

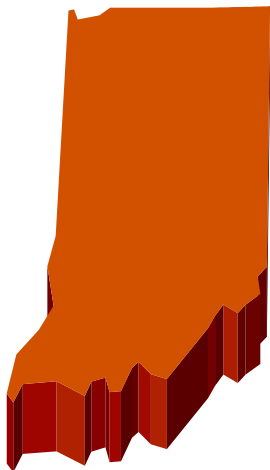
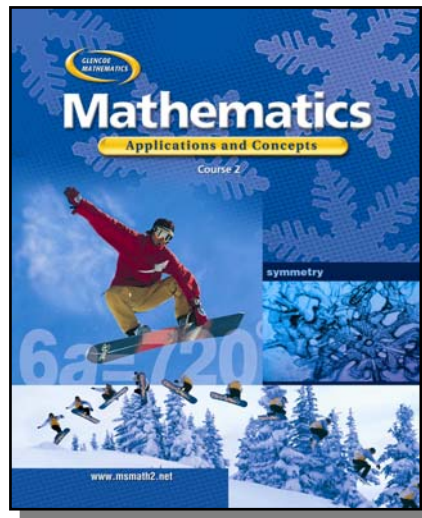
# Glencoe/McGraw-Hill

**Mathematics: Applications and Concepts,**

**Course 2 ©2004**

**ISBN# 0-07-860104-5**

**INDIANA EDITION**



**alignment to**

**Indiana  
Academic Mathematics Standards  
Grade 7**

**GLENCOE/MCGRAW-HILL  
MATHEMATICS: APPLICATIONS AND CONCEPTS, COURSE 2 ©2004**

**ALIGNMENT TO**

**INDIANA ACADEMIC MATHEMATICS STANDARDS  
GRADE 7**

| OBJECTIVES  | PAGE REFERENCES   |
|---|---|
| <b>Standard 1</b><br><b>Number Sense</b><br><i>Students understand and use scientific notation and square roots. They convert between fractions and decimals.</i> |   |
| Read, write, compare and solve problems using whole numbers in scientific notation.   | SE: 43–44, 48<br>TWE: 43–44, 48   |
| Compare and order rational and common irrational numbers and place them on a number line.   | SE: 106–107, 109–110, 227–228, 476<br>TWE: 106–107, 109–110, 227–228, 476 |
| Identify rational and common irrational numbers from a list.  | SE: 228–229, 475–476<br>TWE: 228–229, 475–476                             |
| Understand and compute whole number powers of whole numbers.  | SE: 10, 11, 15, 19<br>TWE: 10, 11, 15, 19                                 |
| Find the prime factorization of whole numbers and write the results using exponents.  | SE: 198, 204, 207–208, 225<br>TWE: 198, 204, 207–208, 225                 |
| Understand and apply the concept of square root.  | SE: 471, 475–476, 504<br>TWE: 471, 475–476, 504                           |
| Convert terminating decimals into reduced fractions.  | SE: 211, 233<br>TWE: 211, 233   |

**GLENCOE/MCGRAW-HILL  
MATHEMATICS: APPLICATIONS AND CONCEPTS, COURSE 2 ©2004**

**ALIGNMENT TO**

**INDIANA ACADEMIC MATHEMATICS STANDARDS  
GRADE 7**

| OBJECTIVES   | PAGE REFERENCES   |
|--|---|
| <b>Standard 2</b><br><b>Computation</b><br><i>Students solve problems involving integers, fractions, decimals, ratios, and percentages.</i>  |   |
| Solve addition, subtraction, multiplication, and division problems that use integers, fractions, decimals, and combinations of the four operations.                                    | SE: 120–122, 128–129, 134–135, 130–139, 156, 244, 248–249, 245–255, 259, 264–265, 559–562<br><br>TWE: 120–122, 128–129, 134–135, 130–139, 156, 244, 248–249, 245–255, 259, 264–265, 559–562 |
| Calculate the percentage increase and decrease of a quantity.  | SE: 350–351, 363<br><br>TWE: 350–351, 363   |
| Solve problems that involve discounts, markups, and commissions.   | SE: 320, 342, 355, 357, 364<br><br>TWE: 320, 342, 355, 357, 364   |
| Use estimation to decide whether answers are reasonable in problems involving fractions and decimals.  | SE: 240–242, 245, 248–249, 255, 265, 271, 558<br><br>TWE: 240–242, 245, 248–249, 255, 265, 271, 558   |
| Use mental arithmetic to compute with simple fractions, decimals, and powers.  | SE: 25, 198, 211, 255, 320<br><br>TWE: 25, 198, 211, 255, 320   |
| <b>Standard 3</b><br><b>Algebra and Functions</b><br><i>Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs.</i> |   |
| Use variables and appropriate operations to write an expression, a formula, an equation, or an inequality that represents a verbal description.  | SE: 24, 25, 154, 156, 160–161, 173<br><br>TWE: 24, 25, 154, 156, 160–161, 173   |
| Write and solve two-step linear equations and inequalities in one variable and check the answers.  | SE: 166–167, 173, 187<br><br>TWE: 166–167, 173, 187   |

