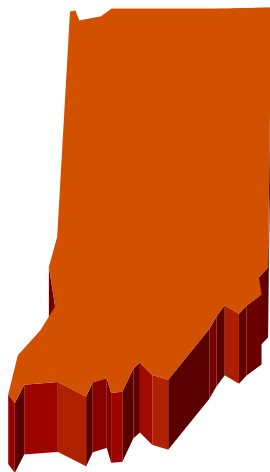
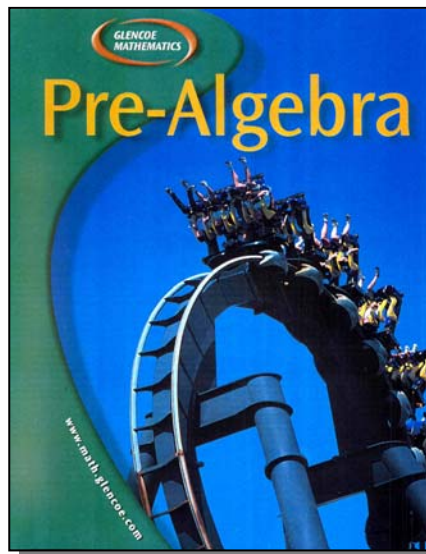


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alignment to

**Indiana
Academic Mathematics Standards
Grade 7**

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ALIGNMENT TO

**INDIANA ACADEMIC MATHEMATICS STANDARDS
GRADE 7**

OBJECTIVES	PAGE REFERENCES
Standard 1	
Number Sense	
<i>Students understand and use scientific notation* and square roots. They convert between fractions and decimals.</i>	
7.1.1 Read, write, compare, and solve problems using whole numbers in scientific notation.	SE: 186–190, 194–195, 204, 268, 733 TWE: 186–190, 194–195, 204, 268, 733
7.1.2 Compare and order rational* and common irrational* numbers and place them on a number line.	SE: 56–61, 206, 441–445 TWE: 56–61, 206, 441–445
7.1.3 Identify rational and common irrational numbers from a list.	SE: 56–61, 205–209, 441–445 TWE: 56–61, 205–209, 441–445
7.1.4 Understand and compute whole number powers of whole numbers.	SE: 153–157, 174, 175–179, 192, 194 TWE: 153–157, 174, 175–179, 192, 194
7.1.5 Find the prime factorization* of whole numbers and write the results using exponents.	SE: 159–162, 192, 224, 236, 731 TWE: 159–162, 192, 224, 236, 731
7.1.6 Understand and apply the concept of square root.	SE: 436–440, 451, 483, 618, 745 TWE: 436–440, 451, 483, 618, 745
7.1.7 Convert terminating decimals* into reduced fractions.	SE: 200–204, 205–208, 255 TWE: 200–204, 205–208, 255

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OBJECTIVES	PAGE REFERENCES
Standard 2	
Computation	
<i>Students solve problems involving integers*, fractions, decimals, ratios, and percentages.</i>	
7.2.1 Solve addition, subtraction, multiplication, and division problems that use integers, fractions, decimals, and combinations of the four operations.	SE: 5, 62–63, 64–66, 70–72, 75–79, 80–84, 91–92, 97, 210–214, 215–219, 220–224, 232–236, 242, 256, 350–352, 491, 538, 567, 712–713, 714–716 TWE: 5, 62–63, 64–66, 70–72, 75–79, 80–84, 91–92, 97, 210–214, 215–219, 220–224, 232–236, 242, 256, 350–352, 491, 538, 567, 712–713, 714–716
7.2.2 Calculate the percentage increase and decrease of a quantity.	SE: 304–308, 320, 739 TWE: 304–308, 320, 739
7.2.3 Solve problems that involve discounts, markups, and commissions.	SE: 298–302, 308, 738 TWE: 298–302, 308, 738
7.2.4 Use estimation to decide whether answers are reasonable in problems involving fractions and decimals.	SE: 5, 209, 220, 230, 294–298, 302, 308, 321, 397, 712, 714, 716–717, 738 TWE: 5, 209, 220, 230, 294–298, 302, 308, 321, 397, 712, 714, 716–717, 738
7.2.5 Use mental arithmetic to compute with simple fractions, decimals, and powers.	SE: 8-10, 186-190, 201, 282, 293-297, 319, 525, 728 TWE: 8-10, 186-190, 201, 282, 293-297, 319, 525, 728

