

Louisiana Grade 9 Standards to CORD Algebra 1, 2nd Edition

Book Title: CORD Algebra 1, 2nd Edition **Grade Level:** 9

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Grade 9

Number and Number Relations

In problem-solving investigations, students demonstrate an understanding of the real number system and communicate the relationships within that system using a variety of techniques and tools.

Students use estimation, mental arithmetic, number lines, graphs, appropriate models, manipulatives, calculators, and computers as they extend their investigations of problems involving real numbers.

| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|--|--|
| 1 Identify and describe differences among natural numbers, whole numbers, integers, rational numbers, and irrational numbers (N-1-H) (N-2-H) (N-3-H) | Page or Location: 4-8 |
| 2. Evaluate and write numerical expressions involving integer exponents (N-2-H) | Page or Location: 40-43, 47, 76, 83-84, 96, 142, 160, 174, 217, 240, 311 |
| 3. Apply scientific notation to perform computations, solve problems, and write representations of numbers (N-2-H) | Page or Location: 37-43, 44-48, 55-56, 59-77, 84, 92, 96, 106, 113, 114-117, 137, 160, 168, 174, 240, 254, 286, 319, 355, 396, 455, 475, 500, 578, 579, 605, 637 |
| 4. Distinguish between an exact and an approximate answer, and recognize errors introduced by the use of approximate numbers with technology (N-3-H) (N-4-H) (N-7-H) | Page or Location: 114-117, 118-121 |

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| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|---|---|
| 5. Demonstrate computational fluency with all rational numbers (e.g., estimation, mental math, technology, paper/pencil) (N-5-H) | Page or Location: 4-8, 13-17, 18-25, 26-31, 32-36, 37-43, 44-48, 49-53, 59-77, 93-96, 102, 105, 137, 155-160, 174, 180-184, 190-192, 505, TE 528, 537-538, 564-569, 570-574, 575-580, 581-585, 694-698, 699-708, 709-716, 717-721, Workplace Communication” pages 111, 172, 216, 302, 353, 401, 473, 509, 605, 705; “Practice and Problem Solving” ” and “Mixed Review” exercises at end of each lesson; “Math Applications” exercises at end of each chapter |
| 6. Simplify and perform basic operations on numerical expressions involving radicals (e.g., $2\sqrt{3} + 5\sqrt{3} = 7\sqrt{3}$) (N-5-H) | Page or Location: 305-310, 694-698, 717-721, 730-732 |
| 7. Use proportional reasoning to model and solve real-life problems involving direct and inverse variation (N-6-H) | Page or Location: 155-160, 291-295, 330, 332, 333, 335, 338, 680-687 |

Algebra

In problem-solving investigations students demonstrate an understanding of concepts and processes that allow them to analyze, represent, and describe relationships among variable quantities and to apply algebraic methods to real-world situations.

Students use manipulatives, models, graphs, tables, technology, number sense, and estimation as they extend their investigations of problems involving the concepts and application of algebra.

| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|--|--|
| 8. Use order of operations to simplify or rewrite variable expressions (A-1-H) (A-2-H) | Page or Location: 80-84, 175-179, 217, 235-237, 242-243, 287-290 |

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| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|---|---|
| 9. Model real-life situations using linear expressions, equations, and inequalities (A-1-H) (D-2-H) (P-5-H) | Page or Location: 80-84, 85-92, 161-168, 169-174, 175-179, 190-203, 225-233, 234-240, 241-248, 265-277, 442-448, 456-462, 463-469, 470-475, 481-493, 496-500, 501-505, 506-511, 512-518, 519-522, 523-531, 532-536 |
| 10. Identify independent and dependent variables in real-life relationships (A-1-H) | Page or Location: 225, 241-242, 280-286, 292, 293, 312, 314, 315, 338, 448, 469, 511 |
| 11. Use equivalent forms of equations and inequalities to solve real-life problems (A-1-H) | Page or Location: 146-154, 155-160, 161-168, 169-174, 175-179, 180-184, 501-505, 506-511, 512-518, 519-522. Also, see features "Practice and Problem Solving" and "Mixed Review" exercises at end of each lesson in Chapter 3-12, and "Math Applications" exercises at end of each chapter in Chapter 3-12. |
| 12. Evaluate polynomial expressions for given values of the variable (A-2-H) | Page or Location: 80-84, 85, 142, 217, 240, 311 |
| 13. Translate between the characteristics defining a line (i.e., slope, intercepts, points) and both its equation and graph (A-2-H) (G-3-H) | Page or Location: 214-215, 218-224, 225-233, 234-240, 241-247, 249-254, 262-263, 263-264, 265-277, 282, 286, 292, 303, 311, 327, 373, 403, 410, 414, 442, 444, 462, 500, 511, 523, 527, 529, 531, 625, 632 |
| 14. Graph and interpret linear inequalities in one or two variables and systems of linear inequalities (A-2-H) (A-4-H) | Page or Location: 496-500, 501-505, 506-511, 512-518, 519-522, 523-531, 532-536, 544-555, 580, 625, 687 |
| 15. Translate among tabular, graphical, and algebraic representations of functions and real-life situations (A-3-H) (P-1-H) (P-2-H) | Page or Location: 241-248, 267, 272, 274, 280-286, 287-290, 292-293, 297, 301, 311, 318, 319, 328-333, 338, 348, 373, 403, 404-410, 432, 437, 448, 469, 511, 530, 627, 631, 637, 662-663, 667, 677 |

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| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|---|---|
| 16. Interpret and solve systems of linear equations using graphing, substitution, elimination, with and without technology, and matrices using technology (A-4-H) | Page 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 |

Measurement

In problem-solving investigations, students demonstrate an understanding of the concepts, processes, and real-life applications of measurement.