**GLENCOE/MCGRAW-HILL  
MATHEMATICS: APPLICATIONS AND CONCEPTS, COURSE 2 ©2004**

**ALIGNMENT TO**

**INDIANA ACADEMIC MATHEMATICS STANDARDS  
GRADE 7**

| <b>OBJECTIVES</b>   | <b>PAGE REFERENCES</b>  |
|---|---|
| Use correct algebraic terminology such as variable, equation, term, coefficient, inequality, expression, and constant.  | SE: 18, 25, 26, 30, 150–151, 172<br>TWE: 18, 25, 26, 30, 150–151, 172   |
| 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: 24, 25, 30–31, 154–155, 156–158, 160–161, 166–167, 259<br>TWE: 24, 25, 30–31, 154–155, 156–158, 160–161, 166–167, 259 |
| Solve an equation or formula with two variables for a particular variable.  | SE: 261<br>TWE: 261   |
| Define slope as vertical change per unit of horizontal change and recognize that a straight line has constant slope or rate of change.  | SE: 182–183, 188, 274, 296<br>TWE: 182–183, 188, 274, 296   |
| Find the slope of a line from its graph.  | SE: 182-183, 188<br>TWE: 182-183, 188   |
| Draw the graph of a line given the slope and one point on the line, or two points on the line.  | SE: 178, 179, 188<br>TWE: 178, 179, 188   |
| Identify functions as linear or nonlinear and examine their characteristics in tables, graphs, and equations.   | SE: 178, 181, 185, 188<br>TWE: 178, 181, 185, 188   |
| Identify and describe situations with constant or varying rates of change and know that a constant rate of change describes a linear function.  | SE: 185, 296<br>TWE: 185, 296   |
| <b>Standard 4</b>   |   |
| <b>Geometry</b>   |   |
| <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>   |   |
| 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).  | SE: 451–452, 455, 457, 460, 461, 483, 484<br>TWE: 451–452, 455, 457, 460, 461, 483, 484                                   |

**GLENCOE/MCGRAW-HILL  
MATHEMATICS: APPLICATIONS AND CONCEPTS, COURSE 2 ©2004**

**ALIGNMENT TO**

**INDIANA ACADEMIC MATHEMATICS STANDARDS  
GRADE 7**

| <b>OBJECTIVES</b>  | <b>PAGE REFERENCES</b>  |
|--|---|
| 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: 451-452, 457, 460-461, 488<br>TWE: 451-452, 457, 460-461, 488   |
| 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: 478, 479-480, 505<br>TWE: 478, 479-480, 505   |
| Construct two-dimensional patterns (nets) for three-dimensional objects, such as right prisms, pyramids, cylinders, and cones.   | SE: 518, 520, 530-531, 532-533, 538<br>TWE: 518, 520, 530-531, 532-533, 538   |
| <b>Standard 5</b><br><b>Measurement</b><br><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> |   |
| Compare lengths, areas, volumes, weights, capacities, times, and temperatures within measurement systems.  | SE: 38-39, 267-268, 270-271<br>TWE: 38-39, 267-268, 270-271   |
| Use experimentation and modeling to visualize similarity problems (with spreadsheets and drawing programs using scaling and aspect ratios). Solve problems using similarity.   | SE: 304-306, 309, 440-441, 464, 523<br>TWE: 304-306, 309, 440-441, 464, 523   |
| Read and create drawings made to scale, construct scale models, and solve problems related to scale.   | SE: 304-306, 309, 523<br>TWE: 304-306, 309, 523   |
| 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: 270-271, 483-484, 489-490, 493-494, 498-499, 530-531, 532-533, 538-539<br>TWE: 270-271, 483-484, 489-490, 493-494, 498-499, 530-531, 532-533, 538-539 |
| Estimate and compute the area of more complex or irregular two-dimensional shapes by dividing them into more basic shapes.   | SE: 489, 490, 496, 498, 530-531<br>TWE: 489, 490, 496, 498, 530-531   |

