

Oklahoma Algebra 1 with CORD Algebra 1, 2nd Edition

Priority Academic Student Skills

MATHEMATICS CONTENT STANDARDS

Algebra I

The following skills are required of all students completing Algebra I. **Major Concepts** should be taught in depth using a variety of methods and applications (concrete to the abstract). **Maintenance Concepts** have been taught previously and are a necessary foundation for this course. The major concepts are considered minimal exit skills and districts are strongly encouraged to exceed these skills when building an Algebra I curriculum. Visual and physical models, calculators, and other technologies are recommended when appropriate and can enhance both instruction and assessment.

MAJOR CONCEPTS	MAINTENANCE CONCEPTS
<p>Number Sense and Algebraic Operations - Polynomials, Exponents, Expressions</p> <p>Relations and Functions - Linear Functions & Slope Formulas</p> <p>Data Analysis, Statistics and Probability- Tables, Graphs, Charts, Scatter Plots</p>	<p>Number Sense & Algebraic Reasoning- Equations, Inequalities, Exponents, Rational Numbers</p> <p>Geometry Volume, Surface Area, Ratio, Proportion, Formulas</p> <p>Data Analysis and Statistics - Graphical Representations, Measures of Central Tendency</p>

Standard 1: Number Sense and Algebraic Operations - The student will use expressions and equations to model number relationships.

1. Translate word phrases and sentences into expressions and equations and vice versa.

Pages or Location: 80-84, 85-92, See features “Practice and Problem Solving” and “Mixed Review” exercises at end of each lesson; and “Math Applications” exercises at end of each chapter
2. Expressions
 - a. Use the laws of exponents to perform operations on expressions with integer exponents.

Pages or Location: 37-43, 47, 60, 76, 84, 96, 160, 174, 240, 570-574, 575-580, 616, 637
 - b. Simplify and evaluate linear, absolute value, rational and radical expressions.

Pages or Location: 13-16, 62, 72, 76, 80-84, 85, 142, 217, 240, 311, 581-585, 612, 694-698, 717-719, 721
 - c. Simplify polynomials by adding, subtracting or multiplying.

Pages or Location: 175-178, 558-563, 570-574, 581-585, 586-592, 599, 601-606, 611, 612, 616

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Standard 2: Relations and Functions - The student will use relations and functions to model number relationships.

1. Relations and Functions
 - a. Distinguish between linear and nonlinear data.
Pages or Location: 205, 226, 266, 288-290, 322, 327, 328, 329, 333, 334
 - b. Distinguish between relations and functions.
Pages or Location: 241, 280-286, 290
 - c. Identify dependent and independent variables, domain and range.
Pages or Location: 225, 241-242, 280-286, 292, 293, 297, 301, 312, 314, 315, 332, 338, 448, 469, 511
 - d. Evaluate a function using tables, equations or graphs.
Pages or Location: 267, 272, 287-290, 297, 311, 319, 338, 348, 373, 403, 410, 448, 469, 511, 631, 637
2. Recognize the parent graph of the functions $y = k$, $y = x$, $y = |x|$, and predict the effects of transformations on the parent graph (e.g., $y = |x| + 2$, change slope, change intercepts, change slope and intercept).
Pages or Location: 255-259, 274, 296-303, 318, 348, 622, 698
3. Calculate the slope of a line using a graph, an equation, two points or a set of data points.
Pages or Location: 218-224, 225-233, 249-254, 265-277, 282, 286, 303, 311, 327, 373, 403, 410, 414, 442, 462, 500, 511, 523, 527, 529, 531, 625, 632
4. Develop the equation of a line and graph linear relationships given the following:
 - a. slope and y-intercept
Pages or Location: 227-233, 234-240, 262-263, 263-264, 265-277, 282, 444, 523, 527, 529
 - b. slope and one point on the line
Pages or Location: 234-240, 249-254, 276, 410
 - c. two points on the line
Pages or Location: 236-237, 242-247, 262-263, 263-264, 265, 266, 268, 271, 272, 273, 274
 - d. x-intercept and y-intercept
Pages or Location: 241-242
 - e. a set of data points
Pages or Location: 214-215, 218, 226, 247, 292,
5. Slope Interpretation
 - a. Use the slope to differentiate between lines that are parallel, perpendicular, horizontal, or vertical.

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Pages or Location: 218-219, TE 220, 223, 249-254, 258, 269, 273, 414, 449-454, 606, 625

- b. Interpret the slope and intercepts within the context of everyday life (e.g., telephone charges based on base rate [y-intercept] plus rate per minute [slope]).

Pages or Location: 262-263, 269, 270, 274, 277, 320

6. Linear Equations and Inequalities

- a. Solve linear equations by graphing or using properties of equality.

Pages or Location: 146-154, 155-160, 161-168, 169-174, 175-179, 190-203, 225-233, 248, 254, 286, 303, 442-448, 592, 632

- b. Solve linear inequalities by graphing or using properties of inequalities.

Pages or Location: 496-500, 501-505, 506-511, 512-518, 519-522, 523-531, 532-536, 544-555, 574, 580, 625, 687

- c. Match appropriate equations or inequalities (with 1 or 2 variables) to a graph, table, or situation and vice versa.

Pages or Location: 246, 328-333, 497-499, 530, 544, 667

7. Solve a system of linear equations by graphing, substitution or elimination.

Pages or Location: 442-448, 449-455, 456-462, 463-469, 470-475, 481-493, 518, 531, 536, 569, 580, 585, 592, 600, 606, 625, 632, 644, 698, 708, 721

8. Problem Solving

- a. Use the formulas from measurable attributes of geometric models (perimeter, circumference, area and volume), science, and statistics to solve problems within an algebraic context.

Pages or Location: 80-84, 85-92, 93-96, 97-102, 103-106, 107-113, 128-143, 167, 173, 174, 185-186, 186-188, 190, 192-194, 198, 200, 248, 317, 396, 398, 420-425, 475, 563, 625, 692, 696, 716

- b. Solve two-step and three-step problems using concepts such as rules of exponents, probability, rate, distance, ratio and proportion, measures of central tendency and percent.

Pages or Location: See features “Practice and Problem Solving” and “Mixed Review” exercises at end of each lesson in Chapters 3 through 12, and “Math Applications” exercises at end of Chapter 3 through 12.

Standard 3: Data Analysis and Statistics - The student will use data analysis and statistics to formulate and justify predictions from a set of data.

1. Data Analysis

- a. Translate from one representation of data to another and understand that the data can be represented using a variety of tables, graphs, or symbols and that different modes of representation often convey different messages.

Pages or Location: 390-396, 397-403, 404-410, 411-414, 415-419, 420-425, 430-439, 448, 505, 518, 538-540, 656

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- b. Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.

Pages or Location: 312-319, 323, 324, 325, 332, 338, 404-410, 431, 432, 437, 439, 483, 518, 625

2. Collect data involving two variables and display on a scatter plot; interpret results using a linear model/equation and identify whether the model/equation is a line best fit for the data (e.g., given a scatter plot and several linear equations, which one is the best fit?).

Pages or Location: 404-410, 432, 437, 439, 518