Quarter 1		Quarter 2			Quarter 3		Quarter 4	
Expressions, Equations, Inequalities Various Functions, Equations & Their Graphs, Linear Systems, Quadratic Functions & Equations		Polynomials, Radicals, Inverses, Logarithms, Exponential Functions			Rational Expressions and Equations, Arithmetic and Geometric Sequences and Series, Probability		Trigonometric Functions, Pythagorean Identities, Unit Circle	
August 6 2018 – October 5, 2018		October 15, 2018 – December 19, 2018			January 7, 2019 – March 8, 2019		March 18, 2019 – May 23, 2019	
A2.A.REI. D.6	A2.A.REI. B.3	A2.A.APR. A.1	A2. F.IF. A.1	A2. F.IF. B.3b	A2.A.REI. A.1	A2.S.CP. A.2	A2.F.TF.A.1	
A2.F.BF. A.1	A2.A.REI. B.3a	A2.A.APR. A.2	A2. F.IF. A.2	A2. F.IF. B.3c	A2.A.REI. A.2	A2.S.CP.A.3	A2.F.TF.A.1a	
A2.F.BF. A.1a	A2. S. ID. B.2	A2.A.REI. A.1	A2. A. CED.A.1	A2. F.IF. B.4a	A2.A.REI. D.6	A2.S.CP.A.4	A2.F.TF.A.1b	
A2.F.BF.A.1b	A2. A.N.Q.A.1	A2.A.REI. A.2	A2. A. CED.A.2	A2. F.IF. B.5	A2.A.SSE. B.3	A2.S.CP.B.5	A2.F.TF.A.2	
A2. A. CED.A.1		A2.A.REI. D.6	A2.N.RN. A.1	A2. F.LE. A.1	A2.F.BF. A.1a	A2.S.CP.B.6	A2.F.TF.B.3	
A2. A. CED.A.2		A2.A.SSE. A.1	A2.N.RN. A.2	A2. F.LE. A.2	A2.F.BF. A.1b	A2. S.ID. A.1	A2.F.TF.B.3a	
A2.A.REI. C.4		A2.A.SSE. B.2/2a	A2.A.APR. B.3	A2. S.ID. B.2	A2.F.BF. A.2	A2. A. APR.C.4	A2.F.TF.B.3b	
A2.REI. C.5		A2.A.SSE. B.3	A2.A.APR. C.4	A2. A.N.Q.A.1	A2. S.IC.A.1	A2. F.BF.B.4	A2. A.N.Q.A.1	
A2. N.C.N. A.1		A2.F.BF. A.1/1a	A2. F.IF. B.3a	A2. F.BF.B.3	A2. S.IC.A.2	A2. A.N.Q.A.1		
A2. N.C.N. A.2		A2.F.BF. A.1b	A2. F.IF.B.3	A2. F.BF.B.4	A2. F. IF.A.1	A2. F. IF.B.3		
A2. N.C.N. B. 3				A2. F.LE.B.3	A2.S.CP. A.1			

Tennessee Mathematics Standards

■Major Content ➢ Supporting Content ★(star) Modeling Standard/Domain

Introduction

Destination 2025, Shelby County Schools' 10-year strategic plan, is designed not only to improve the quality of public education, but also to create a more knowledgeable, productive workforce and ultimately benefit our entire community.

What will success look like?

In order to achieve these ambitious goals, we must collectively work to provide our students with high quality, college and career ready aligned instruction. The Tennessee State Standards provide a common set of expectations for what students will know and be able to do at the end of a grade. The State of Tennessee provides two sets of standards, which include the Standards for Mathematical Content and The Standards for Mathematical Practice. The Content Standards set high expectations for all students to ensure that Tennessee graduates are prepared to meet the rigorous demands of mathematical understanding for college and career. The eight Standards for Mathematical Practice describe the varieties of expertise, habits of mind, and productive dispositions that educators seek to develop in all students. The Tennessee State Standards also represent three fundamental shifts in mathematics instruction: **focus, coherence and rigor**.

Tennessee Mathematics Standards

The **Standards for Mathematical Practice** describe varieties of expertise, habits of minds and productive dispositions that mathematics educators at all levels should seek to develop in their students. These practices rest on important National Council of Teachers of Mathematics (NCTM) "processes and proficiencies" with longstanding importance in mathematics education. Throughout the year, students should continue to develop proficiency with the eight Standards for Mathematical Practice. The following are the eight Standards for Mathematical Practice:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of them.
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.

This curriculum map is designed to help teachers make effective decisions about what mathematical content to teach so that ultimately our students can reach Destination 2025. Throughout this curriculum map, you will see resources as well as links to tasks that will support you in ensuring that students are able to reach the demands of the standards in your classroom. In addition to the resources embedded in the map, there are some high-leverage resources around the content standards and mathematical practice standards that teachers should consistently access. For a full description of each, click on the links below.

Tennessee Mathematics Content Standards

Standards for Mathematical Practice

Literacy Skills for Mathematical Proficency

Tennessee Mathematics Standards

Structure of the Standards

Structure of the TN State Standards include:

- **Content Standards** - Statements of what a student should know, understand, and be able to do.
- **Clusters** - Groups of related standards. Cluster headings may be considered as the big idea(s) that the group of standards they represent are addressing. They are therefore useful as a quick summary of the progression of ideas that the standards in a domain are covering and can help teachers to determine the focus of the standards they are teaching.
- **Domains** - A large category of mathematics that the clusters and their respective content standards delineate and address. For example, Number and Operations – Fractions is a domain under which there are a number of clusters (the big ideas that will be addressed) along with their respective content standards, which give the specifics of what the student should know, understand, and be able to do when working with fractions.
- **Conceptual Categories** – The content standards, clusters, and domains in the 9th-12th grades are further organized under conceptual categories. These are very broad categories of mathematical thought and lend themselves to the organization of high school course work. For example, Algebra is a conceptual category in the high school standards under which are domains such as Seeing Structure in Expressions, Creating Equations, Arithmetic with Polynomials and Rational Expressions, etc.