**GLENCOE/MCGRAW-HILL  
MATHEMATICS: APPLICATIONS AND CONCEPTS, COURSE 2 ©2004**

**ALIGNMENT TO**

**INDIANA ACADEMIC MATHEMATICS STANDARDS  
GRADE 7**

| <b>OBJECTIVES</b>   | <b>PAGE REFERENCES</b>  |
|---|---|
| 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: 518, 520-521, 523, 530, 533, 536<br>TWE: 518, 520-521, 523, 530, 533, 536   |
| <b>Standard 6</b><br><b>Data Analysis and Probability</b><br><i>Students collect, organize, and represent data sets and identify relationships among variables within a data set by hand and through the use of an electronic spreadsheet software program. They determine probabilities and use them to make predictions about events.</i> |   |
| Analyze, interpret, and display data in appropriate bar, line, and circle graphs and stem-and-leaf plots, and justify the choice of display.  | SE: 58, 60-61, 64-65, 76-77, 85-87, 90-91, 92-93, 418-419<br>TWE: 58, 60-61, 64-65, 76-77, 85-87, 90-91, 92-93, 418-419 |
| Make predictions from statistical data.   | SE: 58, 60-61, 176, 345-346<br>TWE: 58, 60-61, 176, 345-346   |
| Describe how additional data, particularly outliers, added to a data set may affect the mean, median, and mode.   | SE: 69-71, 93<br>TWE: 69-71, 93   |
| Analyze data displays, including ways that they can be misleading. Analyze ways in which the wording of questions can influence survey results.   | SE: 73, 92-93, 97-98, 344, 345<br>TWE: 73, 92-93, 97-98, 344, 345   |
| Know that if $P$ is the probability of an event occurring, then $1 - P$ is the probability of that event not occurring.   | SE: 370-371<br>TWE: 370-371   |
| Understand that the probability of either one or the other of two disjoint events occurring is the sum of the two individual probabilities.   | SE: 401<br>TWE: 401   |
| Find the number of possible arrangements of several objects using a tree diagram.   | SE: 201, 374-375, 403<br>TWE: 201, 374-375, 403   |

**GLENCOE/MCGRAW-HILL  
MATHEMATICS: APPLICATIONS AND CONCEPTS, COURSE 2 ©2004**

**ALIGNMENT TO**

**INDIANA ACADEMIC MATHEMATICS STANDARDS  
GRADE 7**

| <b>OBJECTIVES</b>  | <b>PAGE REFERENCES</b>  |
|--|---|
| <b>Standard 7</b>  |   |
| <b>Problem Solving</b>   |   |
| <i>Students make decisions about how to approach problems and communicate their ideas.</i>   |   |
| Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns. | SE: 22, 58, 132, 201, 252, 302, 338, 391, 444, 496<br>TWE: 22, 58, 132, 201, 252, 302, 338, 391, 444, 496       |
| Make and justify mathematical conjectures based on a general description of a mathematical question or problem.  | SE: 22, 34, 37, 60, 132, 338, 391, 444<br>TWE: 22, 34, 37, 60, 132, 338, 391, 444                               |
| Decide when and how to divide a problem into simpler parts.  | SE: 6-8, 201, 302, 496–497, 518<br>TWE: 6-8, 201, 302, 496–497, 518   |
| <i>Students use strategies, skills, and concepts in finding and communicating solutions to problems.</i>   |   |
| Apply strategies and results from simpler problems to more complex problems.   | SE: 58, 132, 302, 496, 518<br>TWE: 58, 132, 302, 496, 518   |
| Make and test conjectures by using inductive reasoning.  | SE: 38, 132, 391, 444–445<br>TWE: 38, 132, 391, 444–445   |
| Express the solution clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work.                         | SE: 22, 25, 38, 132, 201, 249, 302, 391, 496, 518<br>TWE: 22, 25, 38, 132, 201, 249, 302, 391, 496, 518         |
| Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.   | SE: 252, 338, 496, 518, 542-543<br>TWE: 252, 338, 496, 518, 542-543   |
| Select and apply appropriate methods for estimating results of rational-number computations.   | SE: 41, 240–241, 242, 252, 302, 334–335, 475–476, 558<br>TWE: 41, 240–241, 242, 252, 302, 334–335, 475–476, 558 |

**GLENCOE/MCGRAW-HILL  
MATHEMATICS: APPLICATIONS AND CONCEPTS, COURSE 2 ©2004**

**ALIGNMENT TO**

**INDIANA ACADEMIC MATHEMATICS STANDARDS  
GRADE 7**

| <b>OBJECTIVES</b>  | <b>PAGE REFERENCES</b>  |
|--|---|
| Use graphing to estimate solutions and check the estimates with analytic approaches.   | SE: 58, 60–61, 178-179<br>TWE: 58, 60–61, 178-179                             |
| Make precise calculations and check the validity of the results in the context of the problem.   | SE: 6-8, 496, 523<br>TWE: 6-8, 496, 523                                       |
| <i>Students determine when a solution is complete and reasonable and move beyond a particular problem by generalizing to other situations.</i> |   |
| Decide whether a solution is reasonable in the context of the original situation.  | SE: 6-8, 338–339, 496<br>TWE: 6-8, 338–339, 496                               |
| Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.                         | SE: 58–59, 132–133, 302–303, 496–497<br>TWE: 58–59, 132–133, 302–303, 496–497 |

GLENCOE/McGraw-Hill  
South Central Region  
6510 Jimmy Carter Boulevard  
Norcross, GA 30071  
770/613-0281  
800/731-2365