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OBJECTIVES	PAGE REFERENCES
Standard 3	
Algebra and Functions	
<i>Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs.</i>	
7.3.1 Use variables and appropriate operations to write an expression, a formula, an equation, or an inequality that represents a verbal description.	SE: 30, 97, 100, 102, 104, 117, 125–130, 131–136, 340–344, 404–408, 677 TWE: 30, 97, 100, 102, 104, 117, 125–130, 131–136, 340–344, 404–408, 677
7.3.2 Write and solve two-step linear equations and inequalities in one variable and check the answers.	SE: 120–122, 126–130, 140, 327, 354–359, 362, 373, 379, 385, 445, 481, 561, 567, 649, 740–741 TWE: 120–122, 126–130, 140, 327, 354–359, 362, 373, 379, 385, 445, 481, 561, 567, 649, 740–741
7.3.3 Use correct algebraic terminology, such as variable, equation, term, coefficient*, inequality, expression, and constant..	SE: 12–14, 17–19, 28–32, 56–57, 103–106 TWE: 12–14, 17–19, 28–32, 56–57, 103–106
7.3.4 Evaluate numerical expressions and simplify algebraic expressions by applying the correct order of operations and the properties of rational numbers* (e.g., identity, inverse, commutative*, associative*, distributive*). Justify each step in the process.	SE: 12, 107, 154–155, 724, 727–728 TWE: 12, 107, 154–155, 724, 727–728
7.3.5 Solve an equation or formula with two variables for a particular variable.	SE: 131–136, 375–377, 399, 401 TWE: 131–136, 375–377, 399, 401
7.3.6 Define slope as vertical change per unit of horizontal change and recognize that a straight line has constant slope or rate of change.	SE: 387–391, 393–397, 398–401, 405, 408, 426, 429 TWE: 387–391, 393–397, 398–401, 405, 408, 426, 429
7.3.7 Find the slope of a line from its graph.	SE: 387–391, 393–397, 409–413 TWE: 387–391, 393–397, 409–413

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OBJECTIVES	PAGE REFERENCES
7.3.8 Draw the graph of a line given the slope and one point on the line, or two points on the line.	SE: 377-378, 382-385, 398-401, 404-408 TWE: 377-378, 382-385, 398-401, 404-408
7.3.9 Identify functions as linear or nonlinear and examine their characteristics in tables, graphs, and equations.	SE: 376-379, 687-691, 700 TWE: 376-379, 687-691, 700
7.3.10 Identify and describe situations with constant or varying rates of change and know that a constant rate of change describes a linear function.	SE: 392, 393-397, 687-691 TWE: 392, 393-397, 687-691

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OBJECTIVES	PAGE REFERENCES
Standard 4	
Geometry	
<i>Students deepen their understanding of plane and solid geometric shapes by constructing shapes that meet given conditions and by identifying attributes of shapes.</i>	
7.4.1 Understand coordinate graphs and use them to plot simple shapes, find lengths and areas related to the shapes and find images under translations (slides), rotations (turns), and reflections (flips).	SE: 506–511, 512, 545–546 TWE: 506–511, 512, 545–546
7.4.2 Understand that transformations — such as slides, turns, and flips — preserve the length of segments, and that figures resulting from slides, turns, and flips are congruent* to the original figures.	SE: 506–511, 512, 545–546 TWE: 506–511, 512, 545–546
7.4.3 Know and understand the Pythagorean Theorem and use it to find the length of the missing side of a right triangle and the lengths of other line segments. Use direct measurement to test conjectures about triangles.	SE: 458-459, 460–464, 465, 469, 485 TWE: 458-459, 460–464, 465, 469, 485
7.4.4 Construct two-dimensional patterns (nets) for three-dimensional objects, such as right prisms*, pyramids, cylinders, and cones.	SE: 554–555, 573-575 TWE: 554–555, 573-575

