

Algebra I Units and Learning Targets (HMH)

Unit 1: Quantities and Modeling

Module 1: Quantitative Reasoning - I can use quantitative reasoning to solve real-world problems.

Lesson 1.1: I can solve an equation in one variable.

Lesson 1.2: I can use rates, ratios, and proportions to solve real-world problems.

Lesson 1.3: I can use significant digits when reporting the results of calculations involving measurement.

Module 2: Algebraic Models - I can use algebraic models to solve real-world problems.

Lesson 2.1: I can interpret algebraic expressions in terms of their context.

Lesson 2.2: I can use an equation to model and solve a real-world problem.

Lesson 2.3: I can rewrite formulas and literal equations.

Lesson 2.4: I can write and solve an inequality that represents a real-world situation.

Lesson 2.5: I can solve a compound inequality and graph the solution set.

Unit 2: Understanding Functions

Module 3: Functions and Models - I can use functions to solve real-world problems.

Lesson 3.1: I can describe a relationship given a graph and sketch a graph given a description.

Lesson 3.2: I can represent relations and functions in multiple ways.

Lesson 3.3: I can identify function notation and use functions to model real-world situations.

Lesson 3.4: I can graph functions.

Module 4: Patterns and Sequences - I can use patterns and sequences to solve real-world problems.

Lesson 4.1: I can define a sequence and explain how sequences are related to functions.

Lesson 4.2: I can define an arithmetic sequence.

Lesson 4.3: I can solve real-world problems using arithmetic sequences.

Unit 3: Linear Functions, Equations, and Inequalities

Module 5: Linear Functions - I can use linear functions to solve real-world problems.

Lesson 5.1: I can define a linear function.

Lesson 5.2: I can identify and use intercepts in linear relationships.

Lesson 5.3: I can relate rate of change and slope in linear relationships.

Module 6: Forms of Linear Equations - I can use different forms of linear equations to solve real-world problems.

Lesson 6.1: I can represent a linear function in a way that reveals its slope and y-intercept.

Lesson 6.2: I can represent a linear function in a way that reveals its slope and a point on its graph.

Lesson 6.3: I can write a linear equation in standard form given properties of the line including its slope and points on the line.

Module 7: Linear Equations and Inequalities - I can use linear equations and inequalities to solve real-world problems.

Lesson 7.1: I can model linear relationships given limited information.

Lesson 7.2: I can use functions to solve one-variable equations.

Lesson 7.3: I can write and graph linear inequalities in two variables.

Unit 4: Statistical Models

Module 8: Multi-Variable Categorical Data - I can use multi-variable categorical data to solve real-world problems.

Lesson 8.1: I can summarize categorical data for two categories.

Lesson 8.2: I can recognize possible associations and trends between two categories of categorical data.

Module 9: One-Variable Data Distributions - I can use one-variable data distributions to solve real-world problems.

Lesson 9.1: I can describe and compare data sets.

Lesson 9.2: I can explain what statistics are most affected by outliers and what shapes data distributions can have.

Lesson 9.3: I can interpret and compare data sets using data displays.

Lesson 9.4: I can use characteristics of a normal distribution to make estimates and probability predictions about the population that the data represents.

Module 10: Linear Modeling and Regression

Lesson 10.1: I can describe the relationship between two variables and use it to make predictions.

Lesson 10.2: I can use the linear regression function on a graphing calculator to find the line of best fit for a two-variable data set.

Unit 5: Linear Systems and Piecewise-Defined Functions

Module 11: Solving Systems of Linear Equations - I can use systems of linear equations to solve real-world problems.

Lesson 11.1: I can find the solution of a system of linear equations by graphing.

Lesson 11.2: I can solve a system of linear equations using substitution.

Lesson 11.3: I can solve a system of linear equations by adding and subtracting.

Lesson 11.4: I can solve a system of linear equations by using multiplication and elimination.

Module 12: Modeling with Linear Systems - I can use linear systems to solve real-world problems.

Lesson 12.1: I can use systems of linear equations to model and solve real-world problems.

Lesson 12.2: I can solve a system of linear inequalities.

Lesson 12.3: I can use systems of linear equations or inequalities to model and solve contextual problems.