Tennessee Mathematics Standards

How to Use the Maps

Overview
An overview is provided for each quarter and includes the topics, focus standards, intended rigor of the standards and foundational skills needed for success of those standards.

Your curriculum map contains four columns that each highlight specific instructional components. Use the details below as a guide for information included in each column.

Tennessee State Standards
TN State Standards are located in the left column. Each content standard is identified as Major Content or Supporting Content (for Algebra I, Algebra II & Geometry only). A key can be found at the bottom of the map.

Content
This section contains learning objectives based upon the TN State Standards. Best practices tell us that clearly communicating measurable objectives lead to greater student understanding. Additionally, essential questions are provided to guide student exploration and inquiry.

Instructional Support & Resources
District and web-based resources have been provided in the Instructional Support & Resources columns. You will find a variety of instructional resources that align with the content standards. The additional resources provided should be used as needed for content support and scaffolding. The inclusion of vocabulary serves as a resource for teacher planning and for building a common language across K-12 mathematics. One of the goals for Tennessee State Standards is to create a common language, and the expectation is that teachers will embed this language throughout their daily lessons.

Tennessee Mathematics Standards

Topics Addressed in Quarter

Polynomial Operations & Functions
Analyzing Graphs of Polynomial Functions
Rational Exponents and Expressions
Square Root and Radical Equations
Radical and Inverse Functions
Exploring and Graphing Exponential Functions.

Overview

In quarter 2 students build upon the reasoning used to solve equations and their fluency in factoring polynomial expressions. They will build functions that model a relationship between two quantities, and represent and solve equations and inequalities graphically. Later in the quarter students will solve systems of linear and nonlinear equations to which no real solutions exist and then relate this to the possibility of quadratic equations with no real solutions. Students will then discover that complex numbers can be used in finding real solutions of polynomial equations. To reach this goal, students will work with properties and operations of complex numbers and then apply that facility to factor polynomials with complex zeros.

Content Standard	Type of Rigor
A2.CED.A.1	Procedural Fluency, Application, Conceptual Understanding
A2.CED.A.2	Procedural Fluency
A2.A.APR.A.2 (formerly A-APR.A.3)	Conceptual Understanding and Procedural Fluency
A2.F.IF.A.2 (formerly F-IF.B.6)	Conceptual Understanding and Procedural Fluency
A2.F.IF.A.1 (formerly F-IF.B.4)	Conceptual Understanding
A2.F.BF.A.1/1a/1b	Conceptual Understanding & Application, Procedural Fluency
A2.A.REI.D.6 (formerly A-REI.D.11)	Conceptual Understanding & Procedural Fluency
A2.A.APR.A.1 (formerly A-APR.A.2)	Conceptual Understanding and Procedural Fluency
A2.N.RN.A.1 (formerly N-RN.A.1)	Conceptual Understanding
A2.N.RN.A.2 (formerly N-RN.A.2)	Conceptual Understanding and Procedural Fluency
A2.A.REI.A.1 (formerly A-REI. A.1)	Conceptual Understanding
A2.A.REI.A.2 (formerly A-REI. A.2)	Conceptual Understanding and Procedural Fluency
A2.A.SSE.A.1 (formerly A-SSE.A.2)	Conceptual Understanding and Procedural Fluency
A2.A.SSE.B.2/2a (formerly 3/3c)	Procedural Fluency and Conceptual Understanding
A2.A.SSE.A.1 (formerly A-SSE.A.2)	Conceptual Understanding
A2.A.SSE.B.3 (formerly A-SSE.B.4)	Procedural Fluency and Application

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
Polynomials and Polynomial Functions **(Allow approximately 4 weeks for instruction, review, and assessment)**			
Domain: Arithmetic with Polynomials and Rational Expressions **Cluster:** Understand the relationship between zeros and factors of Polynomials ■ **A2.A.APR.A.2** (formerly A-APR.A.3) 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. **Domain:** Quantities **Cluster:** Reason quantitatively and use units to solve problems. ➢ **A2.F.IF.B.5** (formerly F.IF.C.9) Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	**Essential Question(s):** How can algebra describe the relationship between a function and its graph? **Objective(s):** • Students will classify polynomials. • Students will use the factored forms of polynomials to find zeros of a function. Students will use the factored forms of polynomials to sketch the components of graphs between zeros. • Students will graph polynomials and describe end behavior. • Students perform arithmetic operations on polynomials and write them in standard form. • Students understand the structure of polynomial expressions by quickly determining the first and last terms if the polynomial were to be written in standard form.	***Use the textbook resources to address procedural fluency.*** **Pearson** 5-1 Polynomial Functions **Glencoe** 6.1 Operations with Polynomials ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Additional Resources** e Math instruction: Unit 10 Illustrative Math: Graphing from Factors 1 Illustrative Math: Graphing from Factors II Illustrative Math: Temperature Change Illustrative Math: Throwing Baseballs Math Nspired: Application of Polynomials Math Shell: Sorting Functions Polynomial End Behavior Graphs of Higher Degree Polynomials End Behavior HS Flip Book with examples of each Standard *Not accessible via SCS server	**Vocabulary** Monomial, degree of a monomial, polynomial, degree of a polynomial, polynomial function, standard form of a polynomial function, turning point, end behavior Polynomial Foldable **Writing in Math** Why does the end behavior depend on the leading term? Have students to write a sentence(s) and create at least two examples about their thinking. **Resources in the Pearson textbook:** " Solve it," Think About a Plan, Find the Errors, Multiple word problems, Reasoning question, Compare/contrast question, Open-ended questions, and Connections to other real world topics and/or other subjects
Domain: Arithmetic with Polynomials and Rational Expressions **Cluster:** Understand the relationship between zeros and factors of Polynomials ■ **A2.A.APR.A.2** (formerly A-APR.A.3) Identify	**Essential Question(s):** How are the linear factors of a polynomial related to the zeros of the polynomial? **Objective(s):** • Students will analyze the factored form of a	***Use the textbook resources to address procedural fluency.*** **Pearson** 5-2 Polynomials, Linear Factors, and Zeros	**Vocabulary** Factor theorem, multiple zero, multiplicity, relative maximum, relative minimum Factoring Flow Chart

