

Algebra 1 Pacing Guide (2023 Standards/Big Ideas Book)

TN State Standards	Chapter 1 Solving Linear Equations
<p>A1.N.Q.A.1 Use units as a way to understand real-world problems.* (1.3) b. Use appropriate quantities in formulas, converting units as necessary.* (1.3) c. Define and justify appropriate quantities within a context for the purpose of modeling.* (1.3) d. Choose an appropriate level of accuracy when reporting quantities.* (1.4)</p> <p>A1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* b. Interpret complicated expressions by viewing one or more of their parts as a single entity.* (1.5)</p> <p>A1.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems in a real-world context.* (1.1) (1.2) (1.5) (1.6)</p> <p>A1.A.CED.A.4 Rearrange formulas to isolate a quantity of interest using algebraic reasoning.* (1.7)</p> <p>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. (1.1) (1.2) (1.5) (1.6)</p>	<p>Chapter 1 Opener (1 day) 1.1 Solving Linear Equations (2 days) 1.2 Solving Multiple-Step Equations (2 days) 1.3 Modeling Quantities (1 day) 1.4 Accuracy with Measurements (1 day) 1.5 Solving Equations with Variables on both sides (1 day) 1.6 Solving Absolute Value Equations (2 days) 1.7 Rewriting Equations and Formulas (2 days)</p> <p>Chapter 1 Review (1 day) Chapter 1 Test (1 day)</p> <p>Chapter 1 (14 days)</p>

<p>A1.A.REI.B.2 Solve linear and absolute value equations and inequalities in one variable. (1.1) (1.2) (1.5) (1.6) a. Solve linear equations and inequalities, including compound inequalities, in one variable. Represent solutions algebraically and graphically. (1.1) (1.2) (1.5) b. Solve absolute value equations and inequalities in one variable. Represent solutions algebraically and graphically. (1.6)</p>	
	<p>Chapter 2 Solving Linear Inequalities</p>
<p>A1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients.* (2.1)</p> <p>A1.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems in a real-world context.* (2.1) (2.2) (2.3) (2.4) (2.5) (2.6)</p> <p>A1.A.REI.B.2 Solve linear and absolute value equations and inequalities in one variable. (2.2) (2.3) (2.4) (2.5) (2.6) a. Solve linear equations and inequalities, including compound inequalities, in one variable. Represent solutions algebraically and graphically. (2.2) (2.3) (2.4) (2.5) b. Solve absolute value equations and inequalities in one variable. Represent solutions algebraically and graphically. (2.6)</p>	<p>Chapter 2 Opener (1 day) 2.1 Writing and Graphing Inequalities (2 day) 2.2 Solving Inequalities Using Addition and Subtraction (1 days) 2.3 Solving Inequalities Using Multiplication and Division (1 day) 2.4 Solving Multi-Step Inequalities (1 day) 2.5 Solving Compound Inequalities (2 day) 2.6 Solving Absolute Value Inequalities (2 day)</p> <p>Chapter 2 Review (1 day) Chapter 2 Test (1 day)</p> <p>Chapter 2 (12 days) Year to date 26 days</p>

	Chapter 3 Graphing Linear Functions
<p>A1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients.* (3.6)</p> <p>A1.A.CED.A.2 Create equations and inequalities 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.* (3.4) (3.5) (3.6) (3.7) (3.8)</p> <p>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). (3.3)</p> <p>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 $y = f(x)$. (3.1) (3.4)</p> <p>A1.F.IF.A.2 Use function notation.* a. Use function notation to evaluate functions for inputs in their domains, including functions of two variables.* (3.4) b. Interpret statements that use function notation in terms of a context.* (3.4)</p> <p>A1.F.IF.A.3 Understand geometric formulas as functions. * (3.1)</p> <p>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</p>	<p>Chapter 3 Opener (1 day) 3.1 Functions (3 days) 3.2 Characteristics of Functions (1 day) 3.3 Linear Functions (3 days) 3.4 Function Notation (2 days) 3.5 Graphing Linear Equations in Standard Form (1 day) 3.6 Graphing Linear Equations in Slope Intercept Form (3 days) 3.7 Transformations of Linear Functions (3 days) 3.8 Graphing Absolute Value Functions (2 days)</p> <p>Chapter 3 Review (1 day) Chapter 3 Test (1 day)</p> <p>Chapter 3 21 days Year to date 47 days</p>

given a verbal description of the relationship.* (3.2) (3.6)

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. * (3.3) (3.8)

A1.F.IF.C.7 Graph functions expressed algebraically and show key features of the graph by hand and using technology. * (3.4) (3.5) (3.6) (3.7) (3.8)

