LOUISIANA LEAP



ALGEBRA I
WORKBOOK

PRACTICE PROBLEMS TO MASTER ALGEBRA I

$y = mx + b$

$a^2 + b^2 = c^2$

WORKBOOK

Louisiana LEAP

Algebra I Workbook

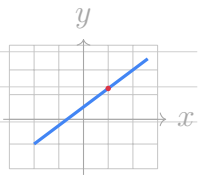
Comprehensive Practice, Challenging Exercises, and

Strategic Guidance for Complete Test-Day Confidence

- ☐ Topic practice with room to work, check, and correct mistakes.
- ☐ Mixed review that keeps earlier Algebra I skills active.
- ☐ Practice tests and explanations for final readiness.

Skill Check

1. Solve: $2x + 5 = 17$
2. Factor: $x^2 - 9$
3. Interpret the slope.



$f(x)$

Reza Nazari

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Louisiana Algebra I Standards

Every topic in this book is built around the official Louisiana Algebra I standards. The list below shows the standards used by the topics in this book. Codes are kept in the state reference format, so each state keeps its own code style instead of a generic numbered list.

Use this page as a map while you study. Every code listed here appears beside at least one topic heading, and some topics naturally connect to two or three standards.

How to use this list:

- **Before you start** — skim the standards to see the big picture of what Algebra I covers.
- **As you study** — connect the code beside a topic to the skill it strengthens.
- **Before the test** — use the list as a final checklist for your review.

A1: A-APR

This section treats polynomials as algebraic building blocks: students add, subtract, multiply, and rewrite them so they can be used in equations and models.

A1: A-APR	Perform arithmetic operations on polynomials
A1: A-APR.A	Perform arithmetic operations on polynomials.
A1: A-APR.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

A1: A-CED

Scan Me

Here, students turn situations into algebra: equations, inequalities, and formulas that describe relationships, limits, and constraints.

A1: A-CED	Create equations that describe numbers or relationships
A1: A-CED.A	Create equations that describe numbers or relationships.

A1: A-CED.A

Here, students turn situations into algebra: equations, inequalities, and formulas that describe relationships, limits, and constraints.

A1: A-CED.A.1	Create equations and inequalities in one variable and use them to solve problems.
A1: A-CED.A.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
A1: A-CED.A.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.
A1: A-CED.A.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

A1: A-REI

This section is about solving with reasons: equations, inequalities, and systems are connected to their tables, graphs, and real solution sets.

A1: A-REI	Understand solving as a reasoning process and solve equations and inequalities
A1: A-REI.A	Understand solving equations as a process of reasoning and explain the reasoning.
A1: A-REI.B	Solve equations and inequalities in one variable.

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

A1: A-REI.B

This section is about solving with reasons: equations, inequalities, and systems are connected to their tables, graphs, and real solution sets.

A1: A-REI.B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
A1: A-REI.B.4a	Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.
A1: A-REI.B.4b	Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as "no real solution."

A1: A-REI.C

This section is about solving with reasons: equations, inequalities, and systems are connected to their tables, graphs, and real solution sets.

A1: A-REI.C.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
A1: A-REI.C.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

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 (outliers).

A1: S-ID.B

This section turns data into evidence: students summarize distributions, compare data sets, interpret displays, fit models, and describe associations.

A1: S-ID.B.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.
A1: S-ID.B.6a	Fit a function to the data; use functions fitted to data to solve problems in the context of the data.
A1: S-ID.B.6b	Informally assess the fit of a function by plotting and analyzing residuals.
A1: S-ID.B.6c	Fit a linear function for a scatter plot that suggests a linear association.

A1: S-ID.C

This section turns data into evidence: students summarize distributions, compare data sets, interpret displays, fit models, and describe associations.

A1: S-ID.C.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
A1: S-ID.C.8	Compute (using technology) and interpret the correlation coefficient of a linear fit.
A1: S-ID.C.9	Distinguish between correlation and causation.

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CHAPTER

1

Foundations of Algebra

1. Variables, Expressions, and Properties — A1: A-SSE.A.1a, A1: A-SSE.A.1b
2. Order of Operations and Evaluating Expressions — A1: A-SSE.A.1a, A1: A-SSE.A.2
3. Simplifying Algebraic Expressions — A1: A-SSE.A.2
4. Introduction to Equations and Solutions — A1: A-REI.A.1, A1: A-CED.A.1
5. Personal Financial Literacy — A1: N-Q.A.1, A1: N-Q.A.2, A1: N-Q.A.3