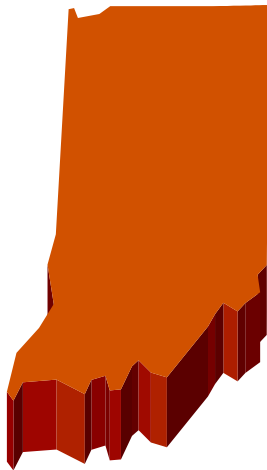
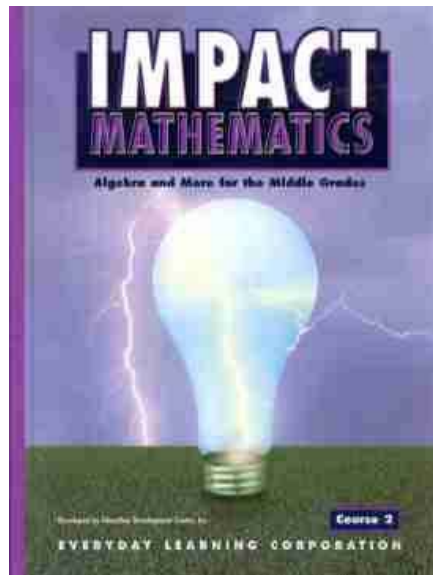


# Glencoe/McGraw-Hill

**Impact Mathematics ©2000**

**Course 2**

**ISBN# 1-57-039855-0**



alignment to

**Indiana  
Academic Mathematics Standards  
Grade 7**

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COURSE 2**

**ALIGNMENT TO  
INDIANA  
ACADEMIC MATHEMATICS STANDARDS**

**GRADE 7**

OBJECTIVES	PAGE REFERENCES
<b>Number Sense</b>	
Students understand and use scientific notation and square roots. They convert between fractions and decimals.	
7.1.1 Read, write, compare and solve problems using whole numbers in scientific notation.	PE: 196–199, 200–202, 205, 206–211, 213–215, 287  TWE: T196–T199, T200–T202, T205, T206–T211, T213–T215, T287
7.1.2 Compare and order rational and common irrational numbers and place them on a number line.	PE: 222–227, 228–229, 255  TWE: T222–T227, T228–T229, T255
7.1.3 Identify rational and common irrational numbers from a list.	TWE: T248  <i>Impact Mathematics Course 3: Chapter 3</i>
7.1.4 Understand and compute whole number powers of whole numbers.	PE: 149–150, 153, 155, 192–195, 374  TWE: T149–T150, T153, T155, T192–T195, T374
7.1.5 Find the prime factorization of whole numbers and write the results using exponents.	PE: 148, 163, 175, 343, 376, 408, 418, 496  TWE: T148, T163, T175, T343, T376, T408, T418, T496
7.1.6 Understand and apply the concept of square root.	PE: 271, 272, 273–275, 276, 277  TWE: T271, T272, T273–T275, T276, T277
7.1.7 Convert terminating decimals into reduced fractions.	PE: 51, 126, 418, 496  TWE: T51, T126, T418, T496

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
<b>Computation</b>	
Students solve problems involving integers, fractions, decimals, ratios, and percentages.	
7.2.1 Solve addition, subtraction, multiplication, and division problems that use integers, fractions, decimals, and combinations of the four operations.	PE: 4–9, 14–21, 22–31, 40, 384–387, 392–394, 410–414, 415–418  TWE: T4–T9, T14–T21, T22–T31, T40, T384–T387, T392–T394, T410–T414, T415–T418
7.2.2 Calculate the percentage increase and decrease of a quantity.	PE: 568–571, 576, 577, 578, 580, 581  TWE: T568–T571, T576, T577, T578, T580, T581
7.2.3 Solve problems that involve discounts, markups, and commissions.	PE: 566–568, 571, 572–574, 582  TWE: T566–T568, T571, T572–T574, T582
7.2.4 Use estimation to decide whether answers are reasonable in problems involving fractions and decimals.	PE: 588–589, 591–592  TWE: T588–T589, T591–T592
7.2.5 Use mental arithmetic to compute with simple fractions, decimals, and powers.	PE: 19–21, 22–31, 193, 194  TWE: T19–T21, T22–T31, T193, T194

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
<b>Algebra and Functions</b>	
Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs.	
7.3.1 Use variables and appropriate operations to write an expression, a formula, an equation, or an inequality that represents a verbal description.	PE: 4–9, 10–21, 22–30, 32–33, 34–36, 37–45, 46–49, 52–57, 67, 73–74, 386–387, 392–394, 396–403, 404–407, 411, 413, 415–417, 419–428, 429–431  TWE: T4–T9, T10–T21, T22–T30, T32–T33, T34–T36, T37–T45, T46–T49, T52–T57, T67, T73–T74, T386–T387, T392–T394, T396–T403, T404–T407, T411, T413, T415–T417, T419–T428, T429–T431
7.3.2 Write and solve two-step linear equations and inequalities in one variable and check the answers.	PE: 345–353, 354–361, 437–439  TWE: T345–T353, T354–T361, T437–T439
7.3.3 Use correct algebraic terminology, such as variable, equation, term, coefficient, inequality, expression, and constant.	PE: 4–31, 32–35, 57, 232–233, 367–368  TWE: T4–T31, T32–T35, T57, T232–T233, T367–T368
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.	PE: 4–9, 10–21, 22–31, 52–53, 54–63, 64–67, 68–75, 155  TWE: T4–T9, T10–T21, T22–T31, T52–T53, T54–T63, T64–T67, T68–T75, T155
7.3.5 Solve an equation or formula with two variables for a particular variable.	PE: 29  TWE: T29  <i>Hot Words Hot Topics: 289, 291</i>

