Applied Algebra Workbook

Student Update Sheet
for the Earlier Kendall Hunt Printing

This document contains the substantive revisions incorporated into the 2026 reprint of the *Applied Algebra Student Workbook*. Students using the earlier Kendall Hunt printing should make the following updates while working through the workbook.

Only substantive mathematical or instructional revisions are listed. Typographical, formatting, and section-numbering changes are omitted unless they affect the meaning of an exercise or instruction.

Workbook Page 4

Numeration, Opening Instruction

Replace

> Make a base 10 place-value chart up to hundred trillions. Label the periods.

with

> Make a base 10 place-value chart up to hundred trillions. Label the periods (groups of three digits).

Workbook Page 6

Addition of Counting Numbers

Replace

> Describe what it means to add.

with

> Describe what it means to add two counting numbers.

Workbook Page 7

Signed Numbers, Question 1

After

> What is the opposite of a number? Give examples to illustrate.

insert

> What is the opposite of zero?

Workbook Page 8

Modeling Addition and Subtraction, Problem 1(a)

Replace

> Draw a number-line model representing the situation, including units.

with

> Draw a number-line model showing the total number of tulips and the two color groups. Include units.

Modeling Addition and Subtraction, Problem 3

Replace

> What is the net asset of a student who has 8 units of debt and 3 units of fortune? Use O for a "debt" and X for a "fortune" to create a visual model of this story.

with

> What is the worth of a student who has 8 units of debt and 3 units of asset? Use O for a "debt" and X for an "asset" to create a visual model of this story.

Workbook Page 11

Division, Problem 1(a)

After

> Write the repeated subtraction as division: $36 - 9 - 9 - 9 - 9 = 0$.

insert

> Use the repeated subtracted quantity as a divisor.

Workbook Page 13

The Number Zero

Replace the opening instruction with

> Summarize the rules of arithmetic with zero. Let a be any number. State which operation is undefined and which is indeterminate.

Also add the case

> $0 \div 0 =$

to the list of operations with zero.

Workbook Page 17

Divisibility of Numbers, Parts I–II

Replace

> List all of the natural divisors for the first 12 natural numbers.

with

> List all of the natural divisors for the first 12 natural numbers and zero. Discuss the special case of 0 separately.

Replace

> List the first 10 multiples for the first 12 natural numbers.

with

> List the first 10 multiples for the first 12 natural numbers and zero.

Workbook Page 18

Divisibility of Numbers, Part V

Replace

> State The Fundamental Theorem of Arithmetic.

with

> State The Fundamental Theorem of Arithmetic in your own words.

Workbook Page 19

Launch: Part of a Whole

After the launch questions, insert

> A fraction represents one or more fractional units of a whole.

Workbook Page 20

Ordinary Fractions, Problem 7 and Mixed Numbers

After Problem 7, insert

> Hint: First convert the mixed number to an improper fraction.

Replace

> What is a mixed number? What are we "mixing" in a mixed number?

with

> What is a mixed number? What are we "mixing" in a mixed number? What operation is implied in a mixed number?

Workbook Page 21

Ordinary Fractions, Part II

Replace the instruction

> Name the fraction represented by the entire shaded region given the specified whole.

with

> For each shaded region and specified whole, first name the fractional unit, then name the fraction represented by the entire shaded region.

For each diagram, provide spaces for both *Fractional unit* and *Fraction*.

Workbook Page 24

Fractions on a Number Line

Replace

> Label the number line and use tick marks to show the location of each fraction.

with

> Mark the origin and use tick marks to locate and label each fraction.

Workbook Page 25

Comparing Fractions

Replace the opening instruction with

> Use reasoning with a common denominator, a common numerator, or a benchmark fraction (such as 1 or $\frac{1}{2}$) to determine which fraction is greater. Explain your reasoning and insert the appropriate inequality symbol, $<$ or $>$, between them.

Workbook Page 26

Adding and Subtracting Fractions, Problem 1

Replace

> How big is a half pizza and a quarter pizza?

with

> How big are a half pizza and a quarter pizza together?

Workbook Page 29

Fraction Multiplication

Replace

> Write the Fraction Multiplication Rule.

with

> Write the Fraction Multiplication Rule both symbolically and in words.

Workbook Page 32

Division by Fractions

Replace

> Write the Division by a Fraction Rule.

with

> Write the Division by a Fraction Rule both symbolically and in words.

Workbook Page 34

Decimal Fractions

Add a labeled response field

> **Fractional Unit:**

where students identify the fractional unit represented by each decimal fraction.