Unit 6: Exponential Relationships

Module 14: Rational Exponents and Radicals - I can use rational exponents and radicals to solve real-world problems.

Lesson 14.1: I can explain how radicals and rational exponents are related.

Lesson 14.2: I can write a radical expression as an expression with a rational exponent.

Module 15: Geometric Sequences and Exponential Functions - I can use geometric sequences and exponential functions to solve real-world problems.

Lesson 15.1: I can explain how the terms of a geometric sequence are related.

Lesson 15.2: I can write a geometric sequence.

Lesson 15.3: I can explain and represent discrete exponential functions.

Lesson 15.4: I can graph an exponential function of the form $f(x) = ab^x$

Module 16: Exponential Equations and Models - I can use exponential equations to represent real-world situations.

Lesson 16.1: I can solve equations involving variable exponents.

Lesson 16.2: I can use exponential functions to model the increase or decrease of a quantity over time.

Lesson 16.4: I can recognize when to use a linear model or an exponential model.

Unit 7: Polynomial Operations

Module 17: Adding and Subtracting Polynomials - I can use addition and subtraction of polynomials to solve real-world problems.

Lesson 17.1: I can define and simplify polynomial expressions.

Lesson 17.2: I can add polynomials.

Lesson 17.3: I can subtract polynomials.

Module 18: Multiplying Polynomials - I can use multiplication of polynomials to solve real-world problems.

Lesson 18.1: I can multiply polynomials by monomials.

Lesson 18.2: I can multiply binomials by polynomials.

Lesson 18.3: I can find special products of binomials.

Unit 8: Quadratic Functions

Module 19: Graphing Quadratic Functions - I can use the graph of a quadratic function to solve real-world problems.

Lesson 19.1: I can explain the effect of the constant a on the graph of $f(x) = ax^2$.

Lesson 19.2: I can obtain the graph of $g(x) = a(x - h)^2 + k$ from the graph of $f(x) = x^2$

Lesson 19.3: I can change the vertex form of a quadratic function to standard form.

Module 20: Connecting Intercepts, Zeros, and Factors - I can use intercepts of a quadratic function to solve real-world problems.

Lesson 20.1: I can use the graph of a quadratic function to solve its related quadratic equation.

Lesson 20.2: I can explain how the x-intercepts of a quadratic function and its linear factors are related.

Lesson 20.3: I can use the Zero-Product Property to solve quadratic equations in factored form.

Unit 9: Quadratic Equations and Modeling

Module 21: Using Factors to Solve Quadratic Equations - I can use factoring quadratic equations to solve real-world problems.

Lesson 21.1: I can use factoring to solve quadratic equations in standard form for which $a = 1$.

Lesson 21.2: I can use factoring to solve quadratic equations in standard form for which $a \neq 1$.

Lesson 21.3: I can use special products to aid in solving quadratic equations by factoring.

Module 22: Using Square Roots to Solve Quadratic Equations - I can use quadratic equations to solve real-world problems.

Lesson 22.1: I can solve quadratic equations using square roots.

Lesson 22.2: I can use completing the square to solve a quadratic equation.

Lesson 22.3: I can identify the quadratic formula and use it to solve quadratic equations.

Lesson 22.4: I can choose a method for solving a given quadratic equation.

Lesson 22.5: I can solve a system of equations when one equation is linear and the other is quadratic.

Module 23: Linear, Exponential, and Quadratic Models - I can use linear, exponential, and quadratic models to solve real-world problems.

Lesson 23.1: I can use tables to recognize quadratic functions and use technology to create them.

Lesson 23.2: I can determine whether a given data set is best modeled by a linear, quadratic, or exponential function.

Unit 10: Inverse Relationships

Module 24: Functions and Inverses - I can use functions and inverses to solve real-world problems.

Lesson 24.1: I can explain how the value of n affects the behavior of the function

$$f(x) = x^n.$$

Lesson 24.2: I can recognize inverses of functions from their graphs and I can find inverses of functions.

Lesson 24.3: I can use transformations of the parent square-root function to graph square root functions.

Lesson 24.4: I can use transformations of the parent cube root functions to graph cube root functions.

** All Units and Learning Targets are subject to change.