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial. **Domain:** Linear, Quadratic, and Exponential Models **Cluster:** Interpret functions that arise in applications in terms of the context. ■ **A2.F.IF.A.2** (formerly F-IF.B.6) Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. **Domain:** Interpreting Functions **Cluster:** Analyze functions using different representations. ➢ **A2.F.IF.B.5** (formerly F-IF.C.9) Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	polynomial. • Students will write a polynomial function given its zeros and use the zeros to construct a rough graph of the function defined by the polynomial. • Students create exponential functions to model real-world situations. • Students use logarithms to solve equations of the form $f(t)=a\cdot bc^t$ for t. • Students decide which type of model is appropriate by analyzing numerical or graphical data, verbal descriptions, and by comparing different data representations.	**Glencoe** 6.3 Polynomials Functions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 3 Lesson 27 **Additional Resources:** Math Nspired: Exploring Polynomials: Factors, Roots, and Zeros Illustrative Math: The High School Gym A2.F.IF.A.2 (F-IF.B.6) Illustrative Math: Mathemafish Population A2.F.IF.A.2 (F-IF.B.6) Illustrative Math: Throwing Baseballs A2.F.IF.B.5 (F-IF.C.9) HS Flip Book with examples of each Standard	**Writing in Math** Can zero be a solution of a polynomial function? Create and solve an example Explain your response.
Domain: Arithmetic with Polynomials and Rational Expressions **Cluster:** Understand the relationship between zeros and factors of Polynomials ■ **A2.A.APR.A.2** (formerly A-APR.A.3) 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.	**Essential Question(s):** • Will a graph help you to check all solutions to a polynomial equation? • How can you check imaginary solutions? **Objective(s):** • Students will solve polynomial equations by factoring and by graphing. • Students will interpret key features of graphs and tables in terms of quantities, given a	***Use the textbook resources to address procedural fluency.*** **Pearson** 5-3 Solving Polynomial Equations **Glencoe** 6.5 Solving Polynomial Functions	**Vocabulary** Sum of cubes, differences of cubes, zeros of polynomials **Writing in Math** When should you use the quadratic formula to solve a polynomial?

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
Cluster: Use polynomial identities to solve problems. ➢ **A2.A.APR.B.3** Know and use polynomial identities to describe numerical relationships. **Domain:** Interpreting Functions **Cluster:** Interpret functions that arise in applications in terms of the context. ■ **A2.F.IF.A.1** (formerly 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. ★ Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior. **Domain:** Building Functions **Cluster:** Build a function that models a relationship between two quantities ■ **A2. F.BF.A.1** (formerly F-BF.A.1) Write a function that describes a relationship between two quantities. ★ **a.** Determine an explicit expression, a recursive process, or steps for calculation from a context.	function that models a relationship between two quantities. • Students will sketch graphs showing key features given a verbal description of the relationship. • Students will factor certain forms of polynomial expressions by using the structure of the polynomials. • Students will use the factored forms of polynomials to find zeros of a function. • Students find solutions to polynomial equations where the polynomial expression is not factored into linear factors. • Students construct a polynomial function that has a specified set of zeros with stated multiplicity. • Students use the factored forms of polynomials to sketch the components of graphs between zeros. • Students transition between verbal, numerical, algebraic, and graphical thinking in analyzing applied polynomial problems. • Students interpret and represent relationships between two types of quantities with polynomial functions.	***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 1 Lessons 11 & 14 **Additional Resources:** Illustrative Math: Graphing from Factors 1 A2.APR.A.2 (A-APR.A.3) Illustrative Math: Introduction to Polynomials - College Fund A2.A.REI.D.6 (A-REI.D.11) Illustrative Math: A Sum of Functions A2.F.BF.A.1 (F-BF.A.1) Illustrative Math: Building a Quadratic Function f(x)=x^2 A2.F.BF.B.3 Illustrative Math: Hoisting the Flag 1 A2.F.IF.A.1 (F-IF.B.4) Illustrative Math: Containers A2.F.IF.A.1 (F-IF.B.4) Illustrative Math: Completing the Square Illustrative Math: Giving Raises A2.N.Q.A.1 (formerly N-Q.B.2) Real Number Property Rules HS Flip Book with examples of each Standard	

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model. **Cluster:** Build new functions from existing functions ➢ **A2.F.BF.B.3** (Formerly 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. Experiment with cases and illustrate an explanation of the effects on the graph using technology. **Domain:** Reasoning with Equations and Inequalities **Cluster:** Represent and solve equations and inequalities graphically. ■**A2.A.REI.D.6** (formerly A-REI. D.11) 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 the approximate solutions using technology. ★ **Domain:** Number Quantities **Cluster:** Reason quantitatively and use units to solve problems.			