Workbook Page 36

Decimal Fractions, Problem 6

Replace

> Write each fraction as decimal fraction with a fraction bar AND with decimal point. Show work.

with

> Write each fraction as a decimal fraction using a fraction bar AND as a decimal number using a decimal point. Show work.

Decimal Fractions, Problem 8

Replace

> What is a periodic decimal fraction? Give some "better-known" examples.

with

> What is a periodic (repeating) decimal fraction? Give some better-known examples.

Workbook Page 49

Ratios and Proportions, Problem 7

Replace

> Kaylon can read 18 pages in 20 minutes. At that rate, how many pages will Marisa read in 2 hours?

with

> Kaylon can read 18 pages in 20 minutes. At that rate, how many pages will Kaylon read in 2 hours?

Workbook Page 50

Powers and Radicals, Opening Questions

Replace

> What is another name for this operation?

with

> What is another name for raising a number to a power?

Workbook Page 51

Powers and Radicals, Negative Bases

After the comparison of -9^2 and $(-9)^2$, insert

> In general, why is $-a^2 \neq (-a)^2$?

Also insert

> What happens when a negative number is raised to an even power? What happens when it is raised to an odd power? Give examples.

Workbook Page 53

Negative Exponents

After the instruction to reason backward in the exponent table, insert

> Each decrease of 1 in the exponent divides by the base.

Workbook Page 55

Fractional Exponents

Before the practice examples, insert

> For now, we focus on examples whose equal factor parts are easy to identify. Later, we will see how fractional exponents apply more generally.

For the example involving a negative base, add the instruction to consider equal negative factors of the base.

Workbook Page 56

Radicals

After the questions connecting radicals and exponents, insert

> Fractional exponents and radicals are two different notations for the same operation. Note: $\sqrt{25} = 5$, not -5.

For the square-root example involving -4, insert

> Discuss whether -4 can be the square of a real number.

Workbook Page 57

Radicals and Exponents

Replace

> Explain why taking the nth root of b is the inverse operation to taking the nth power of b for $b > 0$ and $n > 1$ natural. Give some numerical examples to illustrate.

with

> Explain why taking the nth root of b is the inverse operation to taking the nth power of b for $b > 0$ and natural number $n > 1$. Give some numerical examples to illustrate. What if $b < 0$?

After the order-of-operations discussion, insert

> Radicals are treated as fractional exponents within the exponentiation level.

Workbook Page 61

Algebraic Expressions, Exercise e

In the expression beginning $p(30 + \cdots)$, replace the coefficient 19 with 18.

Workbook Page 68

Angles, Triangles, and the Pythagorean Theorem, Problem c

Replace

> How tall is a tree in the shape of an isosceles triangle with base 4 m and leg 5 m?

with

> How tall is a tree whose cross-section is modeled by an isosceles triangle with base 4 m and leg 5 m? Ignore the trunk of the tree.

Workbook Pages 70–76

Area and Perimeter Exercises

Where the instructions say to round to hundredths if necessary, add

> Label all answers with appropriate units.

On Workbook Page 72, after the opening question about perimeter, insert

> What is the perimeter of a circle called?

Workbook Page 76

Geometry Review, Problem 4

Replace

> An isosceles triangle has one interior angle of 70 degrees. What are the other two angles?

with

> An isosceles triangle has one interior angle of 70 degrees. Consider all possible cases and find the remaining angles.

Workbook Page 77

Volume, Opening Discussion

Replace references to the shaded two-dimensional faces as "bases" with *base faces*. Clarify that the extended distance is the distance between the base faces.

Workbook Page 78

Volume Exercises

Insert

> Label all answers with appropriate units.

In Problem 2, replace the phrase "the width of" with "the base of" when describing the triangular prism.

Workbook Page 81

Self-Assessment Test 0, Instructions

Replace

> For full credit, you must show how you did all of your calculations.

with

> For full credit, you must show all calculations and justify your answers.

In Problem 4(a), add

> Provide a definition.

after "What is a prime number?"

Workbook Page 84

Self-Assessment Test 0, Geometry Instructions

Replace

> For full credit on the following problems, you must label answers with units.

with

> For full credit on the following problems, you must write all formulas used and label answers with units.

Workbook Page 86

Answer Key: Test 0, Problem 19(b)

Correct the cylinder-volume result from approximately

> 213.72 cubic feet

to

> $\pi(8.25)^2(7) \approx 1{,}496.01$ cubic feet.

Workbook Page 87

Launch: Shopping Trip, Part d

Replace the total amount spent

> $175

with

> $170.

