicit and recursive formulas for arithmetic and geometric sequences in context and connect them to linear and exponential functions. **Pathway2Careers Algebra II** 8.1b Defining Series and Sequences 8.2b Arithmetic Series and Sequences 8.3b Applying Arithmetic Series and Sequences 8.4b Geometric Series and Sequences 8.5b Applying Geometric Series and Sequences 8.6b Infinite Geometric Series
Conceptual Category/Domain	**A2.F.BF.**	**Functions – Building Functions (F.BF)**
Cluster	**A2.F.BF.B.**	**Build new functions from existing functions.**
Content Standard	A2.F.BF.B.3.	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. **Pathway2Careers Algebra II** 3.1b Properties of Complex Numbers 3.2b Operations with Complex Numbers 3.3b Applying Operations with Complex Numbers 3.4b Completing the Square Using Complex Numbers 3.5b Graphing in the Complex Plane 3.8b Using Notation with Complex Numbers 3.9b Applying Using Notation with Complex Numbers 5.2a Graphing In Standard Form
Conceptual Category/Domain	**A2.F.BF.**	**Functions – Building Functions (F.BF)**
Cluster	**A2.F.BF.B.**	**Build new functions from existing functions.**
Content Standard	**A2.F.BF.B.4.**	**Find the inverse of a function.**

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Content Standard	A2.F.BF.B.4.a.	Determine whether a function is one-to-one. **Pathway2Careers Algebra II** 2.1a Function Notation 2.2a Functions, Relations, and Inverses 8.3a Composite Functions 8.4a Applying Composite Functions
Content Standard	A2.F.BF.B.4.b.	Find the inverse of a function on an appropriate domain. **Pathway2Careers Algebra II** 2.1a Function Notation 2.2a Functions, Relations, and Inverses 8.3a Composite Functions 8.4a Applying Composite Functions
Content Standard	A2.F.BF.B.4.c.	Given an invertible function on an appropriate domain, identify the domain of the inverse function. **Pathway2Careers Algebra II** 2.1a Function Notation 2.2a Functions, Relations, and Inverses 8.3a Composite Functions 8.4a Applying Composite Functions
Conceptual Category/Domain	**A2.F.LE.**	**Functions – Linear, Quadratic, and Exponential Models (F.LE)**
Cluster	**A2.F.LE.A.**	**Construct and compare linear, quadratic, and exponential models and solve problems.**
Content Standard	**A2.F.LE.A.1.**	**Know the relationship between exponential functions and logarithmic functions.**
Content Standard	A2.F.LE.A.1.a.	Solve exponential equations using a variety of strategies, including logarithms. **Pathway2Careers Algebra II** 4.2b Applying Exponential Growth and Decay 4.4b Logarithms 4.6b Applying Properties of Logarithmic Functions

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		4.7b Solving Exponential and Logarithmic Equations 4.8b Applying Solving Exponential and Logarithmic Equations
Content Standard	A2.F.LE.A.1.b.	Understand that a logarithm is the solution to ab^ct = d, where a, b, c, and d are numbers. **Pathway2Careers Algebra II** 4.2b Applying Exponential Growth and Decay 4.3b The Number e 4.4b Logarithms 4.5b Properties of Logarithmic Functions 4.6b Applying Properties of Logarithmic Functions 4.7b Solving Exponential and Logarithmic Equations 4.8b Applying Solving Exponential and Logarithmic Equations 5.6a Solving Quadratic Functions by Factoring 5.7a Solving Quadratic Functions Using Square Roots 5.8a Applying Solving Quadratic Functions Using Square Roots
Content Standard	A2.F.LE.A.1.c.	Evaluate logarithms using technology. **Pathway2Careers Algebra II** 4.4b Logarithms 4.7b Solving Exponential and Logarithmic Equations
Conceptual Category/Domain	**A2.F.LE.**	**Functions – Linear, Quadratic, and Exponential Models (F.LE)**
Cluster	**A2.F.LE.A.**	**Construct and compare linear, quadratic, and exponential models and solve problems.**
Content Standard	A2.F.LE.A.2.	Know that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or cubically. **Pathway2Careers Algebra II** 4.2b Applying Exponential Growth and Decay 4.3b The Number e
Conceptual Category/Domain	**A2.S.ID.**	**Statistics and Probability – Interpreting Categorical and Quantitative Data (S.ID)**

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Cluster	**A2.S.ID.A.**	**Summarize, represent, and interpret data on a single count or measurement variable.**
Content Standard	A2.S.ID.A.1.	Use statistics appropriate to the shape of the data distribution to compare center (mean, median, and/or mode) and spread (range, standard deviation) of two or more different data sets. **Pathway2Careers Algebra II** 10.1a Measures of Central Tendency 10.2a Measures of Variation 10.3a The Normal Distribution 10.4a Applying the Normal Distribution 10.5a Randomness and Bias 10.6a Applying Randomness and Bias
Content Standard	A2.S.ID.A.2.	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages using the Empirical Rule. **Pathway2Careers Algebra II** 10.1a Measures of Central Tendency 10.2a Measures of Variation 10.3a The Normal Distribution 10.4a Applying the Normal Distribution
Content Standard	A2.S.ID.A.3.	Compute, interpret, and compare z-scores for normally distributed data in a real-world context. **Pathway2Careers Algebra II** 10.3a The Normal Distribution 10.4a Applying the Normal Distribution
Conceptual Category/Domain	**A2.S.ID.**	**Statistics and Probability – Interpreting Categorical and Quantitative Data (S.ID)**
Cluster	**A2.S.ID.B.**	**Summarize, represent, and interpret data on two categorical and quantitative variables.**
Content Standard	A2.S.ID.B.4.	Represent data from two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.

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		Pathway2Careers Algebra II 4.1b Exponential Growth and Decay 5.1a Graphing in Vertex Form
Conceptual Category/Domain	**A2.S.IC.**	**Statistics and Probability – Making Inferences and Justifying Conclusions (S.IC)**
Cluster	**A2.S.IC.A.**	**Make inferences and justify conclusions from sample surveys, experiments, and observational studies.**
Content Standard	A2.S.IC.A.1.	Recognize the purposes of and differences among sample surveys, experiments, and observational studies. **Pathway2Careers Algebra II** 10.5a Randomness and Bias 10.7a Hypotheses 10.8a Applying Hypotheses
Content Standard	A2.S.IC.A.2.	Identify potential sources of bias in statistical studies. **Pathway2Careers Algebra II** 10.5a Randomness and Bias 10.6a Applying Randomness and Bias 10.7a Hypotheses 10.8a Applying Hypotheses
Content Standard	A2.S.IC.A.3.	Distinguish between a statistic and a parameter; Evaluate reports based on data and recognize when poor conclusions are drawn from well-collected data. **Pathway2Careers Algebra II** 10.5a Randomness and Bias 10.6a Applying Randomness and Bias 10.7a Hypotheses 10.8a Applying Hypotheses
Conceptual Category/Domain	**A2.S.CP.**	**Statistics and Probability – Conditional Probability and the Rules of Probability (S.CP)**

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Cluster	**A2.S.CP.A.**	**Understand independence and conditional probability and use them to create visual representations of data.**
Content Standard	A2.S.CP.A.1.	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. Categorize events as independent or dependent. **Pathway2Careers Algebra II** 9.2a Probability and Compound Probability 9.3a Discrete Probability 9.4a Applying Discrete Probability 9.5a The Binomial Theorem 9.6a The Traveling Salesperson Problem 9.7a Optimal Solutions
Conceptual Category/Domain	**A2.S.CP.**	**Statistics and Probability – Conditional Probability and the Rules of Probability (S.CP)**
Cluster	**A2.S.CP.B.**	**Understand and apply basic concepts of probability.**
Content Standard	**A2.S.CP.B.2.**	**Apply statistical counting techniques.**
Content Standard	A2.S.CP.B.2.a.	Use the Fundamental Counting Principle to compute probabilities of compound events and solve problems. **Pathway2Careers Algebra II** 9.1a Counting, Permutations, and Combinations
Content Standard	A2.S.CP.B.2.b.	Use permutations and combinations to compute probabilities of compound events and solve problems. **Pathway2Careers Algebra II** 9.1a Counting, Permutations, and Combinations
Content Standard	A2.S.CP.B.3.	Use the Law of Large Numbers to assess the validity of a statistical claim. **Pathway2Careers Algebra II** 10.5a Randomness and Bias 10.6a Applying Randomness and Bias

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		10.7a Hypotheses 10.8a Applying Hypotheses
Conceptual Category/Domain	**A2.S.CP.**	**Statistics and Probability – Conditional Probability and the Rules of Probability (S.CP)**
Cluster	**A2.S.CP.C.**	**Use the rules of probability to compute probabilities of compound events in a uniform probability model.**
Content Standard	A2.S.CP.C.4.	Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the given context. **<u>Pathway2Careers Algebra II</u>** 9.2a Probability and Compound Probability 9.3a Discrete Probability 9.4a Applying Discrete Probability 9.5a The Binomial Theorem

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Pathway2Careers Mathematical Practices Alignment

The Mathematical Practices are areas that apply to students of all math levels. Pathway2Careers integrate mathematical practices in every lesson. Below is a list of the eight mathematical practices. Click the practice to see their alignment across all the P2C Curriculum:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