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
➢ **A2.N.Q.A.1** (formerly N-Q.B.2) Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling. Descriptive modeling refers to understanding and interpreting graphs; identifying extraneous information; choosing appropriate units; etc. ★			
Domain: Arithmetic with Polynomials and Rational Expressions **Cluster:** Understand the relationship between zeros and factors of Polynomials ■ **A2.A.APR.A.1** (formerly A-APR.A.2) Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x). **Domain:** Arithmetic with Polynomials and Rational Expressions **Cluster:** Understand the relationship between zeros and factors of Polynomials ➢ **A2.A.APR.C.4** (formerly A-APR.C.6) Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or, for the more complicated examples, a computer algebra system.	**Essential Question(s):** When is it best to use long division vs. synthetic division? **Objective(s):** • Students will divide polynomials by long division. • Students will divide polynomials by synthetic division. • Students understand the Fundamental Theorem of Algebra; that all polynomial expressions factor into linear terms in the realm of complex numbers. • Students know and apply the remainder theorem and understand the role zeros play in the theorem. • Students connect long division of polynomials with the long division algorithm of arithmetic and use this algorithm to rewrite rational expressions that divide without a remainder. • Students define rational expressions and write them in equivalent forms. • Students multiply and divide rational expressions and simplify using equivalent expressions. • Students perform addition and subtraction of rational expressions.	***Use the textbook resources to address procedural fluency.*** **Pearson** 5-4 Dividing Polynomials 5-5 Theorems About Roots of Polynomial equations **Glencoe** 6.2 Dividing Polynomials 6.7 Roots and Zeros ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 1 Topic B Lesson 19 Module 1 Lessons 4, 22, 24 & 25 **Additional Resource(s):** Math Nspired: Watch Your p's and q's Illustrative Math: Graphing from Factors 3 A2.A.APR.A.1 (A-APR.A.2) Illustrative Math: Combined Fuel Efficiency A2.A.APR.C.4 (A-APR.C.6)	**Vocabulary** Synthetic division, remainder theorem, Rational Root Theorem, Conjugate Root Theorem, Descartes' Rule of Signs **Writing in Math** How does dividing a polynomial by a binomial determine if that binomial is a factor of the polynomial? After applying the Conjugate Root Theorem, how do you know that you have found all of the roots of a polynomial?

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
		HS Flip Book with examples of each Standard	
Domain: Interpreting Functions **Cluster:** Analyze functions using different representations. ➢ **A2.F.IF.B.3** (formerly F-IF.C.7c) Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology. b. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	**Essential Question(s):** • How can regression analysis help determine the best fit polynomial to given data? • What are the different transformations that can be applied to a power function? **Objective(s):** • Students will fit data to linear, quadratic, cubic, or quartic models. • Students will apply transformations to graphs of polynomials. • Students will use the factored forms of polynomials to find zeros of a function. • Students will use the factored forms of polynomials to sketch the components between zeros. • Students will graph polynomials functions and describe end behavior based upon the degree of the polynomial.	***Use the textbook resources to address procedural fluency.*** **Pearson** 5-8 Polynomial Models in the Real World 5-9 Transforming Polynomial Functions **Glencoe** 6.4 Analyzing Graphs and Modeling Data of Polynomial Functions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 1 Topic B Lessons 14-16 **Additional Resources:** Find dimensions of a piece of land and riding the bus Illustrative Math: Graphs of Power Functions A2.F.IF.B.3 (F-IF.C.7c)	**Vocabulary** Linear regression (linreg), quadratic regression (quadreg), cubic regression (cubicreg), Power function, constant of proportionality **Writing in Math** Explain how to find the degree of a polynomial by finding differences. What are the different ways that a parent function can be transformed?
Radical Functions and Rational Exponents **(Allow approximately 2 weeks for instruction, review, and assessment)**			
Domain: The Real Number System **Cluster:** Extend the properties of exponents to rational exponents. ■ **A2.N.RN.A.1** (formerly N-RN.A.1) Explain how the definition of the meaning of rational exponents follows from extending	**Essential Question(s):** How does the index relate to the rational exponent of a radical? **Objective(s):** • Students will simplify expressions with rational exponents.	***Use the textbook resources to address procedural skill and fluency.*** **Pearson** 6.4 Rational Exponents	**Vocabulary** Rational exponent **Writing in Math** When is it necessary to use absolute value bars when simplifying radicals?