A1.F.IF.C.9 Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions.*

a. Compare properties of two different functions. Functions may be of different types and/or represented in different ways.* (3.2) (3.4)

b. Compare properties of the same function on two different intervals or represented in two different ways.* (3.2)

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. (3.7) (3.8)

A1.F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.*

a. Know that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.* (3.6)

b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.* (3.3)

A1.F.LE.B.3 Interpret the parameters in a linear or exponential function in terms of a context.* (3.6)

	Chapter 4 Writing Linear Functions
<p>A1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* b. Interpret complicated expressions by viewing one or more of their parts as a single entity.* (4.7)</p> <p>A1.A.CED.A.2 Create equations and inequalities 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.* (4.1) (4.2) (4.3) (4.7)</p> <p>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. * (4.7)</p> <p>A1.F.IF.C.7 Graph functions expressed algebraically and show key features of the graph by hand and using technology. * (4.7)</p> <p>A1.F.BF.A.1 Build a function that describes a relationship between two quantities.* a. Determine steps for calculation, a recursive process, or an explicit expression from a context.* (4.1) (4.2) (4.6)</p> <p>A1.F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.* b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.* (4.1) (4.2)</p> <p>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. * (4.1) (4.2) (4.3) (4.6)</p>	<p>Chapter Opener (1 day) 4.1 Writing Equations in Slope Intercept Form (1 day) 4.2 Writing Equations in Point Slope Form (1 day) 4.3 Writing Equations of Parallel and Perpendicular lines (1 day) 4.4 Scatter Plots and Line of Fit (2 days) 4.5 Analyzing Lines of Fit (2 days) 4.6 Arithmetic Sequences (2 days) 4.7 Piecewise Functions (2 days)</p> <p>Chapter 4 Review (1 day) Chapter 4 Test (1 day)</p> <p>Chapter 4 14 days Year to date 61 days</p>

A1.F.LE.B.3 Interpret the parameters in a linear or exponential function in terms of a context.* (4.4) (4.5)

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.* (4.4) (4.5)

A1.S.ID.C.5 Interpret the rate of change and the constant term of a linear model in the context of data.* (4.4) (4.5)

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.* (4.5)

A1.S.ID.C.7 Explain the differences between correlation and causation. Recognize situations where an additional factor may be affecting correlated data.* (4.5)

Chapter 5 Solving Systems of Linear Equations

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.* (5.1) (5.2) (5.3) (5.4) (5.5) (5.6) (5.7)

A1.A.REI.C.4 Write and solve a system of linear equations in real-world context.* (5.1) (5.2) (5.3) (5.4)

Chapter Opener (1 day)

5.1 Solve System of Linear Equations by Graphing (2 days)

5.2 Solve System of Linear Equations by Substitution (2 days)

5.3 Solve System of Linear Equations by Elimination (2 days)

5.4 Solving Special Systems of Linear Equations (2 days)

5.5 Solving Equations by Graphing (1 day)

5.6 Graphing Linear Inequalities in Two Variables (2 days)

5.7 System of Linear Inequalities (2 days)

Chapter 5 Review (1 day)

Chapter 5 Test (1 day)

<p>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.* (5.5)</p> <p>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. (5.7)</p>	<p>Chapter 5 16 days Year to Date 77 days</p>
	<p>Chapter 6 Exponential Functions and Sequences</p>
<p>A1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* b. Interpret complicated expressions by viewing one or more of their parts as a single entity.* (6.1) (6.3)</p> <p>A1.A.CED.A.2 Create equations and inequalities 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.* (6.2) (6.3)</p> <p>A1.F.IF.C.7 Graph functions expressed algebraically and show key features of the graph by hand and using technology. * (6.2) (6.3)</p> <p>A1.F.BF.A.1 Build a function that describes a relationship between two quantities.* a. Determine steps for calculation, a recursive process, or an explicit expression from a context.* (6.2) (6.3) (6.4) (6.5)</p>	<p>Chapter 6 Opener (1 day) 6.1 Properties of Exponents (2 days) 6.2 Exponential Functions (3 days) 6.3 Exponential Growth and Decay (3 days) 6.4 Geometric Sequences (2 days) 6.5 Recursively Defined Sequences (2 days)</p> <p>Chapter 6 Review (1 day) Chapter 6 Test (1 day)</p> <p>Chapter 6 15 days Year to date 92 days</p>