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Pathway2Careers Pre-Algebra MP 1	Pathway2Careers Algebra I MP 1	Pathway2Careers Geometry MP 1	Pathway2Careers Algebra II MP 1
1.1 Translations 1.11 Apply Dilations 1.12 Similar Figures 1.13 Perimeters and Area of Similar Figures 1.2 Apply Translations 1.4 Apply Reflections 1.6 Apply Rotations 1.7 Investigate Symmetry 1.8 Congruent Figures 10.10 Apply Volume of Composite Solids 10.2 Apply Area of Circles 10.3 Find Volume of Cylinders 10.4 Apply Volume of Cylinders 10.7 Find Volume of Spheres 10.8 Apply Volume of Spheres 10.9 Find Volumes of Composite Solids 2.1 Operations with Rational Numbers 2.10 Solve Break-Even Problems 2.11 Rewrite Formulas	1.1 Real Numbers 1.2 Dimensional Analysis 1.4 Modeling with Quantities 1.5 Precision and Accuracy 1.6 Algebraic Expressions 1.8 Structure of Expressions 10.1 Graphing of Absolute Value Functions 10.11 Applying Comparisons of Linear, Exponential, and Quadratic Models 10.2 Graphing Step Functions 10.3 Applying Step Functions 10.4 Graphing Piecewise-Defined Functions 10.5 Applying Piecewise-Defined Functions 10.6 Translations of Graphs of Functions 10.7 Stretches and Shrinks of Graphs of Functions 10.8 Reflections of Graphs of Functions 11.10 Inverses of Radical Functions 11.11 Inverses of Quadratic Functions	1.10 Area in the Coordinate Plane 1.3 Measure and Construct Angles 1.4 Describe Pairs of Angles 1.7 Solve Design Problems Using Areas of Figures 1.8 Midpoint and Distance in the Coordinate Plane 1.9 Perimeter in the Coordinate Plane 10.1 Lines and Segments that Intersect Circles 10.10 Circles in the Coordinate Plane 10.12 Equation of a Parabola 10.2 Finding Arc Measures 10.3 Using Chords 10.4 Inscribed Angles 10.5 Inscribed Polygons 10.6 Apply Central Angles and Inscribed Angles 10.7 Angle Relationships in Circles 10.8 Segment Relationships in Circles	1.1a Solving Equations in One Variable 1.1b Multiplying and Dividing Rational Expressions 1.2b Adding and Subtracting Rational Expressions 1.3a Writing Equations 1.3b Solving Rational Equations 1.4a Absolute Value 1.4b Applying Solving Rational Equations 1.5a Applying Absolute Value 1.5b Using Polynomial Division to Solve Rational Equations 1.6a Exponents and Radicals 1.6b Applying Using Polynomial Division to Solve Rational Equations 1.7b Graphing Rational Functions 1.8a Scientific Notation 10.3a The Normal Distribution 10.4a Applying the Normal Distribution 10.5a Randomness and Bias 10.6a Applying Randomness and Bias

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2.12 Solve One-Step Inequalities 2.13 Solve Two-Step Inequalities 2.14 Apply Solving Inequalities 2.2 Simplify Expressions 2.3 Variables and Equations 2.4 Solve One-Step Equations 2.5 Apply Solving One-Step Equations 2.6 Solve Two-Step Equations 2.7 Apply Solving Two-Step Equations 2.8 Solve Multi-Step Equations 3.1 Parallel Lines and Transversals 3.2 Apply Properties of Parallel Lines 3.4 Apply Angle Relationships in Triangles 3.6 Apply Similar Triangles 4.1 Write and Solve Proportions 4.10 Apply Comparisons of Proportional Relationships 4.2 Slope of a Line 4.3 Use the Slope of a Line 4.4 Write Equations for Proportional Relationships 5.1 Relations and Functions	11.12 Applying Inverse Functions 11.2 Describing and Graphing Square Root Functions 11.3 Writing Square Root Functions 11.4 Applying Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.6 Describing and Graphing Cube Root Functions 11.7 Solving Radical Equations 11.8 Inverses of Functions 11.9 Inverses of Linear Functions 12.1 Measures of Center 12.10 Two-Way Frequency Tables 12.11 Applying Two-Way Frequency Tables 12.2 Measures of Spread 12.3 Applying Measures of Center and Spread 12.4 Representing Data with Box Plots 2.1 Solving One- and Two-Step Equations 2.2 Writing Linear Equations 2.3 Solving Multi-Step Equations 2.4 Solving Linear Equations with a Variable on One Side 2.5 Solving Linear Equations with a Variable on Both Sides	10.9 Apply Segment Relationships in Circles 11.1 Find Areas of Triangles using Trigonometry 11.2 Area of Parallelograms, Trapezoids, and Regular Polygons 11.3 Areas of Composite Figures 11.4 Circumference and Arc Length 11.6 Areas of Circles and Sectors 11.7 Apply Areas of Circles and Sectors 12.10 Volumes of Cylinders and Cones 12.12 Apply volumes of Spheres, Cylinders, and Cones 12.2 Visualizing Solids 12.4 Apply Surface Areas of Prisms and Pyramids. 12.5 Surface Areas of Cylinders and Cones 12.7 Apply Surface Areas of Cylinders, Cones, and Spheres 12.9 Apply Volumes of Prisms and Pyramids 13.2 Find Probabilities Using Permutations and Combinations	10.7a Hypotheses 10.8a Applying Hypotheses 2.1a Function Notation 2.1b Parabolas 2.2a Functions, Relations and Inverses 2.2b Circles 2.3b Ellipses 2.4a Applying Slope, Intercepts, and Linear Graphs 2.4b Hyperbolas 2.5b Applying Conic Sections 2.6a Applying Writing Linear Equations 2.7a Parallel & Perpendicular Lines 2.8a Applying Parallel & Perpendicular Lines 3.1a Solving Linear Systems of Two Equations 3.2a Solving Linear Systems of Three Equations 3.2b Operations with Complex Numbers 3.3a Applying Solving Linear Systems of Three Equations 3.4a Using Systems of Linear Equations 3.5a Systems of Two Linear Inequalities

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5.13 Nonlinear Functions 5.14 Apply Nonlinear Functions 5.2 Representations of Functions 5.5 Interpret Rate of Change and Initial Value 5.6 Apply Rate of Change and Initial Value 5.7 Write Equations for Linear Functions 5.8 Apply Equations Written for Linear Functions 5.9 Identify Parallel and Perpendicular Lines 6.1 Solve Systems of Linear Equations by Graphing 6.10 Solve Special Types of Systems of Linear Equations 6.2 Apply Solving Linear Systems by Graphing 6.3 Solve Systems of Linear Equations by Substitution 6.4 Apply Solving Linear Systems by Substitution 6.5 Solve Systems of Linear Equations by Adding or Subtracting 6.6 Solve Systems of Linear Equations by Multiplying First 6.7 Apply Solving Linear Systems by Elimination	3.2 Writing Linear Inequalities in One Variable 3.3 Solving Linear Inequalities in One Variable 3.4 Solving and Graphing Compound Inequalities - And 3.5 Solving and Graphing Compound Inequalities - Or 3.6 Using Compound Inequalities 3.7 Absolute Value Inequalities in One Variable 3.8 Writing and Solving Absolute Value Inequalities 3.9 Solving Inequalities Graphically 4.1 Relations and Functions 4.12 Applying Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit 4.4 Rate of Change 4.5 Standard Form and Slope-Intercept Form 4.7 Graphs of Linear Functions 4.8 Rate of Change of Linear Functions 4.9 Representations of Linear Functions 5.1 Solving Systems of Linear Equations by Graphing 5.10 Graphing Systems of Linear Inequalities	13.4 Apply Probabilities of Disjoint and Overlapping Events 13.5 Conditional Probability 13.6 Apply Conditional Probabilities 13.8 Applying Probabilities of Independent Events 13.9 Dependent Events 2.1 Use Inductive Reasoning 2.2 Write Conditional Statements 2.3 Use Deductive Reasoning 2.4 Biconditional Statements and Definitions 2.5 Write Algebraic Proofs 2.6 Write Proofs about Segments 2.7 Write Proofs about Angles 2.8 Use Theorems about Angles 3.2 Parallel Lines and Transversals 3.3 Use Properties of Parallel Lines 3.5 Show Lines are Parallel 3.7 Use Properties of Perpendicular Lines 3.8 Find and Use Slopes of Lines	3.5b Graphing in the Complex Plane 3.6a Applying Systems of Two Linear Inequalities 3.6b Applying Moduli and Arguments 3.7a Using Systems of Inequalities to Find the Feasible Region 3.8b Using Notation with Complex Numbers 4.1a Matrices and Systems of Equations 4.2a Matrix Operations 4.2b Applying Exponential Growth and Decay 4.3a Matrix Multiplication 4.4a Applying Matrix Multiplication 4.4b Logarithms 4.5a Determinants and Cramer's Rule 4.6a Inverse Matrices 4.7a Applying Inverse Matrices 4.8b Applying Solving Exponential and Logarithmic Equations 5.10b Applying the Unit Circle 5.3b The Law of Sines and the Law of Cosines 5.4a Finding Zeros Using the Quadratic Formula