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. ■ **A2.N.RN.A.2** (formerly N-RN.A.2) Rewrite expressions involving radicals and rational exponents using the properties of exponents.	• Students will calculate quantities that involve positive and negative rational exponents.	**Glencoe** 7.6 Rational Expressions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 3 Lessons 3-4 **Additional Resources:** TN Task Arc –Investigating Exponents TI Classroom Activity: Rational Exponents Bacterial Growth Illustrative Math: Evaluating a Special Exponential A2.R.RN.A.1 Illustrative Math: Checking a Calculation of a Decimal A2.N.RN.A.2 Math Shell: Evaluating Statements About Radicals* ***Not accessible via SCS server** HS Flip Book with examples of each Standard	**Resources in the Pearson textbook:** " Solve it," Think About a Plan, Find the Errors, Multiple word problems, Reasoning question, Compare/contrast question, Open-ended questions, and Connections to other real world topics and/or other subjects
Domain: Reasoning with Equations and Inequalities **Cluster:** Represent and solve equations and inequalities graphically. ■ **A2.A.REI.D.6** (formerly A-REI.D.11) 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 the approximate solutions using technology. ★Include cases where f(x)	**Essential Question(s):** How do you determine the inverse you need to use when solving radical equations? **Objective(s):** • Students will solve square root and other radical equations. • Students factor certain forms of polynomial expressions by using the structure of the polynomials. • Students use the structure of polynomials	***Use the textbook resources to address procedural fluency.*** **Pearson** 6.5 Solving Square Root and Other Radical Equations **Glencoe** 7.7 Solving Radical Equations and Inequalities	**Vocabulary** Radical equation, square root equation **Writing in Math** Why does squaring both sides of a square root equation not always create an equivalent equation?

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. **Domain:** Reasoning with Equations and Inequalities **Cluster:** Represent and solve equations and inequalities graphically. ■ **A2.A.REI.A.1** (formerly A-REI. A.1) Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. **Domain:** Reasoning with Equations and Inequalities **Cluster:** Represent and solve equations and inequalities graphically. ■ **A2.A.REI.A.2** (formerly A-REI. A.2) Solve rational and radical equations in one variable, and identify extraneous solutions when they exist. **Domain:** Creating Equations **Cluster:** Create equations that describe numbers or relationships. ■ **A2.A.CED.A.1** (formerly A-CED.A.1) Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and rational and exponential functions. ■ **A2.A.CED.A.2** Rearrange formulas to	to identify factors. • Students know and apply the remainder theorem and understand the role zeros play in the theorem. • Students develop facility in solving radical equations. • Students solve rational equations, monitoring for the creation of extraneous solutions. • Students solve word problems using models that involve rational expressions. • Students solve simple radical equations and understand the possibility of extraneous solutions. They understand that care must be taken with the role of square roots so as to avoid apparent paradoxes. • Students explain and justify the steps taken in solving simple radical equations.	***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 3 Lesson 16 Module 1 Lessons 12-13 Module 1 Lesson 26 -29 Module 1 Lesson 19 **Additional Resources:** e Math instruction: Unit 8 Illustrative Math: Zero Product Property 1 A2.A.REI.A.1 Illustrative Math: Zero Product Property 2 A2.REI.A.1 Illustrative Math: Zero Product Property 3 Illustrative Math: Basketball A2.A.REI.A.2 Real Number Property Rules HS Flip Book with examples of each Standard	

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
highlight a quantity of interest, using the same reasoning as in solving equations.			
Domain: Building Functions **Cluster:** Build new functions from existing function. ➢ **A2. F.BF.B.4a** (formerly F-BF.B.4) Find inverse functions. a. Find the inverse of a function when the given function is one-to-one. **Domain:** Building Functions **Cluster:** Build a function that models a relationship between two quantities. ■ **A2. F.BF.A.1** (Formerly F-BF.A.1) Write a function that describes a relationship between two quantities. ★ **a.** Determine an explicit expression, a recursive process, or steps for calculation from a context. For example, given cost and revenue functions, create a profit function. *For A2.F.BF.A.1a:* *i) Tasks have a real-world context.* *ii) Tasks may involve linear functions, quadratic functions, and exponential functions.* **Cluster:** Analyze functions using different representations. ➢ **A2.F.IF.B.3** Graph functions expressed symbolically and show	**Essential Question(s):** How can the horizontal line test help you determine if an inverse will be a function? Why is the square root function only half of its' quadratic inverse? **Objective(s):** • Students will find the inverse of a relation or function. • Students will graph square root and other radical functions. • Students will write explicit polynomial expressions for sequences by investigating successive differences of those sequences.	***Use the textbook resources to address procedural fluency.*** **Pearson** 6.7 Inverse Relations and Functions 6.8 Graphing Radical Functions **Glencoe** 7.2 Inverse Functions and Relations 7.3 Square Root Functions and Operations ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 1 Topic A Lesson 1 **Additional Resources:** Math Nspired: Functions and Inverses What is the Inverse of a Function? HS Flip Book with examples of each Standard	**Vocabulary** Inverse relation, one-to-one function, Radical function, square root function **Writing in Math** What type of function breaks the rule: The range of the relation is the domain of the inverse? The domain of the relation is the range of the inverse? Why do you have to restrict the domain of a quadratic function's inverse?