<p>A1.F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.* a. Know that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.* (6.2) c. Recognize situations in which a quantity grows or decays by a constant factor per unit interval relative to another.* (6.3) 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. * (6.2) (6.3) (6.4) (6.5)</p> <p>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.* (6.2)</p>	
	<p>Chapter 7 Polynomial Equations and Factoring</p>
<p>A1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients.* (7.1) (7.3)</p> <p>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. (7.1) (7.2) (7.3)</p> <p>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. (7.4)</p>	<p>Chapter 7 Opener (1 day) 7.1 Adding and Subtracting Polynomials (2 days) 7.2 Multiplying and Dividing Polynomials (2 days) 7.3 Special Products of Polynomials (1 day) 7.4 Solving Polynomials Equations in Factored Form (1 day) 7.5 Factoring $x^2 + bx + c$ (1 day) 7.6 Factoring $ax^2 + bx + c$ (2 days) 7.7 Factoring Special Products (2 days) 7.8 Factoring Polynomials Completely (2 days)</p> <p>Chapter 7 Review (1 day) Chapter 7 Test (1 day)</p> <p>Chapter 7 16 days Year to Date 108 days</p>

<p>A1.A.REI.B.3 Solve quadratic equations and inequalities in one variable.</p> <p>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. (7.4) (7.5) (7.6) (7.7) (7.8)</p>	
	<p>Chapter 8 Graphing Quadratic Functions</p>
<p>A1.A.CED.A.2 Create equations and inequalities 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.* (8.1) (8.2) (8.3) (8.4) (8.5)</p> <p>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.* (8.1) (8.3) (8.4)</p> <p>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.* (8.6)</p> <p>A1.F.IF.C.7 Graph functions expressed algebraically and show key features of the graph by hand and using technology. * (8.1) (8.2) (8.3) (8.4) (8.5)</p>	<p>Chapter 8 Opener (1 day)</p> <p>8.1 Graphing $f(x) = ax^2$ (1 day)</p> <p>8.2 Graphing $f(x) = ax^2 + c$ (1 day)</p> <p>8.3 Graphing $f(x) = ax^2 + bx + c$ (2 days)</p> <p>8.4 Graphing $f(x) = a(x-h)^2 + k$ (2 days)</p> <p>8.5 Using Intercept Form (3 days)</p> <p>8.6 Comparing Linear, Exponential, and Quadratic Functions (3 days)</p> <p>Chapter 8 Review (1 day)</p> <p>Chapter 8 Test (1 day)</p> <p>Chapter 8 (15 days)</p> <p>Year to date 123 days</p>

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. * a. Rewrite quadratic functions to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a real-world context. (8.5)

A1.F.IF.C.9 Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions.*

a. Compare properties of two different functions. Functions may be of different types and/or represented in different ways.* (8.3) (8.6)

b. Compare properties of the same function on two different intervals or represented in two different ways.* (8.3) (8.6)

A1.F.BF.A.1 Build a function that describes a relationship between two quantities.*

a. Determine steps for calculation, a recursive process, or an explicit expression from a context.* (8.4) (8.5) (8.6)

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. (8.1) (8.2) (8.4)

	<p>Chapter 9 Solving Quadratic Equations</p>
<p>A1.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems in a real-world context.* (9.3) (9.4)</p> <p>A1.A.CED.A.4 Rearrange formulas to isolate a quantity of interest using algebraic reasoning.* (9.1) (9.3)</p> <p>A1.A.REI.B.3 Solve quadratic equations and inequalities in one variable. 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. (9.1) (9.3) (9.4) b. Solve quadratic inequalities using the graph of the related quadratic equation. (9.5)</p> <p>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.* (9.4)</p> <p>A1.F.IF.C.7 Graph functions expressed algebraically and show key features of the graph by hand and using technology. * (9.2)</p> <p>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.* (9.2)</p>	<p>Chapter 9 Opener (1 day) 9.1 Properties of Radicals (3 days) 9.2 Solving Quadratic Equations by Graphing (3 days) 9.3 Solving Quadratic Equations by Square Roots(1 day) 9.4 Solving Quadratic Equations using the Quadratic Formula (3 days) 9.5 Quadratic Inequalities (2 days)</p> <p>Chapter 9 Review (1 day) Chapter 9 Test (1 day)</p> <p>Chapter 9 15 days Year to date 138 days</p>

	Chapter 10 Data Analysis and Displays
<p>A1.N.Q.A.1 Use units as a way to understand real-world problems.* a. Choose and interpret the scale and the origin in graphs and data displays.* (10.4)</p> <p>A1.S.ID.A.1 Use measures of center to solve real world and mathematical problems.* (10.1)</p> <p>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.* (10.3)</p> <p>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.* (10.1) (10.2) (10.3)</p>	<p>Chapter 10 Opener (1 day) 10.1 Measures of Center and Variation (2 days) 10.2 Box and Whisker Plots (2 days) 10.3 Shapes of Distributions (2 days) 10.4 Choosing a Data Display (1 day)</p> <p>Chapter 10 Review (1 day) Chapter 10 Test (1 day)</p> <p>Chapter 10 (10 days) Year to date 148 days</p>