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6.8 Solve Manufacturing Tolerance Problems 7.10 Two-Way Relative Frequency Tables 7.11 Apply Two-Way Relative Frequency Tables 7.3 Interpret Trend Lines 7.4 Draw and Use Trend Lines 7.8 Interpret Two-Way Frequency Tables 7.9 Apply Two-Way Frequency Tables 8.11 Apply Scientific Notation in Forensic Science 8.12 Estimating Quantities 8.2 Multiplication Properties of Exponents 8.3 Quotient of Powers Property 8.4 Zero and Negative Exponents 8.6 Apply Properties of Exponents Using Orders of Magnitude 8.8 Scientific Notation 9.10 Apply the Converse of the Pythagorean Theorem 9.2 Apply Finding Square Roots 9.3 Find Cube Roots 9.4 Rational Numbers	5.3 Solving Linear Equations in One Variable by Graphing 5.4 Solving Systems of Linear Equations by Substitution 5.5 Solving Systems of Linear Equations by Elimination 5.6 Writing and Solving Systems of Linear Equations 5.7 Special Systems of Linear Equations 5.8 Graphing Linear Inequalities in Two Variables 5.9 Writing and Using Linear Inequalities in Two Variables 6.1 Properties of Exponents 6.2 Understanding Radical and Rational Exponents 6.3 Exponential Functions 6.5 Exponential Growth and Exponential Decay Functions 6.6 Applying Exponential Growth 6.7 Applying Exponential Decay 6.8 Solving Exponential Equations 6.9 Applying Exponential Equations 7.1 Understanding Sequences 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.4 Applying Arithmetic Sequences	3.9 Use the slope Criteria for Parallel and Perpendicular Lines 4.1 Translations 4.10 Dilations 4.11 Apply Dilations 4.12 Transformations and Similarity 4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.7 Investigate Symmetry 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.10 Use Congruent Triangles 5.2 Angles in Triangles 5.3 Apply Angle Relationships in Triangles 5.4 Triangle Congruence 5.6 Apply SSS and SAS Triangle Congruence 5.7 Prove Triangle Congruence by ASA and AAS 6.1 Perpendicular Angle Bisectors	5.4b Solving Triangles 5.6b More Applying Solving Triangles 5.7a Solving Quadratic Functions Using Square Roots 5.8a Applying Solving Quadratic Functions Using Square Roots 6.1a Graphing Absolute Value Functions 6.1b Magnitude and Directions of Vectors 6.2a Composite Functions 6.2b Applying Magnitude and Direction of Vectors 6.4a Graphing Absolute Value Inequalities 6.4b Operations with Vectors 6.6a Piecewise Functions 6.7a Applying Piecewise Functions 7.1b Intro to Trigonometric Identities 7.2b Sum and Difference Identities 7.3b Angle Identities 7.5a Solving Polynomial Equations by Factoring 7.6a Graphs of Polynomial Functions 7.6b Applying Trigonometric Equations

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9.5 Irrational Numbers 9.7 Apply the Pythagorean Theorem 9.8 Find Distances Using the Pythagorean Theorem 9.9 The Converse of the Pythagorean Theorem	7.7 Applying Geometric Sequences 8.1 Modeling with Polynomials 8.10 Factoring Quadratic Expressions in Form x^2 + bx + c 8.11 Factoring Quadratic Expressions in Form ax^2 + bx + c 8.12 Solving Polynomial Equations 8.2 Adding and Subtracting Polynomials 8.3 Multiplying Monomial and Binomials 8.4 Multiplying Polynomials 8.5 Special Products of Polynomials 8.6 Operations with Polynomials 8.7 Factoring Using the GCF 8.8 Factoring the Difference of Squares 9.10 Comparing Quadratic Functions 9.11 Solving Linear-Quadratic Systems Graphically 9.13 Applying Linear-Quadratic Systems 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form 9.3 Applying the Vertex Form of Quadratic Functions 9.5 Solving Quadratic Equations by Graphing and Taking the Square Root	6.2 Bisectors of Triangles 6.3 Medians and Altitudes of Triangles 6.4 Apply Special Segments in Triangles 6.5 The Triangle Midsegment Theorem 6.6 Inequalities in One Triangle 6.7 Inequalities in Two Triangles 6.8 Apply Inequalities in One Triangle and Two Triangles 7.1 Angles of Polygons 7.2 Properties of Parallelograms 7.3 Conditions for Parallelograms 7.4 Apply Properties of and Conditions for Parallelograms 7.5 Properties of Special Parallelograms 7.6 Properties of Trapezoids and Kites 7.8 Identify Special Quadrilaterals in the Coordinate Plane 8.1 Similar Polygons 8.2 Prove Triangles Similar by AA 8.3 Prove Triangles Similar by SSS and SAS	7.7a Applying Graphs of Polynomial Functions 8.1b Defining Series and Sequences 8.2a Properties of Rational Exponents 8.2b Arithmetic Series and Sequences 8.3b Applying Arithmetic Series and Sequences 8.4b Geometric Series and Sequences 8.6a Solving Radical Equations 8.6b Infinite Geometric Series 8.7a Applying Radical Functions 9.1a Counting, Permutations, and Combinations 9.2a Probability and Compound Probability 9.3a Discrete Probability 9.4a Applying Discrete Probability 9.6a The Traveling Salesperson Problem 9.7a Optimal Solutions

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	9.6 Solve Quadratic Equations by Factoring 9.7 Solve Quadratic Equations by Completing the Square 9.8 Solve Quadratic Equations by Quadratic Formula 9.9 Using Quadratic Equations to Solve Problems	8.4 Use Similar Triangles 8.5 Use Proportionality Theorems 8.6 Apply Proportionality Theorems 9.10 Apply Law of Sines and Law of Cosines 9.2 Apply the Pythagorean Theorem 9.3 Special Right Triangles 9.5 Use Similar Right Triangles 9.6 The Tangent Ratio 9.8 Apply Trigonometric Ratios in Right Triangles 9.9 Law of Sines and Law of Cosines	

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PATHWAY2CAREERS
Education with Destination

Pathway2Careers Pre-Algebra MP 2	Pathway2Careers Algebra I MP 2	Pathway2Careers Geometry MP 2	Pathway2Careers Algebra II MP 2
1.10 Dilations	1.1 Real Numbers	1.2 Measure and Construct Segments	1.2a Isolating a Variable
1.11 Apply Dilations	1.2 Dimensional Analysis	1.5 Solve Problems Using Pairs of Angles	1.3b Solving Rational Equations
1.5 Rotations	1.4 Modeling with Quantities	1.6 Classify Polygons	1.4b Applying Solving Rational Equations
1.7 Investigate Symmetry	1.5 Precision and Accuracy	1.7 Solve Design Problems Using Areas of Figures	1.5b Using Polynomial Division to Solve Rational Equations
1.8 Congruent Figures	1.6 Algebraic Expressions	1.8 Midpoint and Distance in the Coordinate Plane	1.6a Exponents and Radicals
10.10 Apply Volume of Composite Solids	1.7 Writing and Simplifying Algebraic Expressions	1.9 Perimeter in the Coordinate Plane	1.6b Applying Using Polynomial Division to Solve Rational Equations
10.3 Find Volume of Cylinders	10.1 Graphing of Absolute Value Functions	10.10 Circles in the Coordinate Plane	1.7a Applying Exponents and Radicals
10.4 Apply Volume of Cylinders	10.11 Applying Comparisons of Linear, Exponential, and Quadratic Models	10.12 Equation of a Parabola	10.4a Applying the Normal Distribution
10.5 Find Volume of Cones	10.2 Graphing Step Functions	10.6 Apply Central Angles and Inscribed Angles	10.6a Applying Randomness and Bias
10.6 Apply Volume of Cones	10.3 Applying Step Functions	10.7 Angle Relationships in Circles	2.1b Parabolas
10.8 Apply Volume of Spheres	10.4 Graphing Piecewise-Defined Functions	10.8 Segment Relationships in Circles	2.3b Ellipses
10.9 Find Volumes of Composite Solids	10.5 Applying Piecewise-Defined Functions	10.9 Apply Segment Relationships in Circles	2.4a Applying Slope, Intercepts, and Linear Graphs
2.10 Solve Break-Even Problems	10.6 Translations of Graphs of Functions	11.1 Find Areas of Triangles using Trigonometry	2.4b Hyperbolas
2.11 Rewrite Formulas	10.7 Stretches and Shrinks of Graphs of Functions		2.6a Applying Writing Linear Equations
2.12 Solve One-Step Inequalities	11.1 Radical Expressions		2.6b Translating Conics
2.13 Solve Two-Step Inequalities	11.10 Inverses of Radical Functions		

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2.14 Apply Solving Inequalities 2.2 Simplify Expressions 2.4 Solve One-Step Equations 2.5 Apply Solving One-Step Equations 2.6 Solve Two-Step Equations 2.7 Apply Solving Two-Step Equations 2.8 Solve Multi-Step Equations 2.9 Solve Equations with Variables on Both Sides 3.1 Parallel Lines and Transversals 3.2 Apply Properties of Parallel Lines 3.3 Angle Relationships in Triangles 3.4 Apply Angle Relationships in Triangles 3.5 Angle-Angle Similarity 4.1 Write and Solve Proportions 4.10 Apply Comparisons of Proportional Relationships 4.2 Slope of a Line 4.3 Use the Slope of a Line	11.11 Inverses of Quadratic Functions 11.12 Applying Inverse Functions 11.3 Writing Square Root Functions 11.4 Applying Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.6 Describing and Graphing Cube Root Functions 11.7 Solving Radical Equations 11.8 Inverses of Functions 11.9 Inverses of Linear Functions 12.10 Two-Way Frequency Tables 12.3 Applying Measures of Center and Spread 12.4 Representing Data with Box Plots 12.5 Distributions of Data 12.6 Applying Box Plots 12.8 Applying Histograms 12.9 Analyzing Data 2.1 Solving One- and Two-Step Equations 2.2 Writing Linear Equations 2.3 Solving Multi-Step Equations	11.3 Areas of Composite Figures 11.4 Circumference and Arc Length 11.5 Apply Circumference and Arc Length 11.6 Areas of Circles and Sectors 11.7 Apply Areas of Circles and Sectors 12.12 Apply volumes of Spheres, Cylinders, and Cones 12.13 Solids of Revolution 12.2 Visualizing Solids 12.3 Surface Areas of Prisms and Pyramids 12.4 Apply Surface Areas of Prisms and Pyramids. 12.5 Surface Areas of Cylinders and Cones 12.7 Apply Surface Areas of Cylinders, Cones, and Spheres 12.8 Volume of Prisms and Pyramids 12.9 Apply Volumes of Prisms and Pyramids	2.7b Applying Translating Conics 2.8a Applying Parallel & Perpendicular Lines 3.3a Applying Solving Linear Systems of Three Equations 3.3b Applying Operations with Complex Numbers 3.4b Completing the Square Using Complex Numbers 3.5b Graphing in the Complex Plane 3.7a Using Systems of Inequalities to Find the Feasible Region 3.7b Distance and Midpoint 3.9b Applying Using Notation with Complex Numbers 4.1b Exponential Growth and Decay 4.2a Matrix Operations 4.2b Applying Exponential Growth and Decay 4.3b The Number e 4.4a Applying Matrix Multiplication 4.4b Logarithms 4.5b Properties of Logarithmic Functions