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key features of the graph, by hand and using technology.★ a. Graph square root, cube root, and piecewise defined functions, including step functions and absolute value functions.			
Exponential and Logarithmic Functions **(Allow approximately 3 weeks for instruction, review, and assessment)**			
Domain: Linear, Quadratic, and Exponential Models **Cluster:** Conduct and compare linear, quadratic, and exponential models and solve problems. ➢ **A2. F.LE.A.1** (formerly F-LE.A.2) Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or input-output pairs. **Domain:** Linear, Quadratic, and Exponential Models **Cluster:** Interpret expressions for functions in terms of the situation they model. ➢ **A2. F.LE.B.3** (formerly F-LE.B.5) Interpret the parameters in a linear or exponential function in terms of a context. For example, the equation y = 5000 $(1.06)^x$ models the rising population of a city with 5000 residents when the annual growth rate is 6 percent. What will be the effect on the equation if the city's growth rate was 7 percent instead of	**Essential Question(s):** How do you distinguish between an exponential function being a growth or decay? **Objective(s):** • Students will model exponential growth and decay. • Students will graph $y=b^x$ and observe it as the parent exponential function, then graph $y=ab^x$ and observe how the value of a either stretches or compresses the graph of $y=b^x$. • Students will graph $y=ab^x$ and $y=ab^{(x-h)}$ and observe that $y=ab^{(x-h)}$ is the same as the vertical stretch or compression of $y=(ab-h)b^x$. • Students will observe that $y=ab^x+k$ shifts the horizontal asymptote from y=0 to y=k. Graph $y=\log_b x$ as the parent logarithmic function, then graph $y=a\log_b(x-h)+k$ and observe: 1) how the value of a either stretches or compresses the graph of $y=\log_b x$ and 2) the vertical shift of $y=\log_b x$ by h and the horizontal shift of $y=\log_b x$ by k. • Students gather experimental data and determine which type of function is best to model the data.	***Use the textbook resources to address procedural fluency.*** **Pearson** 7.1 Exploring Exponential Models **Glencoe** 8.1 Graphing Exponential Functions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 3 Topic D Lessons 20, 23, 26 **Additional Resources:** e Math instruction: Unit 4 TN Task Arc –Car Depreciation TN Task Arc-Culture Shock Math Vision Project 2012-Linear and Exponential Functions (various) Illustrative Math: Lake Algae HS Flip Book with examples of each Standard	**Vocabulary** Exponential function, exponential growth, exponential decay, asymptote, growth factor, decay factor **Writing in Math** What is the y-intercept of an exponential function with no stated a value? **Resources in the Pearson textbook:** " Solve it," Think About a Plan, Find the Errors, Multiple word problems, Reasoning question, Compare/contrast question, Open-ended questions, and Connections to other real world topics and/or other subjects

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6 percent? **Domain:** Interpreting Functions **Cluster:** Analyze functions using different representations. ➢ **A2.F.IF.B.3** Graph functions expressed symbolically and show key features of the graph, by hand and using technology.★ a. Graph square root, cube root, and piecewise defined functions, including step functions and absolute value functions. c. Graph exponential and logarithmic functions, showing intercepts and end behavior. **Domain:** Interpreting Functions **Cluster:** Analyze functions using different representations. ➢ **A2.F.IF.B.5** (formerly F-IF.C.9) Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). **Domain:** Interpreting Functions **Cluster:** Interpret functions that arise in applications in terms of the context. ■ **A2. F.IF.A.2** (formerly F-IF.B.6) Calculate and interpret the average rate of change of a function (presented symbolically	• Students use properties of exponents to interpret expressions for exponential functions. • Students develop a general growth/decay rate formula in the context of compound interest. • Students compute future values of investments with continually compounding interest rates. • Students study transformations of the graphs of logarithmic functions and learn the standard form of generalized logarithmic and exponential functions. • Students use the properties of logarithms and exponents to produce equivalent forms of exponential and logarithmic expressions. In particular, they notice that different types of transformations can produce the same graph due to these properties.		

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or as a table) over a specified interval. Estimate the rate of change from a graph. **Domain:** Reasoning with Equations and Inequalities **Cluster:** Represent and solve equations graphically. ■ **A2.A.REI.D.6** (formerly A-REI.D.11) 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 the approximate solutions using technology. ★Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. **Domain:** Interpreting Categorical and Quantitative Data **Cluster:** Summarize, represent, and interpret data on a single count or measurement. variable ➢ **A2. S.ID.B.2** (formerly S-ID.B.6) Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.			

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➢ **A2 .F.BF.B.3** (Formerly 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. Experiment with cases and illustrate an explanation of the effects on the graph using technology.			
Domain: Linear, Quadratic, and Exponential Models **Cluster:** Conduct and compare linear, quadratic, and exponential models and solve problems. ➢ **A2 .F.LE.A.1** (formerly F-LE.A.2) Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or input-output pairs. **Domain:** Linear, Quadratic, and Exponential Models **Cluster:** Interpret expressions for functions in terms of the situation model. ➢ **A2. F.LE.B.3** (formerly F-LE.B.5) Interpret the parameters in a linear or exponential function in terms of a context. For example, the equation $y = 5000 (1.06)^x$ models the rising population of a city with 5000 residents when the annual growth rate is 6 percent. What will be the effect on the equation if the city's growth rate was 7	**Essential Question(s):** Why is $y=ae^x$ considered to be an exponential function? **Objective(s):** • Students will explore the properties of functions of the form $y=ab^x$. • Students will graph exponential functions that have base e. • Students will determine the growth or decay factor of an exponential function or situation. • Students will write an exponential function given a growth or decay situation using y=a(1+r)t. • Students will write an exponential function for continuously compounded interest using • $Y=ae^{rt}$. • Students study properties of linear, quadratic, sinusoidal, and exponential functions.	***Use the textbook resources to address procedural fluency.*** **Pearson** 7.2 Properties of Exponential Functions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Additional Resources:** TN Task Arc – Natural Order of Things Illustrative Math: The Bank Account Math Shell: Making Money * ***Not accessible via SCS server** HS Flip Book with examples of each Standard	**Vocabulary** Natural base exponential function, continuously compounded interest. **Writing in Math** Write three different examples of exponential functions that stretch, compress, and reflect. Explain why each function moves the way that it does.