Students use number sense, estimation, appropriate manipulatives, tools, and technology as they extend their investigations of problems involving measurement.

| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|--|---|
| 17. Distinguish between precision and accuracy (M-1-H) | Page or Location: 114-117 |
| 18. Demonstrate and explain how the scale of a measuring instrument determines the precision of that instrument (M-1-H) | Page or Location: 114 |
| 19. Use significant digits in computational problems (M-1-H) (N-2-H) | Page or Location: 115-117 |
| 20. Demonstrate and explain how relative measurement error is compounded when determining absolute error (M-1-H) (M-2-H) (M-3-H) | Page or Location: 118-121 |
| 21. Determine appropriate units and scales to use when solving measurement problems (M-2-H) (M-3-H) (M-1-H) | Page or Location: 44-48, 49-53, 97-102, 102-106, 107-113, 114-117. Also, Math Lab activities are found at the end of each chapter. Many of these activities require students to determine the appropriate units and scales to use in their measurements and calculations. |

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| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|---|---|
| 22. Solve problems using indirect measurement (M-4-H) | Page or Location: 125-127, 143, 308-311, 323-324, 684, 688-693, 707, 714, 715-716, 728-730, 741 |

Geometry

In problem-solving investigations, students demonstrate an understanding of geometric concepts and applications involving one-, two-, and three-dimensional geometry, and justify their findings.

Students use number sense, estimation, models, drawings, manipulatives, and technology as they extend their investigations of problems involving geometric concepts.

| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|--|--|
| 23. Use coordinate methods to solve and interpret problems (e.g., slope as rate of change, intercept as initial value, intersection as common solution, midpoint as equidistant) (G-2-H) (G-3-H) | Page or Location: 232, 262-263, 269, 270, 274, 442-448, 449 |
| 24. Graph a line when the slope and a point or when two points are known (G-3-H) | Page or Location: 213-217, 218, 225-233, 247, 249-254, 282, 442-448, 523-531 |
| 25. Explain slope as a representation of “rate of change” (G-3-H) (A-1-H) | Page or Location: 236-237, 242, 245, 246, 268, 291, 404-410 |
| 26. Perform translations and line reflections on the coordinate plane (G-3-H) | Page or Location: 256-259, 296-303, 318, 348, 698 |

Data Analysis, Probability, and Discrete Math

In problem-solving investigations, students discover trends, formulate conjectures regarding cause-and-effect relationships, and demonstrate critical thinking skills in order to make informed decisions.

Students use collection and organizational techniques, number sense, estimation, manipulatives, and technology as they extend their investigations of problems involving data.

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| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|--|---|
| 27. Determine the most appropriate measure of central tendency for a set of data based on its distribution (D-1-H) | Page or Location: 390-395, 403, 430, 436, 438, 505 |
| 28. Identify trends in data and support conclusions by using distribution characteristics such as patterns, clusters, and outliers (D-1-H) (D-6-H) (D-7-H) | Page or Location: 404-410, 411-414, 415-419, 420-425, 430-439, 518 |
| 29. Create a scatter plot from a set of data and determine if the relationship is linear or nonlinear (D-1-H) (D-6-H) (D-7-H) | Page or Location: 274, 404-410, 432, 437, 439, 518, 657-660, 662-663, 677 |
| 30. Use simulations to estimate probabilities (D-3-H) (D-5-H) | Page or Location: 349-355, 374-375, 375-376, 378-387 |
| 31. Define probability in terms of sample spaces, outcomes, and events (D-4-H) | Page or Location: 342-348, 349-355, 356-361, 362-367, 368, 377, 378-387 |
| 32. Compute probabilities using geometric models and basic counting techniques such as combinations and permutations (D-4-H) | Page or Location: 362-367, 372, 374-375, 375-376, 377-387 |
| 33. Explain the relationship between the probability of an event occurring, and the odds of an event occurring and compute one given the other (D-4-H) | Page or Location: 342-348 |
| 34. Follow and interpret processes expressed in flow charts (D-8-H) | Page or Location: None |

Patterns, Relations, and Functions

In problem-solving investigations, students demonstrate an understanding of patterns, relations, and functions that represent and explain real-world situations.

Students use number sense, estimation, manipulatives, drawings, tables, graphs, formulas, and technology as they extend their investigations of problems involving patterns, relations, and functions.

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| GRADE LEVEL EXPECTATIONS | CORRELATION NOTATIONS |
|---|---|
| 35. Determine if a relation is a function and use appropriate function notation (P-1-H) | Page or Location: 241, 280-286, 290 |
| 36. Identify the domain and range of functions (P-1-H) | Page or Location: 280-286, 293, 297, 301, 314, 332, 338, 448, 469, 511, 627 |
| 37. Analyze real-life relationships that can be modeled by linear functions (P-1-H) (P-5-H) | Page or Location: 241-248, 265-277 |
| 38. Identify and describe the characteristics of families of linear functions, with and without technology (P-3-H) | Page or Location: 255-259 |
| 39. Compare and contrast linear functions algebraically in terms of their rates of change and intercepts (P-4-H) | Page or Location: 255-259 |
| 40. Explain how the graph of a linear function changes as the coefficients or constants are changed in the function's symbolic representation (P-4-H) | Page or Location: 255-259 |