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4.4 Write Equations for Proportional Relationships 4.5 Apply Equations for Proportional Relationships 4.6 Solve Percent Problems 4.9 Compare Proportional Relationships 5.1 Relations and Functions 5.12 Compare Functions 5.13 Nonlinear Functions 5.2 Representations of Functions 5.3 Linear Equations in Two Variables 5.5 Interpret Rate of Change and Initial Value 5.6 Apply Rate of Change and Initial Value 5.7 Write Equations for Linear Functions 5.8 Apply Equations Written for Linear Functions 5.9 Identify Parallel and Perpendicular Lines 6.1 Solve Systems of Linear Equations by Graphing 6.10 Solve Special Types of Systems of Linear Equations	2.4 Solving Linear Equations with a Variable on One Side 2.6 Introduction to Literal Equations and Formulas 3.2 Writing Linear Inequalities in One Variable 3.3 Solving Linear Inequalities in One Variable 3.4 Solving and Graphing Compound Inequalities - And 3.5 Solving and Graphing Compound Inequalities - Or 3.6 Using Compound Inequalities 3.7 Absolute Value Inequalities in One Variable 3.8 Writing and Solving Absolute Value Inequalities 3.9 Solving Inequalities Graphically 4.11 Scatter Plots and Lines of Fit 4.12 Applying Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit 4.2 Features of Functions 4.3 Identifying Linear Functions 4.4 Rate of Change 4.5 Standard Form and Slope-Intercept Form 4.6 Equations of Parallel and Perpendicular Lines	13.1 Probability and Set Theory 13.4 Apply Probabilities of Disjoint and Overlapping Events 13.5 Conditional Probability 13.6 Apply Conditional Probabilities 13.7 Independent Events 13.8 Applying Probabilities of Independent Events 2.5 Write Algebraic Proofs 2.6 Write Proofs about Segments 2.7 Write Proofs about Angles 2.8 Use Theorems about Angles 3.1 Pairs of Lines and Angles 3.3 Use Properties of Parallel Lines 3.5 Show Lines are Parallel 3.6 Prove Theorems about Perpendicular Lines 3.7 Use Properties of Perpendicular Lines 3.8 Find and Use Slopes of Lines	4.6b Applying Properties of Logarithmic Functions 4.7a Applying Inverse Matrices 4.7b Solving Exponential and Logarithmic Equations 4.8b Applying Solving Exponential and Logarithmic Equations 5.10b Applying the Unit Circle 5.1b Sine, Cosines, and Tangent in Right Triangles 5.2a Graphing In Standard Form 5.2b Inverse Sine, Cosine, and Tangent in Right Triangles 5.3a Applying Graphing in Standard Form 5.4b Solving Triangles 5.5a Applying Properties of Quadratics 5.5b Applying Solving Triangles 5.6a Solving Quadratic Functions by Factoring 5.7b Radians 6.3a Applying Composite Functions 6.5b Scalars 6.6b Applying Scalars 7.1b Intro to Trigonometric Identities

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6.2 Apply Solving Linear Systems by Graphing 6.3 Solve Systems of Linear Equations by Substitution 6.4 Apply Solving Linear Systems by Substitution 6.5 Solve Systems of Linear Equations by Adding or Subtracting 6.6 Solve Systems of Linear Equations by Multiplying First 6.7 Apply Solving Linear Systems by Elimination 6.9 Solve Mixture Problems 7.10 Two-Way Relative Frequency Tables 7.11 Apply Two-Way Relative Frequency Tables 7.3 Interpret Trend Lines 7.4 Draw and Use Trend Lines 7.8 Interpret Two-Way Frequency Tables 7.9 Apply Two-Way Frequency Tables 8.1 Exponents 8.10 Apply Scientific Notation in Earth Science	4.8 Rate of Change of Linear Functions 4.9 Representations of Linear Functions 5.1 Solving Systems of Linear Equations by Graphing 5.2 Applying Systems of Linear Equations 5.3 Solving Linear Equations in One Variable by Graphing 5.4 Solving Systems of Linear Equations by Substitution 5.5 Solving Systems of Linear Equations by Elimination 5.6 Writing and Solving Systems of Linear Equations 5.7 Special Systems of Linear Equations 5.8 Graphing Linear Inequalities in Two Variables 5.9 Writing and Using Linear Inequalities in Two Variables 6.1 Properties of Exponents 6.10 Comparing Exponential Functions 6.2 Understanding Radical and Rational Exponents 6.3 Exponential Functions	3.9 Use the slope Criteria for Parallel and Perpendicular Lines 4.1 Translations 4.10 Dilations 4.11 Apply Dilations 4.12 Transformations and Similarity 4.2 Apply Translations 4.3 Reflections 4.4 Apply Reflections 4.5 Rotations 4.6 Apply Rotations 4.7 Investigate Symmetry 4.8 Compositions of Transformations 4.9 Transformations and Congruence 5.1 Classifying Triangles 5.10 Use Congruent Triangles 5.11 Equilateral and Isosceles Triangles 5.3 Apply Angle Relationships in Triangles 5.4 Triangle Congruence 5.5 Prove Triangle Congruence by SAS and SSS	7.2b Sum and Difference Identities 7.3b Angle Identities 7.5a Solving Polynomial Equations by Factoring 7.6b Applying Trigonometric Equations 8.1a Roots 8.1b Defining Series and Sequences 8.2a Properties of Rational Exponents 8.2b Arithmetic Series and Sequences 8.3a Composite Functions 8.4a Applying Composite Functions 8.4b Geometric Series and Sequences 8.5a Graphing Radical Functions 8.6a Solving Radical Equations 8.6b Infinite Geometric Series 8.7a Applying Radical Functions 9.1a Counting, Permutations, and Combinations 9.3a Discrete Probability 9.5a The Binomial Theorem

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8.11 Apply Scientific Notation in Forensic Science 8.2 Multiplication Properties of Exponents 8.6 Apply Properties of Exponents Using Orders of Magnitude 8.7 Apply Properties of Exponents in Ecology 8.9 Compute with Scientific Notation 9.10 Apply the Converse of the Pythagorean Theorem 9.4 Rational Numbers 9.5 Irrational Numbers 9.6 The Pythagorean Theorem 9.8 Find Distances Using the Pythagorean Theorem	6.5 Exponential Growth and Exponential Decay Functions 6.7 Applying Exponential Decay 7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.4 Applying Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences 7.7 Applying Geometric Sequences 8.1 Modeling with Polynomials 8.10 Factoring Quadratic Expressions in Form x^2 + bx + c 8.11 Factoring Quadratic Expressions in Form ax^2 + bx + c 8.3 Multiplying Monomial and Binomials 8.4 Multiplying Polynomials 8.6 Operations with Polynomials 8.7 Factoring Using the GCF 8.8 Factoring the Difference of Squares 8.9 Factoring Using Grouping 9.1 Graphing Quadratic Functions in Standard Form	5.6 Apply SSS and SAS Triangle Congruence 6.1 Perpendicular Angle Bisectors 6.2 Bisectors of Triangles 6.3 Medians and Altitudes of Triangles 6.4 Apply Special Segments in Triangles 6.5 The Triangle Midsegment Theorem 6.6 Inequalities in One Triangle 6.7 Inequalities in Two Triangles 6.8 Apply Inequalities in One Triangle and Two Triangles 7.1 Angles of Polygons 7.2 Properties of Parallelograms 7.3 Conditions for Parallelograms 7.4 Apply Properties of and Conditions for Parallelograms 7.5 Properties of Special Parallelograms 7.6 Properties of Trapezoids and Kites	9.6a The Traveling Salesperson Problem 9.7a Optimal Solutions

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	9.10 Comparing Quadratic Functions 9.11 Solving Linear-Quadratic Systems Graphically 9.12 Solving Linear-Quadratic Systems Algebraically 9.13 Applying Linear-Quadratic Systems 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form 9.3 Applying the Vertex Form of Quadratic Functions 9.5 Solving Quadratic Equations by Graphing and Taking the Square Root 9.6 Solve Quadratic Equations by Factoring 9.7 Solve Quadratic Equations by Completing the Square 9.8 Solve Quadratic Equations by Quadratic Formula	7.8 Identify Special Quadrilaterals in the Coordinate Plane 8.1 Similar Polygons 8.2 Prove Triangles Similar by AA 8.3 Prove Triangles Similar by SSS and SAS 8.4 Use Similar Triangles 8.6 Apply Proportionality Theorems 9.1 The Pythagorean Theorem 9.10 Apply Law of Sines and Law of Cosines 9.2 Apply the Pythagorean Theorem 9.4 Similar Right Triangles 9.5 Use Similar Right Triangles 9.7 The Sine and Cosine Ratios 9.8 Apply Trigonometric Ratios in Right Triangles	