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
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.	PE: 323–328, 303-309, 313-319 TWE: T321, T323–T328, T303-T309, T313-T319
7.3.7 Find the slope of a line from its graph.	PE: 324–325, 327, 328–329, 330, 331–333, 334, 336–338, 340 TWE: T324–T325, T327, T328–T329, T330, T331–T333, T334, T336–T338, T340
7.3.8 Draw the graph of a line given the slope and one point on the line, or two points on the line.	PE: 325, 348–350, 352, 353, 355, 356, 359 TWE: T325, T348–T350, T352, T353, T355, T356, T359
7.3.9 Identify functions as linear or nonlinear and examine their characteristics in tables, graphs, and equations.	PE: 351–353, 355, 356, 358, 359, 437–439 TWE: T351–T353, T355, T356, T358, T359, T437–T439
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.	PE: 303–308, 309–311, 316–317 TWE: T303–T308, T309–T311, T316–T317
<b>Geometry</b>	
Students deepen their understanding of plane and solid geometric shapes by constructing shapes that meet given conditions and by identifying attributes of shapes.	
7.4.1 Understand coordinate graphs and use them to plot simple shapes, find lengths and areas related to the shapes and find their images under translations (slides), rotations (turns), and reflections (flips).	PE: 254-258, 259–266, 268-278 TWE: T254-T258, T259–T266, T268-T278

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
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.	<i>Hot Words Hot Topics:</i> 344-348
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.	PE: 269–272, 273–275, 276–277 TWE: T269–T272, T273–T275, T276–T277
7.4.4 Construct two-dimensional patterns (nets) for three-dimensional objects, such as right prisms, pyramids, cylinders, and cones.	PE: 129–135, 136–138 TWE: T129–T135, T136–T138
<b>Measurement</b>	
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.	
7.5.1 Compare lengths, areas, volumes, weights, capacities, times, and temperatures within measurement systems.	PE: 98–99, 103–104, 109–116, 117–119, 120–121, 122–126, 132–135, 138–139, 142–143 TWE: T98–T99, T103–T104, T109–T116, T117–T119, T120–T121, T122–T126, T132–T135, T138–T139, T142–T143
7.5.2 Use experimentation and modeling to visualize similarity problems. Solve problems using similarity.	PE: 451–463, 464–466, 471–477, 548–553 TWE: T451–T463, T464–T466, T471–T477, T548–T553

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7.5.3 Read and create drawings made to scale, construct scale models, and solve problems related to scale.	PE: 482–484, 485–488, 489–491, 492–495, 497–505, 506–511, 515, 517  TWE: T482–T484, T485–T488, T489–T491, T492–T495, T497–T505, T506–T511, T515, T517
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.	PE: 485–488, 489, 492–495, 500–505, 506–512  TWE: T485–T488, T489, T492–T495, T500–T505, T506–T512
7.5.5 Estimate and compute the area of more complex or irregular two-dimensional shapes by dividing them into more basic shapes.	PE: 490–491, 495  TWE: T490–T491, T495  <i>Hot Words Hot Topics: 356, 361</i>
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.	PE: 98–99, 100–107, 110–121, 122–125, 132–135, 138–139, 142–143  TWE: T98–T99, T100–T107, T110–T121, T122–T125, T132–T135, T138–T139, T142–T143
<b>Problem Solving</b>	
Students make decisions about how to approach problems and communicate their ideas.	
7.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.	PE: 18–31, 59–63, 64–75, 543, 548, 645–651  TWE: T18–T31, T59–T63, T64–T75, T543, T548, T645–T651
7.7.2 Make and justify mathematical conjectures based on a general description of a mathematical question or problem.	PE: 9–12, 119, 121, 170, 307, 345–347  TWE: T9–T12, T119, T121, T170, T307, T345–T347

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7.7.3 Decide when and how to divide a problem into simpler parts.	PE: 10–11, 19–21, 26–27, 166–167, 273 TWE: T10–T11, T19–T21, T26–T27, T166–T167, T273
Students use strategies, skills, and concepts in finding and communicating solutions to problems.	
7.7.4 Apply strategies and results from simpler problems to more complex problems.	PE: 17, 79–83, 231, 322–325, 420–421 TWE: T17, T79–T83, T231, T322–T325, T420–T421
7.7.5 Make and test conjectures by using inductive reasoning.	PE: 34–36, 55, 191–195, 249, 327 TWE: T34–T36, T55, T191–T195, T249, T327
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.	PE: 37–41, 225–230, 249, 308, 402–403, 404–408, 410–414 TWE: T37–T41, T225–T230, T249, T308, T402–T403, T404–T408, T410–T414
7.7.7 Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.	<i>Hot Words Hot Topics:</i> 174–175, 177, 183, 370, 373, 374, 376, 377, 385, 394
7.7.8 Select and apply appropriate methods for estimating results of rational-number computations.	<i>Hot Words Hot Topics:</i> 132, 134, 137, 140, 141, 149, 151
7.7.9 Use graphing to estimate solutions and check the estimates with analytic approaches.	PE: 255–263, 304, 328–329, 629–631 TWE: T255–T263, T304, T328–T329, T629–T631
7.7.10 Make precise calculations and check the validity of the results in the context of the problem.	PE: 268, 312, 313, 635–643 TWE: T268, T312, T313, T635–T643

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Students determine when a solution is complete and reasonable and move beyond a particular problem by generalizing to other situations.	
7.7.11 Decide whether a solution is reasonable in the context of the original situation.	PE: 6–9, 17–18, 225–233, 301–305 TWE: T6–T9, T17–T18, T225–T233, T301–T305
7.7.12 Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.	PE: 38–41, 54–63, 244, 322–325 TWE: T38–T41, T54–T63, T244, T322–T325

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