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OBJECTIVES	PAGE REFERENCES
Standard 5	
Measurement	
<i>Students compare units of measure and use similarity* to solve problems. They compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less regular objects.</i>	
7.5.1 Compare lengths, areas, volumes, weights, capacities, times, and temperatures within measurement systems.	SE: 168, 263, 272, 718–719, 734 TWE: 168, 263, 272, 718–719, 734
7.5.2 Use experimentation and modeling to visualize similarity problems. Solve problems using similarity.	SE: 471–475, 486, 583, 584–588 TWE: 471–475, 486, 583, 584–588
7.5.3 Read and create drawings made to scale, construct scale models, and solve problems related to scale.	SE: 276–280, 285, 317, 583, 587 TWE: 276–280, 285, 317, 583, 587
7.5.4 Use formulas for finding the perimeter and area of basic two-dimensional shapes and the surface area and volume of basic three-dimensional shapes, including rectangles, parallelograms*, trapezoids*, triangles, circles, right prisms*, and cylinders.	SE: 131–136, 140–141, 224, 349, 359, 385, 359, 385, 518–519, 522–523, 533–538, 539–543, 562, 563–567, 568–571, 573–581, 596–597, 750–751 TWE: 131–136, 140–141, 224, 349, 359, 385, 359, 385, 518–519, 522–523, 533–538, 539–543, 562, 563–567, 568–571, 573–581, 596–597, 750–751
7.5.5 Estimate and compute the area of more complex or irregular two-dimensional shapes by dividing them into more basic shapes.	SE: 518–519, 539–543, 548, 573–577, 578 TWE: 518–519, 539–543, 548, 573–577, 578
7.5.6 Use objects and geometry modeling tools to compute the surface area of the faces and the volume of a three-dimensional object built from rectangular solids.	SE: 560, 563, 573–577, 578–579 TWE: 560, 563, 573–577, 578–579

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OBJECTIVES	PAGE REFERENCES
Standard 6	
Data Analysis and Probability	
<i>Students collect, organize, and represent data sets and identify relationships among variables within a data set. They determine probabilities and use them to make predictions about events.</i>	
7.6.1 Analyze, interpret, and display data in appropriate bar, line, and circle graphs and stem-and-leaf plots,* and justify the choice of display.	SE: 451–452, 606–611, 631, 658, 681, 722–723, 752 TWE: 451–452, 606–611, 631, 658, 681, 722–723, 752
7.6.2 Make predictions from statistical data.	SE: 42–44, 310–314, 409–413 TWE: 42–44, 310–314, 409–413
7.6.3 Describe how additional data, particularly outliers, added to a data set may affect the mean*, median*, and mode*.	SE: 82, 92, 238–239, 248, 252, 258, 605, 618, 621, 735 TWE: 82, 92, 238–239, 248, 252, 258, 605, 618, 621, 735
7.6.4 Analyze data displays, including ways that they can be misleading. Analyze ways in which the wording of questions can influence survey results.	SE: 630–633, 634 TWE: 630–633, 634
7.6.5 Know that if P is the probability of an event occurring, then $1 - P$ is the probability of that event not occurring	SE: 313, 646–648 TWE: 313, 646–648
7.6.6 Understand that the probability of either one or the other of two disjoint events* occurring is the sum of the two individual probabilities.	SE: 652–655 TWE: 652–655
7.6.7 Find the number of possible arrangements of several objects using a tree diagram.	SE: 635–638, 645 TWE: 635–638, 645