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Pathway2Careers Pre-Algebra MP 3	Pathway2Careers Algebra I MP 3	Pathway2Careers Geometry MP 3	Pathway2Careers Algebra II MP 3
1.10 Dilations 1.5 Rotations 2.5 Apply Solving One-Step Equations 2.8 Solve Multi-Step Equations 3.5 Angle-Angle Similarity 3.6 Apply Similar Triangles 5.1 Relations and Functions 5.11 Interpret Intercepts of Graphs of Linear Equations 5.3 Linear Equations in Two Variables 5.4 Apply Linear Equations in Two Variables 7.1 Scatter Plots 7.2 Apply Scatter Plots 7.6 Display Data from Two-Way Tables 7.7 Make Two-Way Frequency Tables 7.9 Apply Two-Way Frequency Tables 9.1 Find Square Roots 9.6 The Pythagorean Theorem	1.1 Real Numbers 12.1 Measures of Center 12.11 Applying Two-Way Frequency Tables 12.2 Measures of Spread 12.7 Representing Data with Histograms 12.9 Analyzing Data 4.2 Features of Functions 4.6 Equations of Parallel and Perpendicular Lines 6.4 Graphing Exponential Functions	12.11 Volumes of Spheres 12.6 Surfaces Areas of Spheres 13.3 Disjoint and Overlapping Events 2.1 Use Inductive Reasoning 2.2 Write Conditional Statements 2.3 Use Deductive Reasoning 2.4 Biconditional Statements and Definitions 2.5 Write Algebraic Proofs 2.6 Write Proofs about Segments 2.7 Write Proofs about Angles 3.2 Parallel Lines and Transversals 3.4 Prove Lines are Parallel 3.6 Prove Theorems about Perpendicular Lines 5.11 Equilateral and Isosceles Triangles	1.1b Multiplying and Dividing Rational Expressions 1.2a Isolating a Variable 1.6b Applying Using Polynomial Division to Solve Rational Equations 10.1a Measures of Central Tendency 10.3a The Normal Distribution 10.5a Randomness and Bias 10.7a Hypotheses 2.1a Function Notation 2.9a Inequalities and Their Graphs 3.2b Operations with Complex Numbers 4.1a Matrices and Systems of Equations 4.6a Inverse Matrices 5.1a Graphing in Vertex Form 5.6b More Applying Solving Triangles 6.1b Magnitude and Directions of Vectors 6.3a Applying Composite Functions 6.7a Applying Piecewise Functions 7.4b Proof of the Identities 7.5a Solving Polynomial Equations by Factoring

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		5.2 Angles in Triangles 5.3 Apply Angle Relationships in Triangles 5.5 Prove Triangle Congruence by SAS and SSS 5.7 Prove Triangle Congruence by ASA and AAS 5.8 Prove Triangle Congruence by HL 6.1 Perpendicular Angle Bisectors 7.7 Identify Special Quadrilaterals 9.4 Similar Right Triangles	7.6a Graphs of Polynomial Functions 8.1b Defining Series and Sequences 8.2b Arithmetic Series and Sequences 8.5b Applying Geometric Series and Sequences 8.6b Infinite Geometric Series

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Pathway2Careers Pre-Algebra MP 4	Pathway2Careers Algebra I MP 4	Pathway2Careers Geometry MP 4	Pathway2Careers Algebra II MP 4
1.11 Apply Dilations 1.3 Reflections 1.4 Apply Reflections 1.6 Apply Rotations 1.7 Investigate Symmetry 1.9 Use Rigit Motions to Show Congruent Figures 10.1 Find Circumference and Area of Circles 10.10 Apply Volume of Composite Solids 10.2 Apply Area of Circles 10.3 Find Volume of Cylinders 10.4 Apply Volume of Cylinders 10.7 Find Volume of Spheres 10.9 Find Volumes of Composite Solids 2.3 Variables and Equations 2.7 Apply Solving Two-Step Equations 2.9 Solve Equations with Variables on Both Sides	1.1 Real Numbers 1.2 Dimensional Analysis 1.3 Unit Analysis 1.4 Modeling with Quantities 1.5 Precision and Accuracy 1.7 Writing and Simplifying Algebraic Expressions 1.8 Structure of Expressions 10.11 Applying Comparisons of Linear, Exponential, and Quadratic Models 10.3 Applying Step Functions 10.5 Applying Piecewise-Defined Functions 10.9 Operations on Functions 11.1 Radical Expressions 11.3 Writing Square Root Functions 11.4 Applying Square Root Functions 11.5 Applying Graphs of Square Root Functions 11.8 Inverses of Functions 11.9 Inverses of Linear Functions 12.3 Applying Measures of Center and Spread	1.10 Area in the Coordinate Plane 1.5 Solve Problems Using Pairs of Angles 1.6 Classify Polygons 1.7 Solve Design Problems Using Areas of Figures 1.8 Midpoint and Distance in the Coordinate Plane 1.9 Perimeter in the Coordinate Plane 10.11 Apply Circles in the Coordinate Plane 10.6 Apply Central Angles and Inscribed Angles 10.9 Apply Segment Relationships in Circles 11.1 Find Areas of Triangles using Trigonometry 11.2 Area of Parallelograms, Trapezoids, and Regular Polygons 11.3 Areas of Composite Figures 11.5 Apply Circumference and Arc Length	1.2a Isolating a Variable 1.2b Adding and Subtracting Rational Expressions 1.3a Writing Equations 1.4a Absolute Value 1.4b Applying Solving Rational Equations 1.5b Using Polynomial Division to Solve Rational Equations 1.6b Applying Using Polynomial Division to Solve Rational Equations 1.8a Scientific Notation 10.4a Applying the Normal Distribution 10.6a Applying Randomness and Bias 2.3a Slopes, Intercepts, and Linear Graphs 2.5a Writing Linear Equations 2.5b Applying Conic Sections 2.6a Applying Writing Linear Equations 2.7b Applying Translating Conics

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3.6 Apply Similar Triangles 4.1 Write and Solve Proportions 4.10 Apply Comparisons of Proportional Relationships 4.2 Slope of a Line 4.3 Use the Slope of a Line 4.4 Write Equations for Proportional Relationships 4.5 Apply Equations for Proportional Relationships 4.6 Solve Percent Problems 4.7 Graph Proportional Relationships 4.8 Apply Graphs of Proportional Relationships 5.10 Graph Linear Equations in Two Variables 5.11 Interpret Intercepts of Graphs of Linear Equations	12.5 Distributions of Data 12.6 Applying Box Plots 12.8 Applying Histograms 12.9 Analyzing Data 2.2 Writing Linear Equations 2.4 Solving Linear Equations with a Variable on One Side 2.5 Solving Linear Equations with a Variable on Both Sides 2.7 Solving Literal Equations and Formulas 3.1 Inequalities in One Variable 3.6 Using Compound Inequalities 3.8 Writing and Solving Absolute Value Inequalities 3.9 Solving Inequalities Graphically 4.1 Relations and Functions 4.12 Applying Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit 4.7 Graphs of Linear Functions 4.8 Rate of Change of Linear Functions 4.9 Representations of Linear Functions 5.11 Applying Systems of Linear Inequalities	11.7 Apply Areas of Circles and Sectors 12.1 Cross Sections of Solids 12.10 Volumes of Cylinders and Cones 12.2 Visualizing Solids 12.3 Surface Areas of Prisms and Pyramids 12.4 Apply Surface Areas of Prisms and Pyramids. 12.5 Surface Areas of Cylinders and Cones 12.6 Surfaces Areas of Spheres 12.7 Apply Surface Areas of Cylinders, Cones, and Spheres 12.9 Apply Volumes of Prisms and Pyramids 13.2 Find Probabilities Using Permutations and Combinations 13.4 Apply Probabilities of Disjoint and Overlapping Events 13.7 Independent Events 13.9 Dependent Events 2.8 Use Theorems about Angles	2.9a Inequalities and Their Graphs 3.2a Solving Linear Systems of Three Equations 3.3b Applying Operations with Complex Numbers 3.4a Using Systems of Linear Equations 3.5a Systems of Two Linear Inequalities 3.6a Applying Systems of Two Linear Inequalities 3.6b Applying Moduli and Arguments 3.7a Using Systems of Inequalities to Find the Feasible Region 3.9b Applying Using Notation with Complex Numbers 4.1a Matrices and Systems of Equations 4.1b Exponential Growth and Decay 4.2a Matrix Operations 4.2b Applying Exponential Growth and Decay 4.3a Matrix Multiplication 4.3b The Number e 4.4b Logarithms

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5.12 Compare Functions 5.13 Nonlinear Functions 5.14 Apply Nonlinear Functions 5.2 Representations of Functions 5.3 Linear Equations in Two Variables 5.4 Apply Linear Equations in Two Variables 5.5 Interpret Rate of Change and Initial Value 5.6 Apply Rate of Change and Initial Value 5.7 Write Equations for Linear Functions 5.8 Apply Equations Written for Linear Functions 5.9 Identify Parallel and Perpendicular Lines 6.1 Solve Systems of Linear Equations by Graphing 6.2 Apply Solving Linear Systems by Graphing	5.2 Applying Systems of Linear Equations 5.6 Writing and Solving Systems of Linear Equations 5.9 Writing and Using Linear Inequalities in Two Variables 6.10 Comparing Exponential Functions 6.4 Graphing Exponential Functions 6.7 Applying Exponential Decay 6.9 Applying Exponential Equations 7.1 Understanding Sequences 7.4 Applying Arithmetic Sequences 7.7 Applying Geometric Sequences 8.1 Modeling with Polynomials 9.1 Graphing Quadratic Functions in Standard Form 9.10 Comparing Quadratic Functions 9.11 Solving Linear-Quadratic Systems Graphically 9.13 Applying Linear-Quadratic Systems 9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form 9.3 Applying the Vertex Form of Quadratic Functions 9.4 Applying Graphs of Quadratic Functions	3.3 Use Properties of Parallel Lines 3.5 Show Lines are Parallel 3.7 Use Properties of Perpendicular Lines 3.9 Use the slope Criteria for Parallel and Perpendicular Lines 4.11 Apply Dilations 4.2 Apply Translations 4.4 Apply Reflections 4.6 Apply Rotations 4.7 Investigate Symmetry 4.8 Compositions of Transformations 5.10 Use Congruent Triangles 5.4 Triangle Congruence 5.6 Apply SSS and SAS Triangle Congruence 5.8 Prove Triangle Congruence by HL 6.4 Apply Special Segments in Triangles 6.8 Apply Inequalities in One Triangle and Two Triangles 7.4 Apply Properties of and Conditions for Parallelograms 7.7 Identify Special Quadrilaterals	4.5a Determinants and Cramer's Rule 4.5b Properties of Logarithmic Functions 4.6a Inverse Matrices 4.6b Applying Properties of Logarithmic Functions 4.7b Solving Exponential and Logarithmic Equations 4.8b Applying Solving Exponential and Logarithmic Equations 5.1b Sine, Cosines, and Tangent in Right Triangles 5.2b Inverse Sine, Cosine, and Tangent in Right Triangles 5.3a Applying Graphing in Standard Form 5.4b Solving Triangles 5.5a Applying Properties of Quadratics 5.5b Applying Solving Triangles 5.8a Applying Solving Quadratic Functions Using Square Roots 5.8b The Unit Circle 5.9b Using the Unit Circle 6.1a Graphing Absolute Value Functions 6.2a Composite Functions