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percent instead of 6 percent? **Domain:** Seeing Structure in Expressions **Cluster:** Interpret the structure of expressions. ■ **A2.A.SSE.A.1** (formerly A-SSE.A.2) Use the structure of an expression to identify ways to rewrite it. **Domain:** Seeing Structure in Expressions **Cluster:** Use expressions in equivalent forms to solve problems. ■ **A2.A.SSE.B.3** (formerly A-SSE.B.4) Recognize a finite geometric series (when the common ratio is not 1), and use the sum formula to solve problems in context. **Domain:** Interpreting Functions **Cluster:** Analyze functions using different representations. ➢ **A2. F.IF.B.4** (formerly F-IF.C.8b) Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Know and use the properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in functions such as* $y = 2^x$, $y = (1/2)^x$, $y = 2^{-x}$, $y = (1/2)^{-x}$ **Domain:** Building Functions **Cluster:** Build a function that models a relationship between two quantities.			

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■ **A2 .F.BF.A.1** (formerly F-BF.A.1) Write a function that describes a relationship between two quantities.★ For example, given cost and revenue functions, create a profit function.. **b.** Combine standard function types using arithmetic operations.			
Domain: Linear, Quadratic, and Exponential Models **Cluster:** Construct and compare linear, quadratic, and exponential models and solve problems. ➢ **A2. F.LE.A.2** (formerly F-LE.A.4). For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology. **Domain:** Interpreting Functions **Cluster:** Interpret functions that arise in applications in terms of the context. ■**A2. F.IF.A.1** (formerly 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. ★ ■**A2.F.IF.A.2** (formerly F-IF.B.6) Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of	**Essential Question(s):** • The exponential function $y=b^x$ is one-to-one, so its inverse $x=b^y$ is a function. To express y as a function of x for the inverse, write $y=\log_b x$. • Logarithms are exponents. In fact, $\log_b a = c$ if and only if $b^c=a$. **Objective(s):** • Students will write and evaluate logarithmic expressions. • Students will graph logarithmic functions. • Students will graph $y=\log_b x$ as the parent logarithmic function, then graph $y=a\log_b(x-h) + k$ and observe: 1) how the value of a either stretches or compresses the graph of $y=\log_b x$ and 2) the vertical shift of $y=\log_b x$ by h and the horizontal shift of $y=\log_b x$ by k. • Students construct a table of logarithms base 10 and observe patterns that indicate properties of logarithms. • Students construct a table of logarithms base 10 and observe patterns that indicate properties of logarithms. • Students justify properties of logarithms using the definition and properties already developed.	***Use the textbook resources to address procedural fluency.*** **Pearson** 7.3 Logarithmic Functions as Inverses **Glencoe** 8.3 Logarithms and Logarithmic Functions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 3 Lesson 19 (LE.A.2) Module 3 Lesson 18, 20, 21 (F.IF.A.1) Module 1 Lesson 14-16 (F.IF.B.3) **Additional Resources:** e Math instruction: Unit 4 Math Vision Project 2014- Logarithmic Functions (various) HS Flip Book with examples of each Standard	**Vocabulary** Logarithm, logarithmic function, common logarithm, logarithmic scale **Writing in Math** How are the domain and range related from the exponential function to the logarithmic function?

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change from a graph. ★ **Domain:** Interpreting Functions **Cluster:** Analyze functions using different representations. ➢ **A2. F.IF.B.3** (formerly F-IF.C.7e) Graph functions expressed symbolically and show key features of the graph, by hand and using technology.★ b. Graph exponential and logarithmic functions, showing intercepts and end behavior. **Domain:** Building Functions **Cluster:** Build new functions from existing functions. ➢ **A2. F.BF.B.3** (formerly 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. Experiment with cases and illustrate an explanation of the effects on the graph using technology.	• Students work with and interpret logarithms with irrational values in preparation for graphing logarithmic functions. • Students graph the functions f(x) = log(x), g(x) = log2(x), and h(x) = ln(x) by hand and identify key features of the graphs of logarithmic functions. • Students compare the graph of an exponential function to the graph of its corresponding logarithmic function. • Students note the geometric relationship between the graph of an exponential function and the graph of its corresponding logarithmic function. • Students understand that the change of base property allows us to write every logarithm function as a vertical scaling of a natural logarithm function. • Students graph the natural logarithm function and understand its relationship to other base b logarithm functions. They apply transformations to sketch the graph of natural logarithm functions by hand. • Students apply knowledge of exponential and logarithmic functions and transformations of functions to a contextual situation.		
Domain: Seeing Structure in Expressions **Cluster:** Write expressions in equivalent forms to solve problems. ■ **A2. A.SSE.B.2** (formerly A-SSE.B.3c) Choose and produce an equivalent form	**Essential Question(s):** What are the distinguishing features of the properties of logarithms: product property, quotient property, and power property?	***Use the textbook resources to address procedural fluency.*** **Pearson** 7.4 Properties of Logarithms	**Vocabulary** Change of base formula **Writing in Math** When would you need to use a Change of Base formula? What does the logarithm look