Workbook Page 88

Launch: Fencing a Pen, Part d

Replace the cross-reference

> [Section 1.3A – Problem Solving]

with

> [Section 4.1 – Problem Solving with Quadratics]

Workbook Page 89

Problems, Problem 1(d)

Replace

> Solve algebraically for the dimensions and for the perimeter of the pen.

with

> Solve algebraically for the dimensions and for the area of the window.

Workbook Page 91

Problems, Problem 3(d)

Replace

> Assume the volume of the pool is 576 cubic feet. How deep is the pool? Solve for the dimensions of the carton algebraically.

with

> Assume the volume of the carton is 576 cubic inches. What is the depth of the carton? Solve for the dimensions of the carton algebraically.

Keep the instruction to verify the constraints given by the inequalities.

Workbook Page 95

Problems, Student-Credit Problem

Renumber the analysis and solution prompts so that "Translate requirements into symbolic language" is part (c) and "Solve algebraically for the number of credits earned by each student" is part (d).

Workbook Page 103

Formulas, Part II

After the opening instruction, insert

> Check the formula using unit analysis.

In the manager-purchase problems, replace references to "a soda" with "one water" where the item costing $2 is described.

Workbook Page 104

Launch: Building a Deck

Change the quantitative-analysis prompt from part (b) to part (a). Replace "guess-n-check" with "guess-and-check."

Workbook Page 122

Mixed Problems, Ladder Problem

After the statement that the wall is perpendicular to the ground, insert

> Why is that important?

Replace "the base of the ladder" with "the bottom of the ladder."

Workbook Page 127

Answer Key: Test 1

In the translation for the length-width problem, add the unit conversion

> 12 inches = 1 foot.

Workbook Page 128

Launch: Buying Protein Bars

Correct the variable-definition sentence so that the dependent variable depends on the value of the *independent variable*, not on another dependent variable.

Workbook Page 129

Quantitative Analysis for Modeling, Part d

Replace the final question with

> Can we explicitly list all values in the domain and range? Use interval or set notation and include units.

Workbook Page 130

Quantitative Analysis for Modeling

Where domain and range are requested, add

> Include units in interval or set notation.

Workbook Page 131

Modeling Situation 4

Correct the oven statement to read

> The oven started at 70 degrees Fahrenheit. Once turned on, it took 10 minutes to heat to 420°F.

Workbook Page 138

What Is a Function?, Problem 1

Replace

> Use the definition of a function to explain why each function does or does not represent a function.

with

> Use the definition of a function to explain why each graph does or does not represent a function.

Workbook Page 144

Launch: Growing Plants

Renumber the prompts so that "Identify the real-world domain and range" is part (c) and "Create a graph for the function" is part (d).

Workbook Page 145

Linear Tables

In part (b), replace

> find the initial value

with

> find the initial value (including units).

Workbook Page 147

Linear Function Equations

In the opening question, require the meaning of constants m and b *including units.*

Workbook Page 155

Launch: Exploring Linear Graphs

Insert the response prompt

> Direction: increasing, decreasing, or constant.

Workbook Page 156

Linear Graphs, Problem b

Correct the function from

> $P(n) = -100tn + 1500$

to

> $P(n) = -100n + 1500.$

Workbook Page 157

Writing Linear Equations from Graphs

Replace "Slope (CRCh)" with

> Slope (Constant Rate of Change)

and require units for both the vertical and horizontal intercepts.

Workbook Page 163

Linear Table

Correct the last listed ordered pair from

> $(1, 8)$

to

> $(9, 8).$

Workbook Page 165

Slope Clinic

Insert

> A rate of change includes units.

Workbook Page 167

Launch: Window Washers

Add the instruction to label table headings with units. When answers are written in function notation, require units there as well.

Workbook Page 169

Creating and Using Linear Models

Renumber the graphing prompt from part (f) to part (j):

> Sketch the graph of the function. Identify, label, and interpret the intercepts.

Workbook Page 170

Elevator Problem

After part (h), insert part (j):

> When will the elevator reach the ground floor?

Workbook Page 173

Linear Model Application

Replace

> Exactly how many shirts did they sell if the profit is \$575?
> Exactly how much profit do they earn if they sell 113 shirts?

with

> Exactly how many items did they sell if the profit is \$5,760?
> Exactly how much profit do they earn if they sell 32 items?

Workbook Page 175

Domain and Range

Where negative quantities are excluded from a contextual domain, insert

> Justify why negative quantities are excluded.