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6.3 Solve Systems of Linear Equations by Substitution 6.4 Apply Solving Linear Systems by Substitution 6.7 Apply Solving Linear Systems by Elimination 6.8 Solve Manufacturing Tolerance Problems 6.9 Solve Mixture Problems 7.1 Scatter Plots 7.10 Two-Way Relative Frequency Tables 7.11 Apply Two-Way Relative Frequency Tables 7.2 Apply Scatter Plots 7.4 Draw and Use Trend Lines 7.5 Apply Trend Lines 7.8 Interpret Two-Way Frequency Tables 8.1 Exponents 8.11 Apply Scientific Notation in Forensic Science 8.12 Estimating Quantities	9.6 Solve Quadratic Equations by Factoring 9.8 Solve Quadratic Equations by Quadratic Formula 9.9 Using Quadratic Equations to Solve Problems	7.8 Identify Special Quadrilaterals in the Coordinate Plane 8.1 Similar Polygons 8.4 Use Similar Triangles 8.5 Use Proportionality Theorems 8.6 Apply Proportionality Theorems 9.10 Apply Law of Sines and Law of Cosines 9.2 Apply the Pythagorean Theorem 9.5 Use Similar Right Triangles 9.7 The Sine and Cosine Ratios 9.8 Apply Trigonometric Ratios in Right Triangles	6.2b Applying Magnitude and Direction of Vectors 6.3b Vector Components 6.4a Graphing Absolute Value Inequalities 6.4b Operations with Vectors 6.5a Applying Graphing Absolute Value Inequalities 6.6a Piecewise Functions 6.6b Applying Scalars 6.7a Applying Piecewise Functions 7.1a Intro to Polynomials 7.2a Long Division, the Factor Theorem, and the Remainder Theorem 7.3b Angle Identities 7.6a Graphs of Polynomial Functions 7.7a Applying Graphs of Polynomial Functions 8.4b Geometric Series and Sequences 8.7a Applying Radical Functions 9.4a Applying Discrete Probability 9.6a The Traveling Salesperson Problem

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8.2 Multiplication Properties of Exponents 8.7 Apply Properties of Exponents in Ecology 8.8 Scientific Notation 9.10 Apply the Converse of the Pythagorean Theorem 9.2 Apply Finding Square Roots 9.4 Rational Numbers 9.5 Irrational Numbers 9.7 Apply the Pythagorean Theorem 9.8 Find Distances Using the Pythagorean Theorem 9.9 The Converse of the Pythagorean Theorem			9.7a Optimal Solutions

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PATHWAY2CAREERS
Education with Destination

Pathway2Careers Pre-Algebra MP 5	Pathway2Careers Algebra I MP 5	Pathway2Careers Geometry MP 5	Pathway2Careers Algebra II MP 5
1.12 Similar Figures 1.2 Apply Translations 1.4 Apply Reflections 1.6 Apply Rotations 1.9 Use Rigit Motions to Show Congruent Figures 10.1 Find Circumference and Area of Circles 10.4 Apply Volume of Cylinders 10.5 Find Volume of Cones 10.6 Apply Volume of Cones 3.1 Parallel Lines and Transversals 5.10 Graph Linear Equations in Two Variables 6.9 Solve Mixture Problems 7.4 Draw and Use Trend Lines 7.5 Apply Trend Lines 7.6 Display Data from Two-Way Tables	11.7 Solving Radical Equations 12.1 Measures of Center 12.11 Applying Two-Way Frequency Tables 12.2 Measures of Spread 12.6 Applying Box Plots 12.8 Applying Histograms 2.5 Solving Linear Equations with a Variable on Both Sides 3.1 Inequalities in One Variable 3.3 Solving Linear Inequalities in One Variable 4.10 Using Graphs of Linear Functions 4.11 Scatter Plots and Lines of Fit 4.12 Applying Scatter Plots and Lines of Fit 5.11 Applying Systems of Linear Inequalities 5.2 Applying Systems of Linear Equations 6.4 Graphing Exponential Functions 6.8 Solving Exponential Equations 6.9 Applying Exponential Equations 9.11 Solving Linear-Quadratic Systems Graphically	1.2 Measure and Construct Segments 1.3 Measure and Construct Angles 1.4 Describe Pairs of Angles 10.1 Lines and Segments that Intersect Circles 12.1 Cross Sections of Solids 13.1 Probability and Set Theory 13.3 Disjoint and Overlapping Events 13.6 Apply Conditional Probabilities 3.4 Prove Lines are Parallel 3.6 Prove Theorems about Perpendicular Lines 5.7 Prove Triangle Congruence by ASA and AAS 6.2 Bisectors of Triangles	1.3a Writing Equations 1.3b Solving Rational Equations 1.4a Absolute Value 1.5a Applying Absolute Value 1.7a Applying Exponents and Radicals 10.1a Measures of Central Tendency 10.2a Measures of Variation 10.3a The Normal Distribution 10.4a Applying the Normal Distribution 10.7a Hypotheses 2.8a Applying Parallel & Perpendicular Lines 3.1a Solving Linear Systems of Two Equations 3.3a Applying Solving Linear Systems of Three Equations 3.5a Systems of Two Linear Inequalities 3.5b Graphing in the Complex Plane 3.6a Applying Systems of Two Linear Inequalities

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7.7 Make Two-Way Frequency Tables 8.9 Compute with Scientific Notation 9.7 Apply the Pythagorean Theorem	9.5 Solving Quadratic Equations by Graphing and Taking the Square Root 9.8 Solve Quadratic Equations by Quadratic Formula	8.5 Use Proportionality Theorems 9.6 The Tangent Ratio 9.9 Law of Sines and Law of Cosines	3.9b Applying Using Notation with Complex Numbers 4.3a Matrix Multiplication 4.5a Determinants and Cramer's Rule 4.7a Applying Inverse Matrices 5.10b Applying the Unit Circle 5.3a Applying Graphing in Standard Form 5.4b Solving Triangles 5.5a Applying Properties of Quadratics 5.5b Applying Solving Triangles 5.6b More Applying Solving Triangles 5.8a Applying Solving Quadratic Functions Using Square Roots 5.8b The Unit Circle 5.9b Using the Unit Circle 6.2b Applying Magnitude and Direction of Vectors 6.3a Applying Composite Functions 6.4b Operations with Vectors 6.5a Applying Graphing Absolute Value Inequalities 7.1a Intro to Polynomials 7.4a Applying Polynomial Division

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			7.5a Solving Polynomial Equations by Factoring 7.6a Graphs of Polynomial Functions 7.6b Applying Trigonometric Equations 7.7a Applying Graphs of Polynomial Functions 8.2b Arithmetic Series and Sequences 8.6b Infinite Geometric Series 8.7a Applying Radical Functions 9.1a Counting, Permutations, and Combinations 9.2a Probability and Compound Probability

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PATHWAY2CAREERS
Education with Destination

Pathway2Careers Pre-Algebra MP 6	Pathway2Careers Algebra I MP 6	Pathway2Careers Geometry MP 6	Pathway2Careers Algebra II MP 6
1.1 Translations	1.3 Unit Analysis	1.10 Area in the Coordinate Plane	1.1a Solving Equations in One Variable
1.3 Reflections	10.10 Comparing Linear, Exponential, and Quadratic Models	1.2 Measure and Construct Segments	1.1b Multiplying and Dividing Rational Expressions
10.2 Apply Area of Circles	10.4 Graphing Piecewise-Defined Functions	1.3 Measure and Construct Angles	1.2b Adding and Subtracting Rational Expressions
10.3 Find Volume of Cylinders	10.8 Reflections of Graphs of Functions	10.1 Lines and Segments that Intersect Circles	1.3b Solving Rational Equations
10.7 Find Volume of Spheres	11.1 Radical Expressions	10.11 Apply Circles in the Coordinate Plane	1.5b Using Polynomial Division to Solve Rational Equations
10.8 Apply Volume of Spheres	11.12 Applying Inverse Functions	10.2 Finding Arc Measures	1.7a Applying Exponents and Radicals
10.9 Find Volumes of Composite Solids	11.2 Describing and Graphing Square Root Functions	10.3 Using Chords	10.1a Measures of Central Tendency
2.1 Operations with Rational Numbers	12.7 Representing Data with Histograms	10.4 Inscribed Angles	10.2a Measures of Variation
4.5 Apply Equations for Proportional Relationships	2.7 Solving Literal Equations and Formulas	10.5 Inscribed Polygons	10.4a Applying the Normal Distribution
4.6 Solve Percent Problems	4.10 Using Graphs of Linear Functions	11.2 Area of Parallelograms, Trapezoids, and Regular Polygons	10.8a Applying Hypotheses
5.14 Apply Nonlinear Functions	5.10 Graphing Systems of Linear Inequalities	12.11 Volumes of Spheres	2.10a Compound Inequalities
5.4 Apply Linear Equations in Two Variables	5.11 Applying Systems of Linear Inequalities	12.8 Volume of Prisms and Pyramids	2.1a Function Notation
7.5 Apply Trend Lines	7.8 Applying Recursively-Defined Sequences	13.8 Applying Probabilities of Independent Events	2.1b Parabolas
7.6 Display Data from Two-Way Tables		3.1 Pairs of Lines and Angles	2.2b Circles
7.7 Make Two-Way Frequency Tables		4.1 Translations	2.3a Slopes, Intercepts, and Linear Graphs
8.10 Apply Scientific Notation in Earth Science		4.10 Dilations	2.5a Writing Linear Equations
8.12 Estimating Quantities			