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of an expression to reveal and explain properties of the quantity represented by the expression.★ a. Use the properties of exponents to rewrite expressions for exponential functions.	**Objective(s):** • Students will use the properties of logarithms.	**Glencoe** 8.5 Properties of Logarithms 8.6 Common Logarithms ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Additional Resources** e Math instruction: Unit 4 Illustrative Math Tasks: SSE.B.3	like?
Domain: Creating Equations **Cluster:** Create equations that describe numbers or relationships. ■ **A2.A.CED.A.1** (formerly A-CED.A.1) Create equations and inequalities in one variable and use them to solve problems. **Domain:** Interpreting Functions **Cluster:** Analyze functions using different representations. ➢ **A2. F.IF.B.4**. (formerly F-IF.C.8b) Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the properties of exponents to interpret expressions for exponential functions. **Domain:** Quantities **Cluster:** Reason quantitatively and use	**Essential Question(s):** How is the relationship between exponents and logarithms used to solve problems? **Objective(s):** • Students will solve exponential and logarithmic equations.	***Use the textbook resources to address procedural fluency.*** **Pearson** 7.5 Exponential and Logarithmic Equations **Glencoe** 8.2 Solving Exponential Equations and Inequalities 8.4 Solving Logarithmic Equations and Inequalities 8.8 Using Exponential and Logarithmic Functions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 3 Topic B Lesson 7 Module 3 Topic D Lesson 27 **Additional Resources:** Math Shell: Multiplying Cells * Medical Diagnosis Task	**Vocabulary** Exponential equation, logarithmic equation **Writing in Math** How can use the log of any base to solve an exponential equation?

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units to solve problems. ➢ **A2. N.Q.A.1** (formerly N-Q.B.2) Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.		Illustrative Math: Compounding with a 100% Interest Rate Compounding with a 5% Interest Rate Real Number Property Rules *Not accessible via SCS server	
Domain: Reasoning with Equations and Inequalities **Cluster:** Represent and solve equations graphically. ■ **A2.A.REI.D.6** (formerly A-REI.D.11) 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 the approximate solutions using technology. ★ **Domain**: Linear, Quadratic and Exponential Models **Cluster:** Construct and compare linear, quadratic and exponential models and solve problems. ➢ A2.F.LE.A.2 (formerly F-LE.A.4) For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology. **Domain:** Interpreting Functions **Cluster:** Interpret functions that arise in applications in terms of the context. ■ A2.F.IF.A.1 (formerly F-IF.B.4) For a	**Essential Question(s):** How can you use the relationship between y=e^x and y = ln x to solve exponential and logarithmic equations? **Objective(s):** • Students will evaluate and simplify natural logarithmic expressions • Students will solve equations using natural logarithms.	***Use the textbook resources to address procedural skill and fluency.*** **Pearson** 7.6 Natural Logarithms **Glencoe** 8.7 Base e and Natural Logarithms ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Additional Resources:** Illustrative Math: Bacterial Populations Illustrative Math: Carbon 14 Dating Illustrative Math: Exponential Kiss Illustrative Math: Identifying Exponential Functions HS Flip Book with examples of each Standard	**Vocabulary** Natural logarithmic function **Writing in Math** Can ln 5 +log (base 2) 10 be written as a single log?

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function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. ★ Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior. ■ **A2.F.IF.A.2** (formerly F-IF.B.6) Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. **Domain:** Interpreting Functions **Cluster:** Analyze functions using different representations. ➢ **A2.F.IF.B.3** (formerly F-IF.C.7e) Graph functions expressed symbolically and show key features of the graph, by hand and using technology. ★ e. Graph exponential and logarithmic functions, showing intercepts and end behavior.			

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RESOURCE TOOLBOX

Textbook Resources

Pearson:

http://www.pearsonsuccessnet.com

Online Tools

Think About a Plan (Editable)
Standardized Test Prep
Extra Practice (Editable)
Find the Errors!
Enrichment (Editable)
Solve It!
ELL Support (Editable)
Activities, Games, and Puzzles (Editable)
Teaching with TI Technology
Homework Video Tutors
Lesson Quizzes
Assessments
Reteaching (Editable)
Common Core Lessons
Standardized Test Prep
Performance Tasks

Glencoe:

https://connected.mcgraw-hill.com/connected/login.do

Online Tools

Chapter Animation
Chapter Quizzes & Tests
Editable Worksheets
Anticipation Guides
Personal Tutors
Lesson PowerPoints
Enrichment Masters
Graphing Calculator Activities

Standards

Common Core Standards - Mathematics
Common Core Standards - Mathematics Appendix A
Edutoolbox (formerly TNCore)
The Mathematics Common Core Toolbox
PARCC Blueprints and Test Specifications FAQ
CCSS Toolbox
New York Education Department Tasks
PARCC High School Math Tasks
TICommonCore.com
TN Department of Education Math Standards
PARCC Practice Test
HS Flip Book with Examples of each Standard
JMAP

Videos

Brightstorm
Teacher Tube
The Futures Channel
Khan Academy
Math TV
Lamar University Tutorial
e Math instruction

Additional Sites

TN Dept. of Education Assessment Live Binder
e Math instruction
UT Dana Center
Mars/Math Shell Tasks* (**Not accessible via SCS server)**
Inside Math Tasks
Math Vision Project Tasks
Better Lesson
SCS Math Tasks
Dana Center Algebra 2 Assessments
Graphic Organizers (9-12)
University of Idaho Literacy Strategies

Interactive Manipulatives

Illuminations (NCTM)
National Math Resources
NASA Space Math
Math Vision Project
Purple Math

ACT

TN ACT Information & Resources
ACT College & Career Readiness Mathematics Standards

Calculator

Math Nspired
Texas Instrument Activities
Casio Activities

NWEA MAP

Resources:https://teach.mapnwea.org/assist/help_map/ApplicationHelp.htm#UsingTestResults/MAPReportsFinder.htm - Sign in and Click the Learning Continuum Tab – this resources will help as you plan for intervention, and differentiating small group instruction on the skill you are currently teaching. (Four Ways to Impact Teaching with the Learning Continuum)

https://support.nwea.org/khanrit - These Khan Academy lessons are aligned to RIT scores.

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■Major Content ➢ Supporting Content ★(star) Modeling Standard/Domain