Workbook Page 177

Linear Modeling

Replace references to the "x-intercept" and "y-intercept" with *horizontal intercept* and *vertical intercept*, respectively. Add the instruction to label the intercepts on the graph.

Workbook Page 183

Answer Key: Test 2, Problem 6(d)

Clarify the time result as

> $t = 138$ seconds, or 2.3 minutes.

Workbook Page 185

Exponential Tables, Problem 1

Correct the table entry

> 375,000

to

> 37,500.

Workbook Page 186

Exponential Tables

Insert

> Compare linear and exponential models. If $F(100) = 99{,}000$, which is the better model?

Workbook Page 198

Comparing Linear and Exponential

Replace the opening instruction with

> Each graph is linear or exponential. For each, justify its classification and write its equation using the labeled points. Show algebraic work.

Workbook Page 201

Launch: A Growing Colony

Renumber the prompt "Write the function equation" from part (g) to part (j).

Workbook Page 211

Mixed Tables, Situations, and Equations

Where students are instructed to write the domain and range, add

> Include units.

Workbook Pages 213–216

Self-Assessment Test 3

The 2026 reprint substantially revises and reorders this test. Make the following substantive updates:

- Add a new first problem asking students to classify three tables as linear, exponential, or neither and justify the classification with calculations.
- Move the graph-equation problem to Problem 2 and use six graphs labeled A–F.
- Add separate questions asking how many x-intercepts a linear function can have and how many x-intercepts an exponential function can have, with explanations and sketches.
- Move the used-car model to Problem 5 and the house-value model to Problem 6.
- Move the bacteria-decay problem to Problem 7 and the Kaitlyn investment problem to Problem 8; for the investment model, round the multiplier to thousandths.
- In Problem 10, change the bacteria growth rate from $\frac{1}{9}$ per day to $\frac{2}{11}$ per day and require students to identify, describe, and label both related variables including units.

Workbook Page 217

Answer Key: Test 3

Update the answer-key numbering to match the revised test. In particular:

> Problem 1: A. Neither; B. Linear; C. Exponential.

For the used-car model, report the time to a value of \$5,000 as approximately 20.7 years. For the house model, the 2035 value is approximately \$429,371.74 and the time to \$500,000 is approximately 24.6 years.

Workbook Page 219

The Quadratic Formula

After introducing the quadratic formula, insert

> The quantity under the square root in the Quadratic Formula is called the discriminant. Why is it given this name?

Workbook Page 221

Quadratic Problems

Renumber the prompt beginning "How many solutions did you find in part (c)?" from part (b) to part (d).

Workbook Pages 222–225

Quadratic Problem-Solving Prompts

Correct the letter labels so that the sequence of quantitative analysis, translation into symbolic language, and algebraic solution proceeds in order. In particular, the translation prompt is part (b) and the solving prompt is part (c) where shown in the 2026 reprint.

Workbook Page 233

Quadratic Tables

Insert

> Which table has constant second differences?

Workbook Page 243

Graphing Quadratics, Problem 4

Correct

> $h(x) = -x^2 + 40t + 9600$

to

> $h(x) = -x^2 + 40x + 9600.$

Workbook Page 247

Critical Thinking

In Problem 1, replace "the other -intercept" with "the other x-intercept." Insert

> A mirror point is the reflection of a point across the axis of symmetry.

Workbook Page 248

More Graphing Parabolas, Problem 2

Correct the constant term from

> $++3$

to

> $+3.$

Workbook Page 255

Optimization Problems

Replace

> How many solutions to the area formula are there? Explain.
> Find the solution that maximizes the area. What is the maximum possible area?

with

> How many possible areas can the plot have? Explain.
> Find the dimensions that maximize the area. What is the maximum possible area?

Workbook Page 259

Self-Assessment Test 4

Before Problem 4, insert the missing prompt

> (d) Find the perimeter of the field.

Workbook Page 263

Water-Balloon Model

In part (g), replace

> Give the contextual (real-world) domain and range for this function.

with

> Give the contextual (real-world) domain and range for this function. Justify the endpoints using context.

Workbook Page 264

Answer Key: Test 4

Correct the intercept statement for the profit model to

> $P(35) = 0$ or $P(70) = 0$.

For the water-balloon problem, the contextual domain and range are

> Domain $= [0, 3.71]$ seconds; Range $= [0, 97]$ feet,

with peak height 97 feet and landing time 3.71 seconds. The graph should include the important points $(0, 72)$, $(1.25, 97)$, and $(3.71, 0)$.