

Algebra I

SCOPE + SEQUENCE

CONTENT OFFERED IN CARNEGIE LEARNING™ MATH SOLUTIONS

Textbook	Cognitive Tutor®Software	Skills Covered
Print Chapter	Software Unit	The student will:
1. Patterns and Multiple Representations	1. Linear Patterns 3. Linear Models and First Quadrant Graphs 4. One-Step Linear Equations 6. Linear Models and Independent Variables	<ul style="list-style-type: none"> Identify the terms of sequences. Describe patterns of sequences. Write and evaluate numerical and algebraic expressions. Use a sequence of numbers to represent a problem situation. Write and solve an equation in two variables. Identify independent and dependent variables. Use different methods to represent a problem situation. Write an expression. Plot points on a graph using coordinates.
2. Proportional Reasoning, Percents, and Direct Variation	2. One-Step Unit Conversions 7. Ratios and Proportions 8. Linear Models and Ratios 9. Multiple-Step Unit Conversions	<ul style="list-style-type: none"> Write and solve proportions. Use rates and proportions to solve mixture problems. Use similar figures to write and solve a proportion. Use rates to convert units. Use ratios in a direct variation problem. Find percents. Write ratios as fractions. Compare rates. Write proportions.
3. Solving Linear Equations	5. Two-Step Linear Equations 10. Linear Models and Four Quadrant Graphs	<ul style="list-style-type: none"> Write an expression. Write and solve equations. Add, subtract, multiply, and divide integers. Plot points in a coordinate plane. Use a graph to estimate solutions of equations.
4. Linear Functions and Inequalities	11. Linear Equations with Similar Terms 12. Linear Inequalities 13. Relations and Functions 14. Linear Equations and the Distributive Property 15. Linear Models and the Distributive Property 16. Rational and Irrational Numbers 17. Absolute Value Equations and Inequalities	<ul style="list-style-type: none"> Graph and solve inequalities. Determine whether relations are functions. Determine domains and ranges of functions. Write and evaluate functions. Use distributive properties. Understand the properties of real numbers. Solve equations with variables on both sides. Solve absolute value equations. Solve and graph absolute value inequalities.
5. Writing and Graphing Linear Equations	18. Linear Models and Slope-Intercept Graphs A 20. Literal Equations 21. Finding Equations of a Line 22. Linear Models in General Form	<ul style="list-style-type: none"> Represent linear functions using equations, tables, and graphs. Interpret the meaning of intercepts in a problem situation. Describe slopes of lines. Find rates of change. Identify slopes and y-intercepts from equations. Write an equation of a line. Graph a piecewise function. Solve an equation for a specified variable. Solve literal equations for one variable.
6. Lines of Best Fit		<ul style="list-style-type: none"> Create a scatter plot. Draw a line of best fit. Find an equation of a line of best fit. Use a line of best fit to make predictions. Perform an experiment. Determine whether data are positively correlated, negatively correlated, or not correlated.
7. Systems of Equations and Inequalities	19. Linear Equations with Variables on Both Sides 23. Systems of Linear Equations Modeling 24. Graphs of Linear Equations in Two Variables 25. Systems of Linear Equations 26. Graphs of Linear Inequalities in Two Variables 27. Systems of Linear Inequalities	<ul style="list-style-type: none"> Determine the number of solutions of a linear system. Identify parallel and perpendicular lines. Solve linear systems. Write and graph an inequality in two variables. Write and graph a system of linear inequalities.

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8. Quadratic Functions	28. Quadratic Models and Area 29. Quadratic Equation Solving 30. Quadratic Models and Vertical Motion	<ul style="list-style-type: none"> Graph and evaluate quadratic functions. Find the line of symmetry and the vertex of a parabola. Identify the maximum or minimum value of a function. Use linear and quadratic functions to model a situation. Approximate a square root. Solve quadratic equations. Write and use a vertical motion model.
9. Properties of Exponents	31. Exponents 32. Scientific Notation 33. Product Rule For Exponents 34. Quotient Rule for Exponents	<ul style="list-style-type: none"> Multiply and divide powers. Evaluate powers with positive, negative, and zero exponents. Write numbers in scientific notation. Use the properties of exponents. Find the nth root of a number. Write an expression in radical form. Write an expression in rational exponent form. Compare numbers written in scientific notation. Simplify expressions using the product or quotient rule.
10. Polynomial Functions Rational Expressions	35. Polynomial Operations 36. Quadratic Expression Factoring 37. Rational Expressions	<ul style="list-style-type: none"> Identify terms and coefficients of polynomials. Write polynomials in standard form. Use the Vertical Line Test to determine whether equations are functions. Add, subtract, multiply, and divide polynomials. Use formulas to find special products. Factor a polynomial. Simplify rational expressions. Add, subtract, multiply, and divide rational expressions.
11. Probability	38. Single Event Probability 39. Independent and Dependent Probabilities	<ul style="list-style-type: none"> Find the odds in favor of an event. Find theoretical and experimental probabilities. Use experimental probabilities to make predictions. Find and compare probabilities. Find permutations and combinations. Find and use geometric probabilities.
12. Statistical Analysis	40. Measures of Central Tendency	<ul style="list-style-type: none"> Determine the distribution of a data set. Find the mean, median, mode, and range of a data set. Collect and organize data. Determine how data values affect the mean and median of a data set. Identify outliers in a data set. Determine the appropriate measure for a data set. Find a missing data value given the mean.
13. Quadratic and Exponential Functions and Logic	41. Pythagorean Theorem 42. Distance and Midpoint 43. Linear and Quadratic Transformations 44. Exponential Modeling	<ul style="list-style-type: none"> Use the Pythagorean Theorem to find the side length of a right triangle. Use the converse of the Pythagorean Theorem to determine whether a triangle is a right triangle. Find the distance between two points in the coordinate plane. Find the midpoint between two points in the coordinate plane. Solve quadratic equations by completing the square. Use the graph of a parent function to describe the graph of a function. Write equations of functions based on the graphs of functions. Write and graph exponential functions. Write and use an exponential growth and an exponential decay model. Prove a statement by using a direct or an indirect proof. Find the square of each side of a right triangle.