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8.3 Quotient of Powers Property 8.4 Zero and Negative Exponents 8.5 Apply Properties of Exponents in Software Development 8.7 Apply Properties of Exponents in Ecology 8.8 Scientific Notation 9.2 Apply Finding Square Roots 9.3 Find Cube Roots	9.12 Solving Linear-Quadratic Systems Algebraically 9.4 Applying Graphs of Quadratic Functions 9.9 Using Quadratic Equations to Solve Problems	4.3 Reflections 4.5 Rotations 5.1 Classifying Triangles 5.5 Prove Triangle Congruence by SAS and SSS 6.3 Medians and Altitudes of Triangles 6.5 The Triangle Midsegment Theorem 9.1 The Pythagorean Theorem 9.3 Special Right Triangles	2.7a Parallel & Perpendicular Lines 3.1a Solving Linear Systems of Two Equations 3.1b Properties of Complex Numbers 3.3b Applying Operations with Complex Numbers 3.4a Using Systems of Linear Equations 3.4b Completing the Square Using Complex Numbers 3.6b Applying Moduli and Arguments 3.8b Using Notation with Complex Numbers 4.4b Logarithms 4.5b Properties of Logarithmic Functions 4.6b Applying Properties of Logarithmic Functions 4.7b Solving Exponential and Logarithmic Equations 4.8b Applying Solving Exponential and Logarithmic Equations 5.1b Sine, Cosines, and Tangent in Right Triangles

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			5.2a Graphing In Standard Form 5.2b Inverse Sine, Cosine, and Tangent in Right Triangles 5.3b The Law of Sines and the Law of Cosines 5.4b Solving Triangles 5.7a Solving Quadratic Functions Using Square Roots 5.7b Radians 5.8b The Unit Circle 6.1a Graphing Absolute Value Functions 6.1b Magnitude and Directions of Vectors 6.3b Vector Components 6.4a Graphing Absolute Value Inequalities 6.5a Applying Graphing Absolute Value Inequalities 6.5b Scalars 6.6a Piecewise Functions 6.6b Applying Scalars 7.1a Intro to Polynomials 7.3b Angle Identities 7.4a Applying Polynomial Division 7.4b Proof of the Identities

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			7.5b Trigonometric Equations 8.1a Roots 8.1b Defining Series and Sequences 8.2a Properties of Rational Exponents 8.3a Composite Functions 9.4a Applying Discrete Probability 9.5a The Binomial Theorem

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Pathway2Careers Pre-Algebra MP 7	Pathway2Careers Algebra I MP 7	Pathway2Careers Geometry MP 7	Pathway2Careers Algebra II MP 7
1.1 Translations 1.10 Dilations 1.12 Similar Figures 1.13 Perimeters and Area of Similar Figures 1.3 Reflections 1.4 Apply Reflections 1.5 Rotations 1.6 Apply Rotations 1.8 Congruent Figures 1.9 Use Rigit Motions to Show Congruent Figures 10.5 Find Volume of Cones 10.6 Apply Volume of Cones 2.1 Operations with Rational Numbers 2.10 Solve Break-Even Problems 2.11 Rewrite Formulas 2.12 Solve One-Step Inequalities 2.13 Solve Two-Step Inequalities 2.14 Apply Solving Inequalities 2.2 Simplify Expressions	1.3 Unit Analysis 1.6 Algebraic Expressions 1.7 Writing and Simplifying Algebraic Expressions 1.8 Structure of Expressions 10.1 Graphing of Absolute Value Functions 10.10 Comparing Linear, Exponential, and Quadratic Models 10.2 Graphing Step Functions 10.4 Graphing Piecewise-Defined Functions 10.6 Translations of Graphs of Functions 10.7 Stretches and Shrinks of Graphs of Functions 10.8 Reflections of Graphs of Functions 10.9 Operations on Functions 11.1 Radical Expressions 11.2 Describing and Graphing Square Root Functions 11.6 Describing and Graphing Cube Root Functions 11.7 Solving Radical Equations	1.4 Describe Pairs of Angles 10.10 Circles in the Coordinate Plane 10.11 Apply Circles in the Coordinate Plane 10.12 Equation of a Parabola 10.2 Finding Arc Measures 10.3 Using Chords 10.4 Inscribed Angles 10.5 Inscribed Polygons 10.7 Angle Relationships in Circles 10.8 Segment Relationships in Circles 11.4 Circumference and Arc Length 11.5 Apply Circumference and Arc Length	1.1a Solving Equations in One Variable 1.3a Writing Equations 1.5a Applying Absolute Value 1.6a Exponents and Radicals 1.7b Graphing Rational Functions 1.8a Scientific Notation 10.1a Measures of Central Tendency 10.2a Measures of Variation 10.8a Applying Hypotheses 2.10a Compound Inequalities 2.1a Function Notation 2.2a Functions, Relations and Inverses 2.2b Circles 2.3a Slopes, Intercepts, and Linear Graphs 2.3b Ellipses 2.4a Applying Slope, Intercepts, and Linear Graphs 2.4b Hyperbolas 2.5a Writing Linear Equations 2.5b Applying Conic Sections

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2.3 Variables and Equations 2.4 Solve One-Step Equations 2.6 Solve Two-Step Equations 2.9 Solve Equations with Variables on Both Sides 3.2 Apply Properties of Parallel Lines 3.3 Angle Relationships in Triangles 3.4 Apply Angle Relationships in Triangles 4.4 Write Equations for Proportional Relationships 4.7 Graph Proportional Relationships 4.8 Apply Graphs of Proportional Relationships 4.9 Compare Proportional Relationships 5.10 Graph Linear Equations in Two Variables 5.11 Interpret Intercepts of Graphs of Linear Equations 5.12 Compare Functions 5.13 Nonlinear Functions 6.10 Solve Special Types of Systems of Linear Equations	12.10 Two-Way Frequency Tables 12.4 Representing Data with Box Plots 12.5 Distributions of Data 12.7 Representing Data with Histograms 2.1 Solving One- and Two-Step Equations 2.3 Solving Multi-Step Equations 2.6 Introduction to Literal Equations and Formulas 2.7 Solving Literal Equations and Formulas 3.1 Inequalities in One Variable 3.2 Writing Linear Inequalities in One Variable 3.4 Solving and Graphing Compound Inequalities - And 3.5 Solving and Graphing Compound Inequalities - Or 3.7 Absolute Value Inequalities in One Variable 4.11 Scatter Plots and Lines of Fit 4.13 Analyzing Lines of Fit 4.2 Features of Functions 4.3 Identifying Linear Functions 4.4 Rate of Change	11.6 Areas of Circles and Sectors 12.10 Volumes of Cylinders and Cones 12.13 Solids of Revolution 12.6 Surfaces Areas of Spheres 13.1 Probability and Set Theory 13.3 Disjoint and Overlapping Events 13.5 Conditional Probability 13.9 Dependent Events 3.1 Pairs of Lines and Angles 3.2 Parallel Lines and Transversals 3.8 Find and Use Slopes of Lines 4.1 Translations 4.12 Transformations and Similarity 4.3 Reflections 4.5 Rotations 4.9 Transformations and Congruence	2.6b Translating Conics 2.7b Applying Translating Conics 2.9a Inequalities and Their Graphs 3.1b Properties of Complex Numbers 3.6b Applying Moduli and Arguments 4.1b Exponential Growth and Decay 4.2a Matrix Operations 4.3b The Number e 4.4a Applying Matrix Multiplication 4.6a Inverse Matrices 5.1a Graphing in Vertex Form 5.1b Sine, Cosines, and Tangent in Right Triangles 5.2a Graphing In Standard Form 5.2b Inverse Sine, Cosine, and Tangent in Right Triangles 5.3b The Law of Sines and the Law of Cosines 5.4a Finding Zeros Using the Quadratic Formula 5.6a Solving Quadratic Functions by Factoring 5.7a Solving Quadratic Functions Using Square Roots