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OBJECTIVES	PAGE REFERENCES
Standard 7	
Problem Solving	
<i>Students make decisions about how to approach problems and communicate their ideas.</i>	
7.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.	This objective is addressed throughout the text. See, for example: SE: 6-10, 35-38, 39, 40-44, 175-179, 181-185, 186-189, 249-252, 253 TWE: 6-10, 35-38, 39, 40-44, 175-179, 181-185, 186-189, 249-252, 253
7.7.2 Make and justify mathematical conjectures based on a general description of a mathematical question or problem.	SE: 39, 62, 180, 253, 275, 392, 453, 492, 528, 640 TWE: 6-10, 35-38, 39, 40-44, 175-179, 181-185, 186-189, 249-252, 253
7.7.3 Decide when and how to divide a problem into simpler parts.	SE: 158, 249-252, 253, 293-297, 393-397, 573-577, 578-582, 706 TWE: 158, 249-252, 253, 293-297, 393-397, 573-577, 578-582, 706
<i>Students use strategies, skills, and concepts in finding and communicating solutions to problems.</i>	
7.7.4 Apply strategies and results from simpler problems to solve more complex problems.	This objective is addressed throughout the text in the Critical Thinking exercises that are found in every lesson and the Algebra Connection examples. See, for example: SE: Critical Thinking—230, 333, 385, 397 Algebra Connections—25, 58, 77, 150, 161, 166, 170, 217, 221, 227 TWE: Critical Thinking—230, 333, 385, 397 Algebra Connections—25, 58, 77, 150, 161, 166, 170, 217, 221, 227
7.7.5 Make and test conjectures by using inductive reasoning.	SE: 6-10, 39, 62, 180, 253, 275, 392, 453, 492, 528, 640 TWE: 6-10, 39, 62, 180, 253, 275, 392, 453, 492, 528, 640

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OBJECTIVES	PAGE REFERENCES
7.7.6 Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work..	This objective is addressed throughout the text in the Writing in Math exercises that are found in every lesson. See, for example: SE: 74, 162, 219, 391, 445 TWE: 74, 162, 219, 391, 445
7.7.7 Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.	This objective is addressed throughout the text. See, for example: SE: 6-10, 589, 590-594 TWE: 6-10, 589, 590-594
7.7.8 Select and apply appropriate methods for estimating results of rational-number computations.	SE: 6-10, 233, 293-297, 298-302, 570, 712, 714, 716, 717 TWE: 6-10, 233, 293-297, 298-302, 570, 712, 714, 716, 717
7.7.9 Use graphing to estimate solutions and check the estimates with analytic approaches	SE: 414-418, 419-422 TWE: 414-418, 419-422
7.7.10 Make precise calculations and check the validity of the results in the context of the problem.	This objective is addressed throughout the text. See, for example: SE: 6-10, 71, 127, 187, 212, 234, 272, 335, 347, 415, 454, 473, 534, 586, 643, 684 TWE: 6-10, 71, 127, 187, 212, 234, 272, 335, 347, 415, 454, 473, 534, 586, 643, 684
<i>Students determine when a solution is complete and reasonable and move beyond a particular problem by generalizing to other situations.</i>	
7.7.11 Decide whether a solution is reasonable in the context of the original situation.	SE: 6-10, 71, 127, 187, 212, 234, 272, 335, 347, 415, 454, 473, 534, 586, 643, 684 TWE: 6-10, 71, 127, 187, 212, 234, 272, 335, 347, 415, 454, 473, 534, 586, 643, 684
7.7.12 Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.	This objective is addressed throughout the text in the Concept Check and Guided Practice exercises that are found in every lesson. See, for example: SE: 77, 105, 171, 228, 266, 336, 421, 468, 523, 541, 559, 580, 625, 637, 689 TWE: 77, 105, 171, 228, 266, 336, 421, 468, 523, 541, 559, 580, 625, 637, 689

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