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6.5 Solve Systems of Linear Equations by Adding or Subtracting 6.6 Solve Systems of Linear Equations by Multiplying First 6.8 Solve Manufacturing Tolerance Problems 7.1 Scatter Plots 7.2 Apply Scatter Plots 7.3 Interpret Trend Lines 8.1 Exponents 8.10 Apply Scientific Notation in Earth Science 8.3 Quotient of Powers Property 8.4 Zero and Negative Exponents 8.5 Apply Properties of Exponents in Software Development 8.6 Apply Properties of Exponents Using Orders of Magnitude 8.9 Compute with Scientific Notation 9.1 Find Square Roots 9.9 The Converse of the Pythagorean Theorem	4.5 Standard Form and Slope-Intercept Form 4.6 Equations of Parallel and Perpendicular Lines 4.7 Graphs of Linear Functions 5.1 Solving Systems of Linear Equations by Graphing 5.10 Graphing Systems of Linear Inequalities 5.3 Solving Linear Equations in One Variable by Graphing 5.4 Solving Systems of Linear Equations by Substitution 5.5 Solving Systems of Linear Equations by Elimination 5.7 Special Systems of Linear Equations 5.8 Graphing Linear Inequalities in Two Variables 6.1 Properties of Exponents 6.10 Comparing Exponential Functions 6.2 Understanding Radical and Rational Exponents 6.3 Exponential Functions 6.5 Exponential Growth and Exponential Decay Functions 6.6 Applying Exponential Growth 6.8 Solving Exponential Equations	5.1 Classifying Triangles 5.8 Prove Triangle Congruence by HL 6.1 Perpendicular Angle Bisectors 6.6 Inequalities in One Triangle 6.7 Inequalities in Two Triangles 7.1 Angles of Polygons 7.2 Properties of Parallelograms 7.3 Conditions for Parallelograms 7.5 Properties of Special Parallelograms 7.6 Properties of Trapezoids and Kites 7.7 Identify Special Quadrilaterals 8.2 Prove Triangles Similar by AA 8.3 Prove Triangles Similar by SSS and SAS	5.9b Using the Unit Circle 6.1a Graphing Absolute Value Functions 6.1b Magnitude and Directions of Vectors 6.3b Vector Components 6.4a Graphing Absolute Value Inequalities 6.5b Scalars 6.6a Piecewise Functions 7.2a Long Division, the Factor Theorem, and the Remainder Theorem 7.3a Synthetic Division 7.4a Applying Polynomial Division 7.5a Solving Polynomial Equations by Factoring 8.2b Arithmetic Series and Sequences 8.3b Applying Arithmetic Series and Sequences 8.4a Applying Composite Functions 8.4b Geometric Series and Sequences 8.5a Graphing Radical Functions 8.5b Applying Geometric Series and Sequences 8.6b Infinite Geometric Series

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	7.2 Explicitly-Defined Arithmetic Sequences 7.3 Recursively-Defined Arithmetic Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences 7.8 Applying Recursively-Defined Sequences 8.10 Factoring Quadratic Expressions in Form x^2 + bx + c 8.11 Factoring Quadratic Expressions in Form ax^2 + bx + c 8.12 Solving Polynomial Equations 8.2 Adding and Subtracting Polynomials 8.3 Multiplying Monomial and Binomials 8.4 Multiplying Polynomials 8.5 Special Products of Polynomials 8.7 Factoring Using the GCF 8.8 Factoring the Difference of Squares 8.9 Factoring Using Grouping 9.1 Graphing Quadratic Functions in Standard Form 9.12 Solving Linear-Quadratic Systems Algebraically	9.3 Special Right Triangles 9.4 Similar Right Triangles 9.7 The Sine and Cosine Ratios 9.9 Law of Sines and Law of Cosines	8.7a Applying Radical Functions 9.2a Probability and Compound Probability 9.5a The Binomial Theorem 9.6a The Traveling Salesperson Problem

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	9.2 Graphing Quadratic Functions in Vertex Form and Intercept Form 9.4 Applying Graphs of Quadratic Functions 9.5 Solving Quadratic Equations by Graphing and Taking the Square Root 9.7 Solve Quadratic Equations by Completing the Square		

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Pathway2Careers Pre-Algebra MP 8	Pathway2Careers Algebra I MP 8	Pathway2Careers Geometry MP 8	Pathway2Careers Algebra II MP 8
1.13 Perimeters and Area of Similar Figures 1.2 Apply Translations 10.1 Find Circumference and Area of Circles 3.3 Angle Relationships in Triangles 3.5 Angle-Angle Similarity 4.7 Graph Proportional Relationships 4.8 Apply Graphs of Proportional Relationships 4.9 Compare Proportional Relationships 8.5 Apply Properties of Exponents in Software Development 8.7 Apply Properties of Exponents in Ecology 9.1 Find Square Roots 9.3 Find Cube Roots 9.6 The Pythagorean Theorem	10.10 Comparing Linear, Exponential, and Quadratic Models 10.8 Reflections of Graphs of Functions 10.9 Operations on Functions 2.6 Introduction to Literal Equations and Formulas 4.1 Relations and Functions 4.10 Using Graphs of Linear Functions 4.3 Identifying Linear Functions 6.6 Applying Exponential Growth 7.1 Understanding Sequences 7.5 Explicitly-Defined Geometric Sequences 7.6 Recursively-Defined Geometric Sequences 7.8 Applying Recursively-Defined Sequences 8.12 Solving Polynomial Equations 8.2 Adding and Subtracting Polynomials	1.6 Classify Polygons 12.1 Cross Sections of Solids 12.11 Volumes of Spheres 12.13 Solids of Revolution 12.8 Volume of Prisms and Pyramids 13.2 Find Probabilities Using Permutations and Combinations 13.7 Independent Events 2.1 Use Inductive Reasoning 3.4 Prove Lines are Parallel 5.11 Equilateral and Isosceles Triangles 5.2 Angles in Triangles 9.1 The Pythagorean Theorem 9.6 The Tangent Ratio	1.1a Solving Equations in One Variable 1.1b Multiplying and Dividing Rational Expressions 1.4a Absolute Value 1.6a Exponents and Radicals 1.7b Graphing Rational Functions 1.8a Scientific Notation 10.3a The Normal Distribution 10.5a Randomness and Bias 2.10a Compound Inequalities 2.2a Functions, Relations and Inverses 2.6b Translating Conics 2.7a Parallel & Perpendicular Lines 2.9a Inequalities and Their Graphs 3.1b Properties of Complex Numbers 3.2a Solving Linear Systems of Three Equations 3.2b Operations with Complex Numbers 3.4b Completing the Square Using Complex Numbers 3.7b Distance and Midpoint

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	8.5 Special Products of Polynomials 8.6 Operations with Polynomials 8.9 Factoring Using Grouping 9.6 Solve Quadratic Equations by Factoring		3.8b Using Notation with Complex Numbers 4.5b Properties of Logarithmic Functions 5.1a Graphing in Vertex Form 5.2a Graphing In Standard Form 5.3b The Law of Sines and the Law of Cosines 5.4a Finding Zeros Using the Quadratic Formula 5.7b Radians 5.8b The Unit Circle 6.2a Composite Functions 7.1b Intro to Trigonometric Identities 7.2a Long Division, the Factor Theorem, and the Remainder Theorem 7.2b Sum and Difference Identities 7.3a Synthetic Division 7.4b Proof of the Identities 7.5b Trigonometric Equations 8.1a Roots 8.1b Defining Series and Sequences 8.2a Properties of Rational Exponents 8.3a Composite Functions

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			8.3b Applying Arithmetic Series and Sequences 8.4a Applying Composite Functions 8.5a Graphing Radical Functions 8.5b Applying Geometric Series and Sequences 9.3a Discrete Probability

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Appendix A: Tennessee Standard Alignment Process

Upon receiving feedback from the Tennessee Textbook Committee regarding some TN standards not aligned to the Pathway2Careers (P2C) Math Curriculum, NS4ed has partnered with EdGate. This third-party correlation service provides comprehensive standard reports providing clear crosswalks between Tennessee State Standards and Pathway2Careers (P2C) Math Curriculum.

EdGate has verified the P2C Math Curriculum fully covers all Tennessee State Standards and Mathematical Practices adopted for the 2023-24 school year. Using the EdGate reports, NS4ed has updated the P2C Teacher Materials including the P2C Instructional Scope and Sequence, Pacing Guides, Table of Contents, and Curriculum Standards Crosswalk. *See original reports.*

As part of the alignment review process, NS4ed critically analyzed the standards noted as missing in the initial review:

Algebra I	A1.A.REI.B.3.a	A1.F.IF.A.2.a	A1.F.IF.A.2.b	A1.F.IF.A.3	A1.S.ID.A.1	Mathematical Practices
Geometry	G.N.Q.A.1.a G.N.Q.A.1.b G.N.Q.A.1.c	G.CO.D.12 G.SRT.A.1 G.SRT.C.5.b	G.GPE.A.3 G.S.CP.A.1.a G.S.CP.A.1.b	G.S.CP.B.2 G.S.CP.B.3.a	G.S.CP.B.3.b G.S.CP.C.4	
Algebra II	A2.N.RN.A.1.b A2.N.Q.A.1.a A2.N.Q.A.1.b A2.N.Q.A.1.c A2.N.Q.A.1.d A2.N.M.A.1 A2.N.M.A.2.a A2.N.M.A.2.b	A2.N.M.A.2.c A2.N.M.A.2.d A2.N.M.A.3 A2.A.SSE.A.1.a A2.A.SSE.A.1.b A2.A.CED.A.2 A2.F.IF.A.2 A2.F.IF.B.5.b	A2.F.IF.B.6.a A2.F.IF.B.6.b A2.F.BF.A.1.a A2.F.BF.A.1.b A2.F.BF.B.4.a A2.F.BF.B.4.b A2.F.BF.B.4.c	A2.F.LE.A.1.a A2.F.LE.A.1.b A2.F.LE.A.1.c A2.F.LE.A.2 A2.S.ID.A.1 A2.S.ID.A.3 A2.S.ID.B.4	A2.S.IC.A.2 A2.S.IC.A.3 A2.S.CP.A.1 A2.S.CP.B.2.a A2.S.CP.B.2.b A2.S.CP.B.3 A2.S.CP.C.4	

All Pathway2Careers materials now reflect the most accurate alignment to TN State Standards and Mathematical Practices.

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